

UNIVERSIDADE DE LISBOA
FACULDADE DE LETRAS



MARE NOSTRUM – MILITARY HISTORY AND NAVAL POWER IN ROME
(2nd century BCE – 1st Century CE)

DANIELA MARIA DANTAS GOMES

Orientadores: Prof. Doutor Amílcar Manuel Ribeiro Guerra
Prof. Doutor José Manuel Henriques Varandas

Tese especialmente elaborada para obtenção do grau de Doutor no ramo de História, na especialidade de
História Antiga

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Este projeto de investigação teve o apoio da Universidade de Lisboa e da Faculdade de Letras

*«Quidam eximia magnitudinem et forma in proximo sedens repente apparuit harundine canens
ad quem audiendum cum praeter pastores plurimi etiam ex stationibus milites concurrissent
interque eos et aenatores rapta ab uno tuba prosiliuit ad flumen et ingenti spiritu classicum
exorsus pertendit ad alteram ripam tunc Caesar
Eatur inquit quo deorum ostenta et inimicorum iniquas uocat iacta alea est inquit».*
(Suet. Iul. 32)

To my parents

RESUMO / ABSTRACT

Resumo: A investigação da componente marítima e do poder naval no mundo romano têm sido por vezes secundarizados, por oposição à influência da questão terrestre. Esta secundarização faz-se sentir com maior incidência em determinados momentos cronológicos. Apesar de existir um número considerável de estudos que se dedicam às marinhas do período imperial, estes diminuem significativamente quando se pretende observar o período republicano, e a análise da construção do espaço de influência romano, ainda que inclua referências à questão da relação de Roma com o mar, não a coloca com frequência como ponto central de observação. Assim, trabalhos que observem Roma com o mar como ponto central de observação, e estudos que se dediquem à construção do poder naval romano, sobretudo quando observado para cronologias mais recuadas, são ainda escassos, e a área da investigação que pretende observar os primeiros momentos de Roma no mar, bem como os períodos de transição subsequentes, exige ainda maior investimento no estudo do passado. Tendo observado essa lacuna, e no seguimento de investigações anteriores que se dedicaram aos primeiros esforços navais de Roma no século III a. C. (nomeadamente, na Primeira Guerra Púnica, que opõe Roma a Cartago), surge este estudo, que pretende observar a transformação e concretização de Roma enquanto poder marítimo ao longo do século I a. C., salientando-o de um ponto de vista concreto, nomeadamente o da História Militar (como sugere o próprio título, «História Militar e Poder Naval em Roma»).

Esta dissertação pretende assim observar o modo como a República Romana cresce e se organiza enquanto potência marítima após as Guerras Púnicas, analisando-a enquanto talassocracia, na sequência da evolução do pensamento naval estratégico enquanto linha condutora das cidades-estado do Mediterrâneo. Para proceder a esta observação, são focados quatro pontos-chave: comando, embarcações, portos e conceitos. O capítulo inicial e o capítulo final, tendo em conta a sua natureza, terão maior foco na análise da fonte histórica, por oposição aos capítulos intermediários, onde a investigação passa, sobretudo, por uma observação de ordem arqueológica e iconográfica. No entanto, o objectivo é, acima de tudo, uma posição integrada: apesar de cada elemento da dissertação ter uma componente que prevalece, derivada das necessidades de investigação para o plano de trabalho proposto, pretende-se uma interligação, sempre que possível, de todos os recursos ao alcance do investigador, confrontando-os e daí retirando observações.

A evolução do poder naval de Roma não será somente observada do ponto de vista do seu investimento no Mediterrâneo, mas também da sua intervenção em espaços marítimos que o extravasam, nomeadamente ao longo da costa Atlântica (sobretudo durante campanhas de Gaio Júlio César), mas também em ambientes fluviais, numa tentativa de estabelecer alguns pontos sobre o modo como Roma tira partido dos rios enquanto meios de circulação. Tal é válido não só por via de embarcações, mas também da construção ou destruição de pontes, meios esses que são protegidos e fortificados. Sendo que o século I a. C. coloca os comandantes romanos em contacto com situações diversificadas, em ambientes que são pouco usuais na História de Roma até então, esta investigação pretende apresentar um contributo no sentido de compreender como Roma reage na presença destas circunstâncias, e como é que esta reação se vai traduzir, em termos práticos, nas opções tomadas pelos seus generais e almirantes, quer em termos de combates navais propriamente ditos, quer em termos de utilização do meio aquático como forma de potenciar a deslocação logística de soldados e mantimentos. Neste seguimento, este estudo observa a questão por dois prismas diferentes: por um lado, os conflitos de Roma com adversários externos, como é o caso das Guerras Mitridáticas, das Guerras Gálicas e das duas travessias que Júlio César faz à Grã-Bretanha; por outro, os conflitos internos dentro de Roma, observando a componente naval ao longo das Guerras Civis que irão ocupar a quase-totalidade do primeiro século a. C.: a rivalidade entre Lúcio Cornélio Sula e Gaio Mário, a guerra entre Júlio César e Pompeio, a influência da questão naval nos ataques às regiões costeiras da Península Itálica durante os anos em que Sexto Pompeio domina a ilha da Sicília, e os conflitos do final da República, entre Marco António e Octaviano, que irão terminar em Áccio. Ao longo de toda esta cronologia surgirão frequentes alusões à questão da pirataria, com particular destaque para a questão de Pompeio, o poder que recebe no âmbito do domínio naval, e a forma como desenvolve o combate às amplamente difundidas comunidades de piratas da Cilícia.

Observar a convivência de Roma com o mar na sua totalidade, ainda que de um ponto de vista maioritariamente militar, resultaria numa análise excessivamente extensa, o que levou à delimitação de períodos cronológicos que, neste caso, são momentos de transição e, por isso, permitem uma observação de diferentes momentos nesta relação. Em termos cronológicos, será observado o desenvolvimento do investimento no domínio naval por parte de Roma desde as reformas no exército feitas por Gaio Mário, no ano de 107 a. C., até ao ano em que morre Octaviano, 14 d. C., situando assim o principal foco temporal

da investigação no século I antes da nossa Era. Tal não significa, no entanto, que não sejam incluídos elementos de períodos anteriores ou posteriores sempre que a ocasião assim o justifique, sobretudo em casos onde existe continuidade: no que respeita a tipologias de embarcações, e tendo em conta a atual escassez de vestígios arqueológicos, aliada à sua dificuldade de preservação, serão incluídos elementos exteriores ao século I a. C., sendo que, em muitas ocasiões, navios de séculos posteriores são o mais próximo que existe em termos arqueológicos daqueles que poderiam ter sido utilizados nas décadas finais da República Romana. As embarcações são observadas no Mediterrâneo, no Atlântico e nos espaços fluviais; e se o ponto de vista proposto se foca na questão da História Militar, tal não significa que não surjam embarcações de transporte, visto que muitas vezes irão ser utilizadas em contextos de guerra; existe também uma breve abordagem à questão da comunicação em meio naval. A mesma abordagem cronológica será verificada na questão dos Portos: neste ponto, pretende-se observar a questão em abrangência, desde os primeiros portos Romanos junto ao rio Tibre até à fundação de *coloniae maritimae*, bem como a incorporação de portos que, não sendo romanos de origem, são incorporados na esfera de influência romana; consta também uma abordagem particular à questão dos faróis. Estes dois capítulos, de maior incidência na questão material, incluem a observação de elementos arqueológicos, iconográficos e numismáticos, não desvalorizando a importância da fonte escrita, cujo contributo também é apresentado.

O capítulo final, relativo aos conceitos, é de certo modo uma reflexão que resulta da investigação apresentada nos três capítulos anteriores, juntamente com a interpretação de duas questões-chave: a ideia de *Mare Nostrum* e a de Talassocracia. Os contextos percorridos no que diz respeito a comandantes, embarcações e portos permitem contribuir para a interpretação da relação de Roma com o mar, quer de um ponto de vista concreto, quer de um ponto de vista mais simbólico e ideológico. Neste ponto da investigação, iniciar-se-á com uma análise sob o conceito de «Nosso Mar» noutras civilizações, sobretudo no mundo grego, e depois no mundo romano, observando como fontes gregas e latinas irão apresentá-lo, nas suas uniões e subdivisões; o mesmo será realizado no que diz respeito à questão das «Talassocracias». Como referido, o tema central desta investigação é a observação de Roma do ponto de vista do poder marítimo e, como tal, procurar compreender se Roma pode ser considerada enquanto Talassocracia.

Uma larga componente deste estudo é a criação de questionário. Tendo em conta que as análises da Marinha Romana do período republicano são ainda pouco abundantes, observando a escassa (mas crescente) disponibilidade de contributos arqueológicos, iconográficos e epigráficos, o avanço da observação desta problemática passa também pela apresentação de perguntas. Pretende-se aqui fornecer um elemento de conectividade entre os vários componentes que nos permitem o estudo do passado, elaborando um estudo concertado, através de um fio condutor, de uma problemática mais vasta, e aliando a diversidade de recursos possível. Este trabalho segue, assim, uma opção metodológica que se foca, acima de tudo, na interdisciplinaridade. Através do questionário à fonte histórica, da análise de fontes da iconografia e da numismática, da interpretação dos dados arqueológicos e, acima de tudo, da ligação, sempre que assim seja possível, entre os dados fornecidos pelas várias áreas, espera-se, ainda mais do que responder às questões colocadas, apresentar um contributo para investigações futuras.

Palavras-Chave: Marinha romana; Talassocracia; Embarcações

Abstract: This dissertation intends to observe how the Roman Republic organises itself as a maritime power following the Punic Wars, analysing it as a thalassocracy in sequence of the evolution of a strategic naval thought as a conductive line of the Mediterranean city-states. We will observe the evolution of the naval investment from the reformations of Gaius Marius in 107 BCE until the death of Gaius Julius Caesar Octavianus in 14 CE. An observation of the naval command processes is intended, as well as a study of the evolution, construction and typology of vessels and respective functions, analysing the armada and the commercial vessels both in maritime and river contexts. The analysis of the supporting infrastructural network to the navy, namely harbours and shipsheds, will also be included. These problematics will be observed through an interdisciplinary perspective, creating a thorough study of these keywords that allows for the observation of the construction of the Roman influence area from the maritime and river space.

Keywords: Roman navy; Thalassocracy; Ships

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ABBREVIATIONS

App. *B Civ.* – Appian, *Bella Civilia*

App. *Mith.* – Appian, Μιθριδάτειος

Arist. *Hist. an.* – Aristotle, *Historia animalium*.

BAlex. – *Bellum Alexandrinum*

BHisp. – *Bellum hispaniense*

Caes. *BAfr.* – Caesar, *Bellum Africum*

Caes. *BCiv.* – Caesar, *Bellum Civile*

Caes. *BGall.* – Caesar, *Bellum Gallicum*

Cic. *Att.* – Cicero, *Epistulae ad Atticum*

Cic. *Leg. Man.* – Cicero, *Pro lege Manilia* or *De imperio Cn. Pompeii*

Cic. *Fam.* – Cicero, *Epistulae ad familiares*

Dio Cass. – Dio Cassius

Diod. Sic. – Diodorus Siculus

Dion. Hal. *Ant. Rom* – Dionysius Halicarnassensis, *Antiquitates Romanae*

Div. Aug. – *Res Gestae Divi Augustus*

Eur. *Hel.* – Euripides, *Helena*

Eutr. – Eutropius

Flor. – L. Annaeus Florus

Gran. Lic. – Granius Licinianus

Hdt. – Herodotus

Just. *Epit.* – Justinus, *Epitome* (of Trogus)

Liv. – Livy

Livy, *Per.* – Livy, *Periochae*

Luc. – Lucan

Oros. – Orosius

Paus. – Pausanias

Plin. *HN.* – Pliny (the Elder), *Naturalis historia*

Plut. *Vit. Ant.* – Plutarch, *Vitae Parallelae, Antonius*

Plut. *Vit. Brut.* – Plutarch, *Vitae Parallelae, Brutus*

Plut. *Vit. Crass.* – Plutarch, *Vitae Parallelae, Crassus*

Plut. *Vit. Luc.* – Plutarch, *Vitae Parallelae, Lucullus*

Plut. *Vit. Mar.* – Plutarch, *Vitae Parallelae, Marius*

Plut. *Vit. Pomp.* – Plutarch, *Vitae Parallelae, Pompeius*

Plut. *Vit. Sert.* – Plutarch, *Vitae Parallelae, Sertorius*

Plut. *Vit. Sull.* – Plutarch, *Vitae Parallelae, Sulla*

Polyaenus, *Strat.* – Polyaeus, *Strategemata*

Polyb. – Polybius

Ps. *Xen. Const. Ath.* – Pseudo-Xenophon, *Constitution of the Athenians*

Sall. *Iug.* – Sallust, *Bellum Iugurthinum*

Sen. *Ep.* – Seneca the Younger, *Epistulae Morales ad Lucilium*

Strab. – Strabo

Suet. *Aug.* – Suetonius, *Divus Augustus*

Suet. *Iul.* – Suetonius, *Divus Iulius*

Tac. *Ann.* – Tacitus, *Annales*

Tac. *Hist.* – Tacitus, *Historiae*

Veg. *Mil.* – Vegetius, *De re militari*

Verg. *Aen.* – Vergilius, *Aeneid.*

Vitr. *De Arch.* – Vitruvius, *De architectura*

Xen. *Hell.* – Xenophon, *Hellenica*

INTRODUCTION

«L’histoire néglige presque toutes ces particularités, et ne peut faire autrement ; l’infini l’envahirait. Pourtant ces détails, qu’on appelle à tort petits – il n’y a ni petits faits dans l’humanité, ni petites feuilles dans la végétation – sont utiles. C’est de la physionomie des années que se compose la figure des siècles.»

«Nul n’est bon historien de la vie patente, visible éclatante et publique des peuples s’il n’est en même temps, dans une certaine mesure, historien de leur vie profonde et cachée ; et nul n’est bon historien du dedans s’il ne sait être, toutes les fois que besoin est, historien du dehors. L’histoire des mœurs et des idées pénètre l’histoire des événements, et réciproquement. Ce sont deux ordres de faits différents qui se répondent, qui s’enchaînent toujours et s’engendrent souvent. (...) La vraie histoire étant mêlée à tout, le véritable historiant se mêle de tout.»

Victor Hugo, *Les Misérables*

The discussion of what History means, of what Historical truth means, and of what makes a good Historian, is one which has lasted centuries and will probably last many centuries more. It is a question which is often in accordance with the currents of thought that dominate a certain time, the philosophies of each individual. There were periods in time where the great events were those to which History paid the most attention; there were others in which there was a growth of general History, compared History, the *longue durée*. Our work is not meant to discuss the Theory of History. In each theoretical approach to how one should face reading and writing on ancient chronologies, there will be points with which we agree and disagree; each author has a legacy from which historians incorporate what adjusts most to their current investigation. We chose to open with these two quotes by Victor Hugo, regardless of other positions on historiography, as it fits our own, as we will explain.

«*Mare Nostrum: Military History and Naval Power in Rome*» is the chosen title of this work. It is complemented by a set chronological barrier: 2nd century BCE to 1st century CE. Victor Hugo stated that to understand History, the historian must have a dual approach, complementary and interdisciplinary: to understand the past, as much as this understanding is possible, one must look at several fields. It is not possible to understand

public life without understanding the interior life of peoples; to understand the inner sphere of peoples, one must understand the exterior. To understand what is visible, we must try and understand subjects that are invisible; to understand the invisible, we must look at physical evidence. This is the approach we attempt to follow, one which combines visible and invisible, the more immediate aspects of what one can see and touch with the less obvious points that can be interpreted from the memory of peoples through the legacy of ancient sources. To reach the past one must look into all testimonies, archaeological, iconographic, epigraphic and written sources, which give different contributes, different insight, and allow researchers to adapt their studies and compare the information given by each or complement it when it is amiss. Historical sources cannot show us how an ancient ship truly was, as they lack the visual cue; archaeological sources cannot show us how ancient commanders worked in the several situations of naval life.

The conductive line of our study, visible in the title, is the construction of the *Mare Nostrum*. To observe something as vast and as impactful as this notion, which has crossed the centuries, there are many different approaches available. In this case, the approach will be made through «military history and naval power», two of many possible key-points to allow the understanding of a wider problematic. To understand the *Mare Nostrum*, we will look at «military history and naval power», whereas to observe «military history and naval power», we will go through the idea of *Mare Nostrum*. In the course of this dissertation, this point may be more or less obvious depending on the many underlying problematics within each topic, but it is the ever-present line which will guide the flow of the work. As with all other works, however, which are limited by time and resources, there will be epistemological decisions that one has to make, as it is not possible to study all within a subject in a single attempt. Therefore, this introduction suits the purpose of explaining the general directions of the study and fit them within the theme and the chronologic approach.

Beginning with the latter, it is important to explain and justify the choice of the specific timeframe we present. If one wishes to study military history and naval power in Rome, there are many periods in which it can be observed. First and foremost, this period was chosen because the intention was to study the construction of the *Mare Nostrum*, rather than reach the chronology in which it is already made. It is not our purpose to observe imperial navies. These have been object of several studies, whether particular works

about the fleets themselves or included in the wider context of the army, and one could mention, for instance, the work of Le Bohec, *L'Armée Romaine, sous le Haut-Empire* (1989), which includes a section on the imperial navy; the several chapters included by Pitassi in *The Navies of Rome* (2010), which has a vast timespan but does not disregard the imperial period, and *The Roman Navy: Ships, Men & Warfare 350 BC – AD 475*; Oorthuijs' chapter «Marines and Mariners in the Roman Imperial Fleets», seen in *The Impact of the Roman Army (200 BC – AD 476)*, published in 2007; and the two recent compilations by Raffaele d'Amato, *Imperial Roman Naval Forces 31 BC – AD 500* (2009) and *Imperial Roman Warships 27 BC – 193 AD* (2016). There is extensive bibliography on the Imperial Navy, the *classis* which crossed the Mediterranean and even the Atlantic after the collapse of the Republic.

The same cannot be said for the moment in which Rome's naval power is being constructed, however. One of the greatest issues of our work was precisely finding updated bibliography, which seems to contrast with the extension of the bibliographical references which we present at the end of the dissertation. The issue is that although we have found a vast number of undoubtedly helpful publications, there is a very limited amount which actually dedicates itself exclusively to the matters that we intend to observe. The exception, which was an essential element of this work, were the many studies regarding very specific ships and harbours, studies that reached us separately and that have the purpose to observe each individual situation in a detailed manner, and that we attempted to assemble together, at least in their major portions, in a way so as to provide an ample overview. However, we had to consider that most of them treat subjects of chronologies which, although close to our proposed frame, are often not exactly the one in cause.

Encircling our study between the 2nd century BCE and the 1st century CE encloses the first century before our era. Our timeline has a defined starting point and a finish line. We depart from the expeditions of Gaius Marius in Numidia, in the very end of the 2nd century BCE, considering the significant changes which occur within the structure of the Roman army, and finish in 14 CE, the year of death of Octavianus, although the main events that will define our proposed subject end long before 14 CE: we have source material for the first and even second-third centuries of our time, but the main event which concludes our progress is the Battle of Actium. This statement is not one to say that the Battle of Actium is the significant turning-point in the struggle for the

Mediterranean, nor that it defined the Mediterranean in itself. The idea of a defining battle, or rather, of a battle as definer of paradigm, often disregards the importance of the entirety of the processes of war which led into the ultimate culmination and outcome of a conflict. More than a defining point, Actium is the culmination of many defining points that came before. We propose to present the 1st century BCE, especially the period between the beginning of the First Mithridatic War and the Last Civil War, as the defining moment in the construction of Rome's sea power.

If the first century BCE is the focal point, one will observe, throughout this work, that there are significant segments of material belonging to periods which came before and after. Whereas the chapter dedicated to maritime conflicts has a strict time delimitation, this will not be as severe regarding ships and harbours. This option was motivated by several reasons. In what regards ships, there was a natural conditioning regarding the lack of archaeological material which can be specifically ascertained to the 1st century BCE. There is a portion of the introduced craft which belongs to subsequent periods and, to a lesser extent, to prior time frames. However, until new archaeological records are found, these vessels are the closest that investigation can be of 1st century BCE craft, both warships and transports. The possibility of some degree of continuity may be evaluated, to an extent, through historical sources, and the proposals of modern bibliography. A similar situation occurs in harbours: we observe several cases of river and sea ports which existed long before the 1st century BCE, but that had an active role during this century; on the contrary, some posterior cases are shown, in a correlation to how the changes of our proposed time-period influenced Rome's presence at sea. Thus, the proposed period of study ends up being central to transmit the idea of a moment of change, one which contrasts with Rome's past and influences its future.

Our observation of Roman sea power will follow an approach that greatly extends the Mediterranean. There are many possible theories regarding Rome's beginnings at sea, from the institution of the *duumviri navales* in 331 BCE to the First Punic War¹, but the observation of Rome in the Mediterranean, in its most immediate effects, begins in 264 BCE, when Rome crosses to Sicily to fight against Carthage. There is a long course between the 3rd century BCE and the 1st, many of which involve problematics at sea.

¹ See Ladewig's chapters on the subject. Our work, to a great extent, follows Ladewig's lines of investigation, which diverge from the previous counterparts, as will be explained throughout the course of the dissertation.

We will observe several conflicts with Illyria², Macedonia, Sparta; Rome faces the ancient Greek city-states all throughout the 2nd century BCE, establishing its presence in the Eastern banks of the Mediterranean. Later in the century, as it enters a period of transition, it suffers the Cimbrian and Jugurthine conflicts. Its last great maritime rival, however, is Mithridates of Pontus, and that is where our study will start, the beginning of the end of opposition to Rome's presence in the Mediterranean, and the transition from external to internal conflicts. Our intention is not to affirm that Rome was absent from the Mediterranean before the 1st century BCE, quite the contrary, but to expose this period as a defining moment in the shaping of the Roman *mare nostrum* and to present the *sui generis* characteristics of Rome and its connection to the sea, and to show its uniqueness in the general overview of ancient thalassocracies.

To reach this objective, we will divide our work in four sections. The first of them is entirely dedicated to Naval Command, beginning in Gaius Marius and ending in the last Civil Wars of the Roman Republic, namely in 31 BCE, with the Battle of Actium. Our subdivision for this chapter is chronological and, being chronological, it will follow the general flow of wars, to engage in the treatment of «military history» from a naval point of view. There will be a few key-figures of commanders whose names will appear more frequently, less due to a wish to underline their importance but more in sequence of the availability of information through historical sources. More importantly, we will observe the significance of the roles of people who would be second-in-command, especially the function of the consular legates. Our option will be to open this chapter with a case-study, showing the evolution of observation on Roman commanders based on fundamental bibliography, amongst which Lionel Casson's works, such as his *Illustrated History of Ships & Boats* from 1964, *Ships and Seamanship in the Ancient World* in 1971 and *The Ancient Mariners – Seafarers and Sea Fighters of the Ancient Mediterranean* in 1991, and J. S. Morrison's *Greek and Roman Oared Warships, 399-30 BC* (originally published in 1996). We will attempt to answer questions related to terminology, but, first and foremost, to proceed towards an effective observation of the actions of Roman commanders at war: how was authority distributed within the Roman fleet, what was the connection between commanders on land and sea, how did the commanders organise the logistics of the army and navy at war, and what was the

² See, for instance, Waterfield's work on the Roman conquest of Greece, its causes, dimensions and potential intentions.

influence of naval resources at war. The latter section will be preponderant, and our attention will be focused on specific combat behaviour rather than nomenclature, for which textual evidence is often scarce and not very clear regarding the Republican fleet.

The chapter regarding War and War Chiefs will be divided in two sections: «against foreign forces» and «internal conflicts». These represent the two defining moments of Rome's relation with sea power in the century and also the transition it seems to undergo. We begin by observing the wars that Rome wages against external threats. As there is scarce archaeological evidence to show how a fleet behaved in a situation of war, whether in dislocation or battle, we will have to rely greatly upon historical sources and bibliography, which we intend to observe in a way as to create questionnaire and new interpretation. There will be three key-points in relation to the confrontation with foreign forces. As mentioned above, the most significant transitional wars in this last stage of the assertion of Roman maritime control are the Mithridatic Wars, which will be observed in great detail, after a shorter approach to Gaius Marius' role at sea and in rivers. The second key-point is the study of Pompeius' campaigns against piracy, which in itself begins to show a different type of Roman intervention at sea; this will be followed by shorter insights on the Parthian Wars and, more importantly, the Gallic Wars, in which we will observe the importance of rivers and the fluvial corridors within the European continent.

One final note on this chapter, which may be extended to all the others, is the Roman specificity when compared to other maritime powers. Although we are observing conflicts in which Rome is a direct adversary, one must acknowledge that textual evidence shows that there is a frequent reliance on allies. Whenever it is deemed pertinent, ally participation and intervention on Rome's maritime affairs will be included for major conflicts, considering their particular relation to Rome and their importance in the construction of Rome's Mediterranean influence. It is relevant to note that the purpose of this dissertation is not to observe each allied fleet in their specificity, a topic that shall be left for other studies of these problematics. Rather, our position is to include them in our analysis whenever the context seems to justify it, within Rome's particular approach to war at sea.

The last important moment is the Atlantic campaigns, which we observe in detail due to their nature. Rome is perhaps the first Mediterranean civilisation to have significant intervention on Atlantic coastlines, and Julius Caesar is the figure which allows us to

observe that intervention to greater lengths. First throughout his campaigns in the Iberian Peninsula and then his crossings into Great Britain, we will observe how the Roman systems of command adapt to these different realities, the degrees of success (or lack thereof), and how commanders used to Mediterranean styles of naval battle will adapt to potential enemies across the Atlantic. This justifies the choice of «a change of tides» for the title of this particular moment in our chapter, given the entirely different nature of the Mediterranean and the Atlantic. As we follow a chronological approach throughout the wars, the last external conflict we mention is the Second Crossing of the Rhine, which brings us back to rivers and to the role of fluvial courses.

Our chronological division ends in the separation between external and internal wars. When we return to the matters of internal conflicts in the middle of the first chapter, we return to the beginning of the first century BCE. This is an option taken to facilitate reading and comprehension, and very easily could have been chosen to do otherwise; however, at this point and considering that investigation on the Republican navy is still in its early stages, it felt natural to separate the two spheres, as there seems to be a transition between an external focus to one which is mostly internal. We begin by observing the Social Wars, a moment connected to Rome's allies, which we will relate, to an extent, with external conflicts; however, as we advance in Roman History, the internal component of wars becomes clearer, as Rome's conflicts begin to occur within itself. The process involves a study of the Civil Wars, from Gnaeus Pompeius against Julius Caesar to the Second Triumvirate, culminating in the final civil war of the Roman Republic, between Marcus Antonius and Octavianus. Instead of observing them in the more traditional perspective of military power shift on land, we will attempt to look at the civil wars from their influence at sea, or the influence of the sea within the civil wars, raising questions regarding the matter of logistics, supply flow and control of important points across the Mediterranean basin. As much as there is information regarding the Civil Wars themselves, there is scarce information on their maritime component, and through the observation of the movements of the armies we will underline the Mediterranean's role in the last developments which lead into the ultimate collapse of the traditional structure of the Republic towards a new system of authority, including, amidst other matters, the question of the privatisation or centralisation of military power and how it extended to maritime intervention.

Our second chapter will focus exclusively on the problematic of ships. This begins, yet again, with a case study, which develops on the question of studying ancient ships in the 21st century, the resources which are within our reach and those which are not, the material we lack and the one we do have. This will be a chapter which naturally and heavily relies on material evidence, from archaeology to iconography and, whenever possible, epigraphy, especially inscriptions which have been considered of great importance by former bibliography. The strongest ground, although not at all the only, will be the one furnished by the Navis I database, created by archaeologists who dedicate themselves to the analysis of ancient shipwrecks. Our approach, rather than focusing on the generality of shipwrecks, will limit itself to those in which there are actual ship components, rather than observing cargo. As our intention is to provide insight on military history and naval power, this was a conscious option taken to follow the work's guidelines.

As chapter I was divided in two points to facilitate the building of the work's general flow, chapter II will follow the same method, plunging amidst «Atlantic Tides» and «Mediterranean Challenges». As war is a global phenomenon, despite this work's focus being military aspects, all types of ship will be included, from dugout fishing craft to larger-scale naval vessels, as the Roman army would likely have contacted with and taken advantage of the possibilities provided by these vessels. Our option for the bibliography in this chapter was in part conditioned by availability, in the other connected with our methodology. There are scarce recent works on shipwrecks, especially as many of the main sunken ships which have been found thus far are discoveries of the mid of the 20th century, many of which are now beginning to be re-observed through modern technologies, others which are undergoing works of preservation, and some which are neither preserved nor being re-observed. Therefore, much of the bibliography that does exist was written as these ships were found, three or four decades ago, often more. This does not mean it should not be regarded nor included, not only because it is the only bibliography that does exist, but also because it is often the work of archaeologists who were present upon the discovery and have first-hand insight on the craft. The main matters on which we will focus will be construction techniques, dimensions and materials; whenever possible, the method of propulsion and potential speed. Within the chapter dedicated to ships, we will present drawings, 3D

reconstructions and the well-known case of experimental archaeology, the *Olympias*, for vessels whose finding sites span from the North of Europe to Italy.

As a fleet was not only sustained by warships, and as the Roman army pays special attention to the matter of logistics, we will attribute equal importance to cargo vessels and warships. The latter, of which there are significantly fewer archaeological remains, will be studied nonetheless, and at this point the dual approach of our work will be of particular importance, as we will rely more heavily on historical sources to understand the nature of war craft. We follow an approach in which the events treated in Chapters I and II may coincide, but the way they are treated is different and the information extracted varies in accordance to the needs of each portion of our work. Equally important is the matter of iconography, and we have included the analysis of a number of mosaics and frescoes which contribute for a better understanding of ancient warships.

There will be a section which dedicates itself specifically to materials, of which we underline two as the core elements of an ancient ship: timber and metal. Whereas the timber section will analyse the types of trees used in the construction of these ships, their characteristics, resilience and endurance, the metal section will have a significant portion dedicated to the matter of rams, for which we have archaeological and historical evidence, as well as some inclusion of numismatics. Materials that easily deteriorate, such as sails and rope, will also be observed but to a lesser extent, given the current difficulty to interpret them in consequence of the lack of archaeological sources, as well as potential use of war engines on board of ancient warships, such as the *sambucas* and «towers». The chapter ends with remarks on communication aboard a fleet, a subject which is still scarcely worked, and which is of utmost importance for the functioning of an ancient fleet.

Chapter III is dedicated to harbours. Unlike what is visible for the questions of command and ships, we will not invest, to a great extent, upon the potential ports and anchorages throughout the Atlantic, rather making smaller mentions, for two reasons: firstly, the fact that in spite of the Atlantic Campaigns the Mediterranean is still the physical centre of the Roman empire, and secondly, the lesser investment of the Roman Republic upon Atlantic harbours during this period; whereas there is plenty to be said on Atlantic campaigns throughout the last years of the Republic, there seems to have been more significant architectural presence throughout the European rivers than the Atlantic harbours up to the late decades of the 1st BCE, although this is a subject which can be

open to further investigation in the future. Again, we open with a case-study, presenting what we call «archaeological and epistemological difficulties» that one may encounter when looking into ancient harbours. If this is the subject which has more visible physical evidence, it is also one of those that presents a larger number of doubts. They are numerous, but there is little left of ship sheds, shipyards and overall structures which may have been used to protect the ancient ships.

In this chapter, there will be a few core subjects. Firstly, the harbours of Rome, and the question of what a Roman harbour is when contrasted with one that has been incorporated into Rome's political influence. We will observe the fluvial ports which are born alongside the city and from that space we will develop towards the exterior, into Rome's connection with Ostia, Brundisium and Dyrrachium, the earliest connections towards the sea. Ostia, in particular, as one of the first Roman maritime foundations, will be observed with particular care, not only from an archaeological point of view but also through its presence across Roman history. This historical relation between harbours across the Mediterranean and Rome will ultimately result in a problematic which attaches itself to what was developed throughout chapter I, which is the distinction between Public and Private, the privatisation of authority and the meaning that a Roman harbour may have had in these two sides of Roman life and politics. This will bring us to one of the last subchapters on this matter, which is titled «harbours of the civil wars», an attempt at understanding the way these locations fit themselves within the internal power-struggle of the city of Rome.

The study of harbours is, perhaps, out of all four chapters of this dissertation, the one in which this dichotomy that we attempt to create between material and written sources is achieved in a fullest form. On the one hand, there is the observation of harbour construction, harbour structures and materials, of which we underline the *pozzolana*, as one of the most significant in the history of Mediterranean harbour architecture. On the other, the role of harbours in the growth of the Roman maritime empire and its construction as a thalassocracy. It is as if harbours are the last and most durable physical manifestation of Roman maritime expression, and this will be observed throughout the inclusion of long-standing locations which begin as fundamental points for other civilisations, such as the Piraeus and Alexandria, and the way in which Rome incorporates them – or not – as it reconfigures the Mediterranean; moreover, in the way

that Rome extends its own architecture, its own materials, to the new harbours which are built across the sea, as is the case of Caesarea.

The case of the Piraeus, for instance, is notorious: under the specific conditions that accompany Rome's conquest of the Mediterranean basin, it will not destroy, for instance, Alexandria, which endures the centuries and will last after the final Civil Wars; but the Piraeus is, allegedly, entirely destroyed, a factor which may have archaeological sustentation. This destruction and the factors that surround it are something which ought to be questioned, and there is still much doubt regarding the process itself. Important as well is the question of Sicily: as the first province of Rome and the first stage of Rome's maritime conquest, its role in the civil wars between Sextus Pompeius and the Second Triumvirate cannot be disregarded, and neither can that of its ports. Once again, we will attempt to gather old and new bibliography alike, especially specialised studies in particular harbours, to create a general overview which seems to be lacking, at this point, in current investigation. As we mentioned above, the portion of this chapter dedicated to the Atlantic will not be as significant as the ones found in Chapters I and II, for the reasons justified above; however, we will include a section regarding the importance of coastal anchorages during Caesar's Atlantic campaigns, as they have their own relevance in this context.

Returning to the matter of ship sheds and shipyards, we will once again provide information on the most elusive matter of ancient harbours, not only regarding sea-born sites but also observing some inland locations by the river banks and, what is more, the connection which may exist between river harbours, potential shipyards and sea ports, one which intersects with Chapter II in its presentation of vessels that most likely travelled both in coastal and river areas, between land and sea. There is an evident link between all chapters, but those which are most closely bound are II and III, especially as we mentioned our focus on the construction methods of ships in Chapter II, which will be accompanied with questions on the how and with which resources they would have been built in Chapter III. Alongside the infrastructures to support ships and navigation, we shall also include a brief approach to lighthouses. These are simultaneously the matter for which there is more material available, both regarding iconographic, numismatic and archaeological sources, and for which the material itself raises more doubts. Through the observation of several images, provided to us by ancient coins, mosaics and frescos, the interpretation of canon bibliography and the

comparison between these resources, we will try for a fresh observation on the matter of ancient lighthouses which may contribute to further interpretations.

The Geographic component, which is also an evident aspect of harbours, is the most immediate, the one which can be observed first and foremost, and in this regard, we will guide ourselves by the reflexions of ancient geographers, of which we underline Strabo. This is a fundamental part of work when attempting to understand the locations without an immediate physical evidence, ports and anchorages that have not left long-lasting signs to our days, but which may have been important for the life of ancient communities. Although we have restricted ourselves regarding the treatment of life in ancient harbours, we will attempt an approach, however brief, to some factors which can be observable through historical and archaeological sources in terms of, for instance, demography, the connection between the people and the sea, and the influence a harbour may have had in daily life. These points are particularly noticeable through a medium which we purposefully left to be observed with greater extension in this chapter, which is that of numismatics. Coins, as immediate elements of the world, elements of trade which would travel from hand to hand, present several decorative components dedicated to nautical elements, ships and harbours; but the latter are of particular significance in this regard, and they seem to provide more relevant information than they would for ships, considering their size.

Although we present imagery throughout the entirety of the chapter, the subject will be taken up again in specificity in the last portion of our analysis, as there is such a vast number of elements that can be included that it naturally develops into its own subchapter. Our main focus will be mosaics, frescoes and coins, which comes as no novelty considering what we have stated above, and that we will attempt to interpret to answer questions on harbour shape, design, function and ship construction. In this regard, Lionel Casson's work will be fundamental for our approach, as will the many representations which can be found in Trajan's Column, whose naval imagery has not been largely studied thus far and deserves further interpretation. We will attempt to look at the pictures analysing matters of shape, colour and disposition. Our analysis will not be made from an artistic point of view, as this is not the purpose of this work, but it will be kept in mind that the canons of ancient art would often induce us in misinterpretations of dimension due to the matters of perspective.

Our last chapter, which we call «*Mare Alterum, Mare Nostrum*», is, to an extent, a reflexion upon the practical implications of the physical and historical evidence presented throughout the remainder three. Throughout the four chapters, we have opted for including an initial imagery which can be considered representative of the general message of the study. The one chosen for chapter IV is a 19th century painting called «The Course of the Empire: The Consummation». In this work, made in 1836, Thomas Cole has depicted the ultimate form of an empire, the point in which it achieves its final potential; the fact that this «consummation» is represented through the inclusion of a harbour, that one can see ships sailing across, is symbolic as a representation of how much the connection with water is a fundamental factor for the fulfilment of an Empire, something which is also found in ancient sources. The entirety of this chapter will be an introduction to approach a question, which is whether we have a Roman Thalassocracy, a Roman «*Mare Nostrum*», a «Mediterranean Rome and Roman Mediterranean». To look further into the matter, we begin by analysing the matter of Rome's dependency on the *socii nauales*, especially of Rhodes, in a more practical approach related to strategy and politics; afterwards, we move towards the mental sphere of the Ancient Mediterranean.

Firstly, through a brief recap of the evolution of ancient Thalassocracies, we will situate Rome's arrival to the power struggle for the Mediterranean, observing its role in the mind of ancient writers. Afterwards, we will observe the evolution of concepts. The first analysis is of *Mare Nostrum*, starting with the Greek world, observing its growth into political thought, its pertinence in the Roman world and its presence or absence in the way Rome looks at itself and constructs its own power, both as heir of former traditions and creator of its own sphere. What is the *Mare Nostrum* for Rome? How did Rome understand the notion? This is a subject on which there is scarce bibliography, as historiography has focused in understanding Rome's growth as an empire by looking at it from its evolution on land rather than at sea; the sea control is almost set as the ultimate conclusion of land control. We will attempt to provide a new insight by looking at the problematic from a different view.

This leads to the final question that is presented. «Was Rome a thalassocracy?» This is a question left unanswered in the work, and replied to in our final reflexions, to create a division between what has actual historical evidence and what is, at the point, one hypothesis postulated by our investigation but that cannot, as of yet, be confirmed. From

the matters of linguistics towards questions such as the Naval Triumphs, their existence and inexistence, we will close the investigation with what we call «the ever-absent word».

There are three notes which are important regarding this dissertation that do not include the general form of the work itself, before entering the final leading points of introduction. One regards the method in which we present conclusions. In the end of Chapters I, II and IV, we have opted for including bullet-point conclusions. Given the extension of this work, it seemed pertinent to include these important points for the understanding of the problematics throughout the work, so that upon reaching the conclusion we can focus on matters such as issues found along the writing and raising potential hypotheses for future investigation, as well as additional reflexions on the general overlook of the work which would not naturally fit within the flow of the dissertation, but are essential as a way to conclude. The absence of this type of bullet-points in chapter III is due to the fact of it being one mostly dedicated to material evidence, which leaves scarce room for re-interpretation; we present and analyse data, but to re-analyse would be to go against our own previous affirmations.

The second regards the matter of names. There is great discussion amidst the academic community on how ancient names should be presented and how ancient writing should be presented. Our options are taken due to matters of practicality. As it is not our goal to discuss this particular problematic, we will approach names and quotes in a way to facilitate the understanding of this specific study. Most of Latin names will keep its original form, with the exception of Julius rather than the classical Iulius, as the name Julius Caesar is deeply ingrained in the current mindset and it is as Julius Caesar that this commander is presented. Whereas we often find Pompeius rather than Pompey, Antonius rather than Antony, we seldom find Iulius rather than Julius, perhaps due to a matter of pronunciation. As for his adoptive son and great-nephew, that brought yet another issue, as he often appears as Octavius, Octavian, Gaius Julius and Augustus. We dismissed the latter, as it is more of a title than a name, and as it has little to no relevance in a significant portion of the period and events in cause throughout our work; to avoid ambiguity, he shall be addressed as Octavianus.

Lastly, a short note regarding the Greek and Latin quotes. Most of the concepts and terms are presented in the Nominative case, which is not always the one in which they appear in Ancient sources. Whenever it seems justifiable to facilitate further reading and

studying, words will be presented in the original case/verb tense which originally appears in the source. These situations, as well as direct quotation from ancient texts, will appear underlined.

In what regards translations, even when the original bibliography has presented it otherwise, we will attempt to preserve, as much as possible, the original spelling. In all writings aside from Medieval, the Latin presented in our work will use «u» rather than «v» and «i» rather than «j» when presenting quotes from ancient authors. These are choices made towards creating a balance between clarity of interpretation and historical accuracy.

These points being said, what remains for this introductory note is to present with clarity the questions which we will attempt to see answered, and to explain our intention regarding this work. Regarding the former:

1. How was the structure of command within the Roman navy?
2. Was there evolution within this structure throughout the 1st century BCE?
3. Which were the preferences of Roman commanders regarding the management of fluvial and coastal resources?
4. Was there a shift in fighting techniques in what regards naval power?
5. How were ancient ships like in terms of shape, design and construction?
6. What physical evidence do we have of ancient ships?
7. What is the interpretation one can have of transport and warships?
8. Which materials were used in ancient ships?
9. How was communication processed within a fleet?
10. Was there an evolution in ship-type preference throughout the century in cause?
11. What was the general outline of an ancient harbour of this period?
12. What were the first harbours of Rome and how do they connect?
13. How does Rome's relation with ancient harbours evolve?
14. Which materials were used in ancient harbours and which archaeological evidence do we have of their structures?
15. How did the notion of *Mare Nostrum* evolve into the Roman thought?
16. Was the Mediterranean truly a *Mare Nostrum* for Rome?
17. Was Rome ever a thalassocracy?

The main intention of this work is not, however, to provide definite answers, as we realise the immense difficulties which are still in the way, both technological, bibliographical and archaeological. More important than replying to them is to raise them, following the line of the recent studies which are attempting to shift the traditional paradigm of Rome's presence at sea. Instead of attempting to reply to all the questions, our prospect is that through this work these lines can continue to be explored, that it can be a contribute towards raising more future questionnaire and debate, and that Rome's role at sea, particularly regarding its construction and definition throughout the Republican period, can become a subject which is target of further study, further investigation and further knowledge.

I
WAR AND WAR CHIEFS

I. DE BELLO NAVALE



Naval battles, from foreign concept to Roman entertainment. Painting by Ulpiano Checa, 1893³.

1. Commanders at sea: the problematic

Our analysis of the problematics surrounding Rome's relation with the sea begins with the observation of the human component of the fleet, without which it cannot function. The Roman navy is a part of its military forces and, as such, must have had an organised hierarchy in which, in parallel with the land army, the commanders-in-chief would rely on their subordinates to assure a proper functioning of all units. The purposes of this chapter are thus, firstly, to understand the organisation of the Roman navy's command hierarchy in the period comprehended between 107 BCE and 15 CE and, secondly, to verify the course of action taken by the commanders during practical situations of naval activity at sea and in rivers. A study of this nature is accompanied by a series of issues, amongst which the elusiveness of source-derived information is but the smallest. Rome's frequent reliance on its allies to supply its fleets, the lesser material regarding the Roman fleet for the period following the ending of the First Punic War⁴ until the Mithridatic

³ Picture from Wikimedia Commons ({{PD-US-expired}}).

⁴ It is not this study's purpose to analyse the period between the 3rd century BCE and the late 2nd century. However, it should be stated that, in fact, Rome seems to have had a navy throughout this period, and to have used it, in the least, for transport purposes. One could point out, for instance, Book III of Polybius, where there are several mentions of ships being used during the Second Punic War.

Wars, the frequent inclusion of most naval encounters as a secondary occurrence in the wider set of war by ancient sources, and the general confusion which may derive from the difference or coincidence between the terms used by Greek and Latin sources are some of the problems the researcher will find when attempting to draw conclusions on this field.

Lionel Casson attempted to list the naval officers of ancient Greek and Roman fleets. In his work *Ships and Seamanship in the Ancient World*, which remains one of the key studies in this field, he dedicates a chapter to analysing the evolution of «Officers and Men». The author determined that the earliest and most important charges would be those of the «*kybernetes*» (the steersman), the «*keleustes*» (the individual who coordinated the rowers) and the «*prorates*» (the lookouts, who stood watch). As ships and navies developed, new naval stations would have joined the earliest three. During the Hellenistic Age, for instance, «the steady progress in design and armament (...) was paralleled by a marked development in the man-of-war's complement». The author draws most of his information for the period between the third to the first century BCE from Rhodes. There is now a «*trierarchos*», the «captain» in the Rhodian navy, the «*epiplous*», which he calls a «vice-captain», the «*grammateus*», which he refers to as a «secretary and treasurer», a «*pentekontarchos*», which would be an «assistant rowing officer» with light administrative functions, and the already existent charges of «*kybernetes*», «*prorates*» and «*keleustes*»⁵.

Casson, however, does not consider that Rome had a standing navy prior to the imperial age, which is something this study will discuss:

«When it came to fighting personnel, Rome abandoned Greek models, for here she had a well-developed tradition of her own to follow – that of the army. The Roman standing navy, founded by Augustus toward the end of the first century B.C., was a late and junior branch of the military establishment. And so, it was a natural move to arrange the fighting component on a galley according to a pattern taken from the army. But Rome went even further: she grafted onto each ship a complete army organisation. Every crew was treated as a century of the Roman army».

The author describes Rome as adopting «the traditional Greek organization» but combining «with it some important typically Roman features». Casson underlines the «*trierarchus*», the «*gubernator*» (equivalent to a «*kybernetes*»), the «*proreta*», the «*celeusta*» and the «*pausarius*» (the last two being «rowing officers»)⁶. This view is

⁵ Minor functions are also mentioned, such as the carpenters («*naupegos*»), the «*iatros*» (a physician), and a «*kopodetes*» (who was in charge of the oars), but they are not directly connected to commanding officers.

⁶ Casson [1971] 1995.

beginning to be questioned. Ladewig, observing the Columna Rostrata⁷, and being one of the authors that considers Rome, without a doubt, as a Thalassocracy, questions whether the view presented by the inscription is not overly simplistic and an attempt to underline the maritime exploits of the time-period in which the Column was created⁸.

It is challenging to determine a specific moment from which the Roman naval posts began to be structured. The hierarchical subdivision of the several naval posts depends on the existence of an actual navy, and determining the birth of a Roman navy is, as of yet, a controversial subject. It does seem that, from at least the end of the 4th or early 3rd century BCE, there would have been some sort of hierarchical configuration: as Forsythe states, at least from 311 BCE, there would have been the election of two «*duumviri nauales*», «for fitting out a fleet of ships and keeping it in repair»⁹: «*ut duumviros nauales classis ornandae reficiendaeque causa idem populus iuberet*» (Liv. 9.30.4). However, Forsythe classes this as a «rudimentary naval policy», which would accompany activities of «privateering».

A different perspective may be found in Morrison. Despite also mentioning charges such as the «*proreta*» and the «*keleustes*», he introduces Latin terms. Charges such as «the captain (*magister*), helmsman (*gubernator*) and two decksoldiers» are also mentioned¹⁰:

«The ancient historians of the period provide scanty information about the manning of Roman ships. The maritime praetor is fleet commander holding his authority (*imperium*) on an annual basis from the Senate. The ship captains are called *nauium magistri* and are presumably appointed to the ship on commission, that is to say when the ship is launched from the shipsheds (*naualia*)»¹¹.

As one can see in Rosenstein's introduction to the History of Republican Rome's command hierarchy, there seem to have been two different ways of becoming a naval commander (whether they chronologically coexist or not is difficult to tell). Usually, there would be a «junior officer» acting under the command of a «magistrate who possessed *imperium*»¹²; this method of a senior and a junior commander is seen both on land and

⁷ As quoted in note 1, page 93: «Inscr. It. 13, 3, Nr. 69, Z. 5-17» (Ladewig 2014).

⁸ Ladewig 2014, 93.

⁹ Pitassi (2012, 75-78). Forsythe (2005, 303) relates this role to the «growth in power of the Roman state», which would have been accompanied by an increase of sea colonies and communication lines, resulting in a growth of naval activities. This would have been facilitated by Rome's alliance with Naples, a city of «long maritime tradition», in 326 BCE.

¹⁰ «This text suggests that the *socii nauales* included, besides the oarsmen, also the seamen who worked the ship other than the helmsman». Morrison [1996] 2016, 350.

¹¹ Morrison [1996] 2016, 349-50.

¹² Pitassi 2009, 144. Rosenstein 2001.

sea¹³. From at least the end of the 4th century or early 3rd century BCE, two «*duumviri nauales*» were assembled, though one will not see them mentioned in most circumstances of the big conflicts throughout the 1st century BCE¹⁴. After the rise of Octavianus, there seems to have been a decided correlation between the fleet and the individual in power¹⁵, and in 16 CE, two years after the death of Augustus, the title of *praefectus classis* had been created¹⁶. It also seems that, at least from 102 BCE onwards, Roman individuals of high ranks in command hierarchy would be controlling fleets, as attested by the inscription in CIL I(2) 2662¹⁷ which mention Marcus Antonius, a proconsul, commanding fleets ahead of the Isthmus on his way to Sida, and Hirrus, a praetor, who would be commanding a fleet and possibly decided to keep it in Athens due to the advanced season.

Ladewig opens one of his chapters by posing a question: is the beginning of the «seekommandos» truly attached to Duilius, or is it an «anachronistisches konstrukt?» The chapter presents an analysis which emphasizes Rome's presence at sea prior to 260 BCE through the observation of the Roman-Carthaginian treaties, and concludes that building fleets was no novelty in the time of Duilius, but that the fact a consul was now in charge of the building, equipping and manning of a fleet was a novelty: «Der Flottenbau stellt nicht das eigentliche Novum dar, sondern die Tatsache, dass mit Duilius ein Consul, der höchste römische Magistrat der res publica populi romani, mit dem Bau, der Ausrüstung, Bemannung, Instandsetzung und dem Oberfehelt über eine Flotte beauftragt»; the «consularische Flotte» was victorious, and the term itself is to be underlined, as it is unlikely that one could speak of a «consular fleet» before this year¹⁸.

¹³ Rosenstein (2001, 137) points to events of 198 BCE, when Titus Quinctius Flaminius appointed Lucius Flaminius, his brother, as his legate, and put him in charge of a fleet during the Second Macedonian War. These events happen nearly a century before the Jugurthine War and the Mithridatic Wars, but we shall still find Marius delegating naval functions on Aulus Manlius, and Sulla doing so with Lucullus. See also Vella et al. 1999: 131.

¹⁴ Rosenstein (2001, 137) justifies this fact with them being utilized mostly for «coastal defence», leaving the «magistrates of consular or praetorian rank or legates» to lead the «major naval operations».

¹⁵ As Saddington mentions (2007, 208), «*classis mea*»: according to this author, Octavianus was responsible for the «stationing of permanent fleets in Italian waters», commanded by a «*praefectus classis*».

¹⁶ Vella et al. 1999: 131.

¹⁷ «*Quod neque conatus quisquamst neque [adhuc medita]u[it] / noscite rem ut fama facta feramus uirei / auspicio [Ant]oni [Ma]rc[us] li pro consule classis / Isthmum traductast missaque per pelagus / ipse iter eire profectus Sidam classem Hirrus Atheneis / pro praetore anni e tempore constituit / lucibus haec paucis paruo perfecta tumultu / magna [qu]om ratione atque salut[e] simul / [qu]u[od] ei probus est laudat[ur] quei contra est inu[er]idet illi / inuid[et] ea int[er] dum [qu]uos cond[uc]et id u[bi]deant[ur].»*

¹⁸ Ladewig 2014, 100. Ladewig creates a distinction between the consular and the praetorian (118; which he considers appeared in 242 BCE). He also states that «Die erfolgreiche Kriegführung zur See, fernab von den heimischen Häfen und Gewässern, hing von zwei essentiellen Faktoren ab: (1) Dem Aufbau und Gebrauch nautischer Allianzen und (2) einer engen Kooperation mit den consularischen Landheeren.» The chapter focuses greatly on the evolutions of the 3rd and 2nd centuries BCE and is a valuable resource to

This is but a short introduction, however, and these are mostly terminologies found in disperse sources. How did the command work in practical situations, and which naval terminology can one find in actual descriptions of conflicts? Throughout this chapter, we will attempt to trace the steps of Roman commanders throughout some of the main conflicts of the 1st century BCE, and gather information related to the terminology of command.

Against foreign forces

1. The Jugurthine war and the Cimbrian invasion

Our option to begin this study in 107 BCE makes the Jugurthine war and the Cimbrian invasion a natural starting point. Nonetheless, if one intends to investigate the development of naval hierarchy, the sources regarding these conflicts have little information to provide. Throughout the whole of the Jugurthine war, there are few mentions of ship usage in ancient sources, except for the occasional transport of armies or diplomats¹⁹. The end of the 2nd century BCE and the decades that followed were a moment of changes within Rome. As stated by Drogula, there were transformations within the traditional political power assigned to commanding generals, achieved through political manoeuvres usually involving the popular assemblies²⁰. These would be accompanied by alterations within the structure of the army itself. Even though the last decades of the first century BCE are acknowledged as a moment for the restructuring of the Roman army due to the results of a series of reforms, these do not seem accountable for significant interference in naval ranks²¹. They were meant only for the land army: on

understand the foundations of Roman naval command. From page 130 onwards, he proceeds to analyse the “seekomando” of the legates, which will be the most important for this chapter: Ladewig proceeds to observe the functions of consular Legates, making a sample list of those which were under Pompeius’ influence. He reaches a conclusion which will be significant for our fourth chapter, which is that the Legati could not consider their maritime successes for themselves, but rather there was a transference to their respective praetors and consuls.

¹⁹ Sallust mentions the route taken by Calpurnius’ army to reach Africa: first, the troops were taken from Italy to Rhegium; then, they crossed to Sicily; afterwards, to Africa. It seems as if there was a three-stepped journey for Roman armies intending to cross the Mediterranean Sea, preferring to travel through the province of Sicily and only then reaching Africa. In 109 BCE, whilst campaigning in Africa under the command of Caecilius Metellus, Gaius Marius would have engaged in several sea voyages, and Plutarch describes his journey from Utica to an unmentioned location in the northern bank of the Mediterranean (possibly Sicily, judging by Sallust’s account) as lasting three days. See Plut. *Vit. Mar.* 7-8. Another crossing is mentioned in Plut. *Vit. Mar.* 12.2, this time with the army.

²⁰ Campbell 2012, 267-90.

²¹ It is not our purpose to discuss whether the greater share of these reforms can or cannot be attributed to Marius. It may be mentioned, however, that the studies regarding Marius’ intervention amongst the physical

the one side, the changes in traditional recruitment processes were not meant to affect the workings of the navy, but, first and foremost, to grant the army a greater number of recruits. On the other, the renewed attention to physical training regarded mostly the movement of the land army (running and marching), the carrying of military stores and preparation of nourishment. This could have had no direct influence on the navy's functioning. Commanders such as Gaius Marius do not attempt to improve the skill or speed of rowers, nor to increase their numbers, and he seems to make no changes in naval hierarchy²². Sailors do not have the same difficulties regarding the transportation of materials and supplies, for the ships are already a transport method; as for nourishment, one can look at Plutarch and see that the source does not specify the sort of food which the land army was taught to prepare, although it might have been different from that which was fed to sailors, given the dangers of using fire inside a ship and the difficulty of keep fresh supplies in good condition throughout longer sea journeys²³.

training of the legion or the recruitment of the «*capita censi*» have reached different results. As stated by Fields, they had also been used in the past, by order of the Senate, during Roman defeats of the late 3rd century BCE (such as Trebbia in 218 BCE, Lake Trasimene in 217 BCE and Cannae, in 216 BCE; see Campbell 2012, 355-58). Lawrence Keppie underlined that the social reforms regarding the recruitment process began before Marius rose to command, with the Gracchi brothers, and that the general tendency towards the end of the 2nd century BCE was for a consistently decreasing minimum «property qualification» regarding enrolment (apud Bromwich [1993] 1996, 127; on the subject see also Labitzke 2013, 154). The Marian reforms seem to have had a larger influence within the training of soldiers; and yet, the increased investment in physical condition is seen before, for instance, under the command of Metellus. When the latter was in Africa with the army, he too ordered the maintenance of proper physical condition through activities such as marching (e.g. Sall. *Iug.* 45), although it is unmentioned whether he engaged in Marius' practice of ordering the carrying of heavy supply loads. Plutarch gives several pieces of information regarding the regimen adopted by the soldiers following their return from Africa, including increased exercise through running and marching, the carrying of heavy weights and the preparation of food. The source also gives two different accounts as to the origin of the terminology of «Marian mules» (Plut. *Vit. Mar.* 13). The inference pertinent to this particular study is that, whoever was responsible for it, there were several changes within the army, and that these were influencing the traditional recruitment system.

²² The changes in traditional recruitment processes could, however, have had indirect repercussions in the navy. Given that, in earlier centuries, the *capita censi* were not usually allowed to have a regular career in the land army, but could be used in the navy as rowers, and considering the changes in recruitment processes following 107 BCE, which would have given them the possibility to join a regular military career, this could have deprived the navy of some of its main source of human power. According to Sallust, Gaius Marius managed to make the *plebs* favourable to him and to his designs (Sall. *Iug.* 86: «*postquam plebis animos arrectos uidet*») and, by opening the regular careers to men who were «*egentissimus*» and «*oportunissimus*» (thus, those who were most in need and had not much to lose), who were eager for profitable opportunities, assured himself a valuable human resource, while depriving the navy of its own (Labitzke 2013, 154). However, Pitassi states that «although the naval strength had been reduced, the navy had, like the army, become in reality a permanent service and many of its men had already made a career of it» – Pitassi [2009] 2012, 142; Birlinger [1862] 2013, 18).

²³ There are yet few studies regarding the nourishment of sailors during the last century of the Roman Republic; it would possibly require a greater investment in experimental archaeology to understand this matter with more accuracy. Pitassi, however, attempted to study this matter and has a relatively detailed study on how the process of managing food and water within fleets would be carried, from the early moments of Roman navigation to the development of imperial fleets, differencing between the nourishment

If the consul does not seem to be drawn to the navy and its activity²⁴, and if the wars fought by Marius do not have a significant naval component – there are no accounted naval battles for the Jugurthine Wars – that does not mean that Rome did not have an active naval service, nor that Marius himself would not have made use of it. However, his chief reliance on the navy would not be regarding the long-ships and their capacity in combat, but any typology of ship which might be used to carry loads, thus keeping a steady flow of supplies available for the land army. Given that most of Rome's campaigns are now taking place outside of the Italian Peninsula, different logistical needs for the transport of nourishment and army materials will arise. In Marius' case, this need seems to have led to changes in the physical geography of landscapes. During his third consulship, Rome was under the threat of a group of northern tribes, the so-called Cimbri. One of the few specific descriptions that reached us regards the recurrent issue of storage, and the use of sea vessels to transport the supplies. The army sent to control the Cimbri was said to be encamped by the river Rhone²⁵, and it seems that one of Marius' first concerns was to assure there were enough provisions. In this case, stationed by a river, he was aware of the difficulties in navigation caused by debris found on the riverbanks; thus, he ordered the army to build a canal which improved navigation and allowed for a steadier flow of the Rhone into the sea²⁶.

The credit for both the foresight and the building plans is left to Marius alone by the ancient sources, and these do not tell us whether there had been a suggestion from any of

carried in shorter journeys or journeys with closer access to the shore, and open-sea voyages. See Pitassi 2012, 344.

²⁴ As stated in Schmitz 1875. See also Pitassi [2009] 2012, 140-44.

²⁵ Plut. *Vit. Mar.* 15: «*τειχίσας στρατόπεδον*». Marius would have ordered the building of a fortification, or a fortified camp alongside the river Rhone (according to Orosius, where the Isere and the Rhone come together. Oros. 5.16). The same action was taken by Catulus regarding the river Atiso whilst attempting to prevent the Cimbri from crossing the Alps: fortresses were built on both banks, and a bridge was kept in order to enable the army to assist the opposing side if needed; the invaders would have attempted to improvise a dam and to destroy the Roman bridge, leading to a retreat. As Marius was summoned to Rome's aid, rivers would once again have played an important part, for his intention would now be to keep the Cimbri on the other side of the Po (Plut. *Vit. Mar.* 23-24).

²⁶ This episode is being debated to this day, given that the location of both a Roman camp and the «Fossa Mariana» ou «Fossae Marianae» is still open to speculation. It is narrated both by Plutarch and Strabo (Strab. 4.1.8); the latter credits it as having been a great source of profit to the Massiliotes, due to the establishing of tolls. As far as archaeological studies go, and as mentioned in an article by Claude Vella, Philippe Leveau and Mireille Provansal, «Ouvert en 102 avant notre ère, cet ouvrage pose toujours un irritant problème aux archéologues. Connue depuis le XVIIIe s., l'emplacement de Fossae, le port qui se développa à son débouché maritime et lui doit son nom, a été confirmé par des découvertes sous-marines effectuées de part et d'autre de la Pointe de Saint-Gervais» (Vella et al. 1999, based on Gateau 1995, 169-88). See also the following article by the *Site du Patrimoine d'Arle*, in <http://www.patrimoine.ville-arles.fr/document/ACF7B.pdf>: «Néanmoins la localisation du canal lui-même nous échappe encore». Regarding the «fossa mariana» and its potential location, amongst the several articles which discuss it, see also, for e.g., Schleussner 1978, and Linderski 1990.

his subordinates regarding the building of the canal. Regardless, given how it was probably natural for Marius, a well-experienced commander, to be well-aware of the need for a steady flow of provisions, and considering the decision to open the canal as a likely remonstrance that ships would be one of the fastest and safest means of carrying supplies, it is possible that Marius was, indeed, behind the origin of the idea. Thus, while Pitassi affirms that «the navy [...] attracted little or none of his attention and continued to be reduced and even neglected»²⁷, this may be an understatement: even though he disregarded the need for long ships of the military type, it cannot be thought that a commander, even if specialized in land battles and fighting wars on land, would think the transport ships as a secondary issue when, in fact, they were possibly one of the first necessities. According to Plutarch, the canal was built by the army because they were essentially idle, but this was still a work of great human effort, and it is not likely that Marius would have ordered such a physically demanding activity if naval transport were not of significant importance. Therefore, while Marius' fleet was probably not an armada meant for war, the transports were likely used in the service of the terrestrial component of the army, especially in carrying its human component²⁸.

As a last note regarding the Cimbrian wars, one should mention the importance of Geography, namely of river transport. The Cimbri were approaching the Rhône, which, as mentioned by Campbell, had «good connections with other rivers to both the west and the east», being used as a means for merchandise transport²⁹. The «trade route along the Mediterranean coast» was also connected to the «mouth of the Rhone», with a probable combination of «road and river transport» being put to use as the «most effective» way of assuring a steady flow of commerce. Even though it seems that the Romans might have left fluvial courses virtually untouched, there was an economical system at work within these rivers³⁰. The presence of Cimbri and Teutones was threatening not only the Italian Peninsula, but the whole structure of inland economy, which involved several types of

²⁷ Pitassi [2009] 2012, 144.

²⁸ Although the nature of this work does not allow for in-depth investigation of land marches of Roman armies, further tracing of the Marian legions during their campaigns and the accompaniment of their routes would be a valuable effort towards understanding whether river / sea transport would have been a liability.

²⁹ Regardless, Florus refers to the Cimbri in diminishing terms, due to their alleged attempt to cross the Atesis by swimming, instead of relying on bridges or boats. Flor. 1.11-12.

³⁰ Drogula 2015b, 332-34. In fact, one of the river-side colonies related to wealthy Roman men was Aquae Sextiae, as mentioned in Campbell 2012, 267. The said colony, placed close to modern day Aix-en-Provence, would have been the «first permanent Roman base in Provence», and its location, chosen by Gaius Sextius Caluinus, would allow for the control of «the major east-west route from the coast at Fréjus and a north-south route linking Marseille with the Durance valley» (Bromwich [1993] 1996, 136).

river transport. Ancient sources point the reasons for the Cimbri migration as related to their need to find a new settlement³¹, which might have been hazardous to local populations and economical structures. As such, Marius might not only have been defending Rome's military and political interests in the area, but also river resources, including a fair amount of ships and crew which would have provided a steady flow of income³².

These efforts within the Rhone do not necessarily signify for the same preference regarding ships as a means for transporting human resources. Through both his campaigns against Jugurtha and the Germanic tribes, Marius is not mentioned as resorting to river-transport to carry his soldiers (he does use sea-transports to and from Africa with his army, as seen in Plut. *Vit. Mar.* 12.2, but coastal voyages from one point of Africa to another, for example, are unmentioned), and it seems he would have preferred marching. These movements, however, usually accompanied the rivers³³, and even though the sources do not state it, one may ask whether the army was being accompanied by cargo vessels as they were moving. There is the possibility of the army carrying a part of their supplies through carts or beasts of burden (and, perhaps, waiting for another portion of provisions to be delivered through cargo ships), or, whenever such situation was revealed possible by the navigability of rivers and shores, the land army being accompanied by ships throughout the whole of their march. This second hypothesis might allow for a better protection and control of the supplies: if it were necessary, the land army may be embarked to defend these ships; this would, however, require a prior knowledge of the

³¹ With the exception of Strabo. According to the geographer, they would not have left their homeland due to floods, given this would be a natural phenomenon they'd have been used to. He also mixes the names «Cimbri» and «Cimerii». Strabo seems to have believed that the Cimbri were a wandering people who acted for profit, having at first attempted incursions against the Boii, the Scordiscans, the Teuristae and the Taurisci, and the Helvetii. A warrior people, their main interest would not be the assurance of new territorial land bases, as accounted by other sources (such as, for instance, Florus in *Epit.* 1.38.3; Granius, 33.11), but plunder (see Strab. 7.2.1-4). Their approach to the Rhone and the commercial routes with largest river traffic might show an interest for some sort of «river piracy».

³² This might also contribute to the causes of the Roman «ecstasy» and «relief» at the defeat of the «barbarian» threat and contribute to the peak of Marius' career: Marius was «der Retter», the saviour, in a multitude of fields. See Fields 2010a, 11. Despite this thesis not having a purpose of discussing land battles, it seems pertinent to refer Labitzke's (2013) own detailed interpretation of each, which includes maps specifying the movements of each army. See Moore 2013, 470; 124-37; 138-53. The notion of who was in fact defeated in such battles is also confusing to modern historians: whilst some sources and authors like Labitzke point the Cimbri and Teutones alone, Birlinger [(1862) 2013], for instance, considers that the Teutons and Ambrons were defeated in Aquae Sextiae in 102, and the Cimbri were defeated in the following year by the Po river (Moore 2013, 470); Florus, in *Epit.* 1.38.3, shows a description close to Birlinger's.

³³ See, for instance, Sall. *Iug.* 48-49, regarding the march of Metellus' army, stating that it would not be far from the river Muthul; also, Metellus' indecision regarding the crossing of a path between two rivers, consisting of dry terrain.

enemy approach, as embarking the army would take time. In case of an unexpected attack, how were the supplies to be defended? There are several hypotheses, but none is mentioned by ancient sources. There could be a permanent number of fighters traveling by ship in any given moment, or a few warships of small dimension travelling alongside the transport ships (in cases of sea-transport or where the riverbeds were wide enough). Having ships carry part of the supply load could be particularly advantageous in case of ambushes on land, for if the army needed to separate, or if the beasts/carts were stolen or destroyed, the army would not be as easily out of rations.

Another point that can be made regarding Marius and the navy which might give strength to the hypothesis of a permanent guard travelling with the transport ships is found in Sall. *Iug.* 86, and is also significant regarding the subdivision of work within the army. It is the first hint found in this source that indicates naval hierarchy. When Marius was reorganising the army to once again return to war in Africa, he took to himself the charge of enlisting soldiers according to the new method (thus, was responsible for the land army). On the other hand, he commanded («*iubet*») his *legatus*, Aulus Manlius, to set sail with the freight ships («[...] *navis onerat*») hired to carry payments, military instruments and utilities («*stipendio, armis aliisque utilibus*»). It seems as if Marius did not use ships belonging to a Roman fleet, but hired vessels; that these vessels were escorted, at least, by a commander; and that this commander would not have been the consul himself, but a second-in-command.

The task of seeing to the navy was left to a delegate, a subordinate of Marius; in this specific case, a *legatus*. If, as stated by Drogula, the interpretation of authority had begun to shift, and «an alternative means of avoiding conflict was needed, leading some to contemplate fracturing *imperium* into different levels or degrees»³⁴, the significance of the employment of a legate may be present in earlier times³⁵, and a specific example is present amongst the sources regarding Marius. Much can be said regarding the precise meaning of the word *legatus* and the evolution of the role throughout the 1st century BCE, but our purpose here is to distinctively analyse naval hierarchy and, therefore, we will focus on the specific actions of the *legati* which might be related to naval command or

³⁴ Drogula 2015b, 344. The author gives the example of Pompeius: «Pompeius' use of *legati* cum imperio in his pirate command created the unprecedented situation in which one *imperium*-bearing commander was a true subordinate of another *imperium*-bearing commander». See also Erkdamp 2007, 65.

³⁵ As we observe in Ladewig's study, not regarding the Legates, but the Praetors. Given the chronology of our study, we will not pursue the delegation of naval command on Praetors during the 3rd and 2nd centuries BCE.

interpreted in a way which might allow for conclusions on this matter³⁶. As far as the career of Aulus Manlius is regarded, little can be said. The information regarding the sort of tasks he was assigned with before or after this moment is practically inexistent, and therefore cannot determine what sort of role this specific *legatus* had. However, there are a few inferences which the investigator may reach through the analysis of further actions of Aulus:

- We are provided with new information about Aulus during the narration of a march: Marius would have commanded him to advance to the town of Lares, and, according to this source, would have hid his real design – to march towards the river Tana – from Manlius, telling him he would join him after plundering the region (Sall. *Iug.* 90).
- Later, during the army's march, whilst Sulla would be keeping with the cavalry on the right flank, Aulus Manlius would be in charge of «slingers, archers and the *cohorts Ligurum* on the left»³⁷, and thus we receive the indication that Marius' former legate was by then engaged in land functions; if this is the march referred in Sall. *Iug.* 90, it is also mentioned that Marius would have hid his real design – to proceed towards the river Tana – from Manlius. He oversaw light infantry units apt for long-distance attacks and defence, and one might question whether these corps could be those taken to maintain naval security, particularly during the transport of provisions.
- During negotiations, he is said to have been sent as an ambassador to King Bocchus together with Cornelius Sulla, and Appian assigns to him the task of replying to the king³⁸.

³⁶ One might mention, regarding the specific subject of the *legati*, that there have been few recent studies on this matter. One can find several works regarding the *legati* written during the late 19th century onwards: for instance, in 1875, L. Schmitz defined three different typologies – the «ambassadors sent to Rome by foreign nations», those «sent from Rome to foreign nations and into the provinces» and those who «accompanied the Roman generals into the field, or the proconsuls and praetors into the provinces» (Olbrycht 2009, 177-78; Schmitz 1875). This, as seen in the cause of Aulus Manlius, had become a blurred division in the late 2nd century BCE, for Aulus is both under military service and sent as an ambassador to Bocchus. In 1908, Bruno Bartsch attempted to list all the legates from the death of Sulla onwards (Olbrycht 2009, 170); in 1978, Bernhard Schleussner published a more complete study regarding the legates throughout the Roman Republic (Olbrycht 2009, 171-72). However, as far as specific, comprehensive studies are regarded, not much can be found following Schleussner's. As far as updated studies are regarded, one can observe, for instance, Drogula's several mentions throughout his work; these, however, are more directly concerned with the matter of the concept of *imperium* and the redistribution of authority (See also Munk 2009a, 10); we once again point to Ladewig's work, although the approach is more chronological and political than military.

³⁷ Marek 2009, 35, as mentioned by Sall. *Iug.* 100.

³⁸ App. *Num.* 1. The same situation is mentioned in Sall. *Iug.* 102.

Thus, we conclude that Aulus was able to fulfil three vastly different types of roles. A), he had the function of seeing to the freight ships, which is not a naval mission per se – he did not fight a naval battle – but involves the assurance of the safekeeping of supplies. B), he was also capable as a land commander, and we see him in charge of the light infantry units. C), he is assigned a diplomatic mission, which is an entirely different role from those shown in A) and B).

- It could be possible, given how Marius is said to have hidden his true intentions from Aulus (according to Sallust), that he did not fully trust his legate. However, this individual was confided with keeping freight ships transporting valuable cargo, and it is not likely that Marius would entrust expensive army instruments nor the army's pay to a man incapable of defending it by sea. Either Aulus had subordinates of his own which could lead the defence of the fleet in case of an attack, or the legate was capable of commanding naval operations on his own. If that is the case, Aulus would be a capable commander both on land and sea.
- The mission of keeping the ships is not assigned to an unnamed individual or to a low-ranking army member, but to the direct *legatus* of the consul. It seems that Marius either did not want to lead the navy or preferred to keep himself with the land army; however, unlike what may seem on first sight, it is highly unlikely that he undervalued the importance of the naval forces, if by naval forces one is to understand the transport ships ³⁹.

There is one last point regarding the command of the late 2nd century BCE that will be included in this study, due to its future impacts in the organisation of the Roman army and, subsequently, the Roman navy. Once more, one must return to the *capita censi*. The inclusion of the least wealthy citizen extracts has probably not been an innovation of Marius, as stated above, but the culmination of a process or, as stated by Fields, a «logical conclusion» to a «development» of events which had begun during the late 3rd century BCE, including not only the aforementioned use of said «capite censi» during former battles, but also legislative measures such as the «lex militaria» of Gaius Gracchus, which

³⁹ Also, as stated by Drogula (2015a, 136; see also Madsen 2009, 196), it seems that the reverse situation could also occur: as the author states, in the late 3rd century BCE, «the senate directed Laeuinus to hand his army over to a legate and to take command of a fleet based at Tarentum (Polyb. 8.1.6, Livy 23.38.10-12)». It might also be worthy of mention that another Aulus Manlius is said to have been in charge of triremes in the 5th century BCE, and also an ambassador sent to Greece (Dion. Hal. *Ant. Rom.* 10.52).

preceded Marius' stance in using state funds to equip soldiers in about thirty years⁴⁰. The changes in recruitment processes are traditionally considered as one of the causes of what may be called a certain «privatization» of the army, with the warriors taking on a path of creating a loyalty bond towards their generals instead of the city-state⁴¹. The process of centralizing power in political/military figures instead of the traditional government institutions will be impacted by this new precedent in the Roman army, and the subsequent investigation will attempt to show how this might have influenced the control of the navy and, in turn, how controlling the navy may have impacted the outcome of wars throughout the 1st century BCE, particularly through the ability to dominate the sea, rivers and fleet as means of communication.

It must also be said, regarding Marius, that in spite of being mainly a land-army commander, he seems to have had other projects. According to Santangelo, Marius' first strain with Sulla was the latter's appointment as commander in Asia, serving the purpose of controlling piracy and the uprising of Mithridates⁴². As will be demonstrated below, the war in Asia would become essentially a maritime war, if not in battles, at least in the matter of supplies, through attempts of blockading and controlling supply lines. One may question whether, in the latter stages of his military and political career, Marius' goal could be directed to war at sea for the first time, and how this would have been proceeded. This could mean that Marius had at least some basic knowledge regarding the war at sea – or, instead, he could have relied on that of other men, such as his legate, who would be second-in-command and would be left in charge of the main naval events of the said war (as Sulla will be shown to occasionally do with Lucullus)⁴³.

⁴⁰ Fields 2010a, 11.

⁴¹ For instance, Munk 2009a; Summer 2009.

⁴² «That the coming of Mithridates was an unprecedented threat in the history of Roman supremacy in the Mediterranean was confirmed by the great success that the King met in Greece too. (...) The Roman military presence in Asia was too weak to contrast such a major upheaval (...). A Roman army needed to be sent to the Greek East, and the dispute over its command was unsurprisingly very tense. By then, a clash between Marius and Sulla had become inevitable. The booty and the political credit that the eventual winner of that war could expect to gather were a most attractive prospect. Moreover, Marius had been coveting the Mithridatic command since the previous decade (...); Madsen 2009, 197.

⁴³ Dart 2016, 40.

2. The First Mithridatic War

Before the First Mithridatic War⁴⁴, it seems that the relations between the Basileus of Pontus, Mithridates V Euergetes⁴⁵, and the Roman Republic, were on regular, positive terms. The agenda of both seems to have coincided during the Punic Wars, with an alliance, *συμμαχία* («*συμμαχίαν*»), being constituted and Mithridates being considered as friendly towards the Romans («*φίλιος*»)⁴⁶. However, Pontus' subsequent invasion of Cappadocia led to a series of events that would eventually culminate in the so called Mithridatic Wars⁴⁷. After the death of Mithridates Euergetes, a period of instability followed, with a conflict arising between Rome and his heir, Mithridates Eupator⁴⁸: Rome intervened during the process of transition and commanded Mithridates to return Cappadocia to its former ruler, Ariobarzanes. Agreeing to do so, he simultaneously sent an army to Socrates Chrestus, who overcame his brother Nicomedes as king of Bithynia, while Mithraas and Bagoas defeated Ariobarzanes in Cappadocia and replaced him with Ariarthes. Thus, two kingdoms were deprived of their initial and appointed sovereigns.

⁴⁴ Pliny the Elder mentions several of the war-sites in his *Natural History*. Even though the source does not closely describe war, it seems pertinent to cite, at least, a few of these references: Chaeronea (Plin. *HN*. 4.12; a town between Megara and Thebes); Heraclea Chersonesus (Plin. *HN*. 4.26, as part of the region of Chersonesus, which would have been freed by the Romans following the wars); the river Granicus (flowing into the Propontis, the site of a battle between Lucullus and the Mithridatic forces; Plin. *HN*. 5.33); Eupatoria (Plin. *HN*. 6.2, allegedly founded by Mithridates); Ziela (Plin. *Nat*. 6.4, where Triarius, legate of Lucullus, would have been defeated); Nicopolis (Plin. *Nat*. 6.10).

⁴⁵ Justin briefly mentions Mithridates' relations with Rome in Just. *Epit*. 37.1: he would have helped Rome against Aristonicus and received a part of Phrygia as a reward. He will also mention Mithridates' seemingly troubled childhood and young adulthood.

⁴⁶ Mithridates Euergetes is mentioned as having recruited mercenaries or individuals to engage in piratical activities, with the aid of a man named Doryläus. This individual would have later become close to Mithridates VI, and even though it isn't explicitly mentioned by Appian, it is very likely that the king of Pontus would have used mercenaries in the wars against the Romans, and from the same origins as those in his father's army (namely, Greece, Thrace, Crete and Cnossus). See Strab. 10.4.

⁴⁷ According to Strabo, the kingdom of Pontus would have gone through a series of military conflicts with the populations who lived around the Black Sea prior to the First Mithridatic War. He mentions, for instance, some encounters with the nomadic or semi-nomadic populations who lived on the banks of the river Borysthenes (currently the Dnieper), amongst which the Roxolani, who would have attacked Pontus led by an individual named Tasius. The invaders were defeated. It is possible that Pontus had many interests in this region, regarding the economy and recruitment of new individuals for their armies: the Bastarnians, for instance, mentioned as fierce fighters who allied themselves with Mithridates, come from the interior of these lands, and it is also mentioned by Strabo that a city named Borysthenes or Olbia would have been a market of great dimensions. Having allies amongst the populations of the Dnieper seems to have provided Mithridates the soldiers he needed to fight against the Romans but might also have something to do with the king's seemingly great treasury, which allowed for war preparations of great dimension. See Strab. 7.3.

⁴⁸ Strabo mentions the kingdom's boundaries as following: the Halys River to Tibarani and Armenia, the region of Amastris and parts of Paphlagonia, afterwards including the shore as far as Heracleia, Colchis and parts of Armenia. These would have been the boundaries of his kingdom by the time Pompeius became a leading commander, during the Third Mithridatic War. See Strab. 12.3.

According to Appian, these were the candidates preferred by Rome, and the Republic thus decided to interfere in foreign affairs⁴⁹.

The first steps of Rome regarding the problem in Pontus were mostly diplomatic, thus resembling what had already happened during the early stages of the Jugurthine conflict⁵⁰. It was required of Mithridates that he joined Manius Aquilius and Lucius Cassius on their diplomatic mission to restore Nicomedes and Ariobarzanes⁵¹, but the king of Pontus was seemingly unwilling to cooperate, such unwillingness having resulted from the Romans being the cause for his deprivation of both Cappadocia and Phrygia. This could almost seem as intentional from Rome, as an attempt to gain a valid *casus belli* against Mithridates, for the consuls not only managed to restore the two kings, but also convinced them to participate in expeditions against the basileus of Pontus. According to Appian, Mithridates shared the same intentions as the Romans, and thus does not fight Ariobarzanes' army, allowing it to plunder his territories, to grant himself a strong reason to wage war against the Romans⁵².

These are the precedents and causes of the First Mithridatic War, as presented by Appian⁵³. Adding to the aforementioned issues, there is also the matter of the internal problems in the Italian Peninsula before the beginning of this conflict: as stated by

⁴⁹ Olbrycht's chapter in a collective work regarding Mithridates and the Kingdom of Pontus attempts to explain the relations between this kingdom, Armenia and Parthia, going so far as to consider the death of Mithridates II of Parthia and disagreements between the «Asian kings», such as Tigranes of Armenia as determinant to the outcome of the war and Mithridates' VI ultimate demise (Johnson et al. 2003, 58). According to Memnon, and as stated by Madsen (2009, 198; points to Memnon, *FGrH* 434 F 1), Mithridates would have sought to expand his realm by making the regions surrounding the river Phasis his vassals. This source also mentions Mithridates' allies in the beginning of the war: the Parthians, Medes, Armenians (with Tigranes), Scythians and Iberians (not those of the Iberian Peninsula, but of the Middle East); the Parthian alliance seems confirmed by Poseidonios of Apameia (Ath. 213a). It is relevant to mention that, according to Olbrycht, Mithridates would have attempted to unite «the peoples around the Black Sea», and that «Parthia» would be at «her zenith», which, together with Armenia's being «enormously rich in financial resources», could justify the great amount of preparation that the king of Pontus was able to make for the upcoming war against the Romans – these wealthy kingdoms could have provided him with the «resource base for any serious conflict with Rome» (Olbrycht 2009). Resources of both military type and monetary seem to have been Mithridates' main focus at this period, as seen by the «increase» in the «production of Pontic coinage» both in 95 BCE and 92 BCE; this coinage, including gold and silver (metals that were less common in Pontos) could be of Parthian origins, according to Olbrycht (see also Butyagin 2007; on the coinage in Pontus, see, for instance, King 2004, 48, and the comments in Madsen 2009, 197).

⁵⁰ As mentioned by Marek, Rome's interests in Asia Minor, at the beginning of the war, were mainly focused in the three provinces of Asia, Kikilia and Lyakonia. See Marek 2009, 36.

⁵¹ Dio's account of the episode is similar to Appian's, with Mithridates being threatened in case he refused to return Cappadocia to Ariobarzanes and not wage war with Nicomedes. Dio Cass. 31.2.

⁵² App. *Mith.* 11.

⁵³ Cicero suggested a different account, including the loss of large fortunes in Asia, which would have caused credit to fail. The new relations between Rome and Asia, together with the developing Mediterranean economy, might also account for the beginning of this war, perhaps more than diplomatic or political reasons. See Cic. *Leg. Man.* 7.

Madsen, «the death of Nikomedes III [which weakened the Kingdom of Bithynia] in 94 BC and the alliance with the king of Armenia together with the outbreak of the Social War once again turned the balance of power in favour of Mithridates»⁵⁴. Rome was dealing with conflicts amongst its closest allies, the Italian cities, whilst Mithridates had already conquered, or made alliances with, a significant part of the population around the Black Sea⁵⁵. Whilst some theories present Mithridates as the potential freer of the Greek city-states and Asia Minor⁵⁶, Madsen considers that Mithridates' early intentions did not imply a future war with Rome; perhaps, at some point, to be a match for it, especially when he attacked Bithynia and Cappadocia, but not an enemy⁵⁷. Whatever determined his attacking Cappadocia at last will, perhaps, remain an object of speculation, but this author ventures to conjecture that, at this point, it might have been related to his «kingdom and his royal prestige».

It must be mentioned, however, that even if Rome had struggles with its Italian allies, this would not necessarily mean they would be devoid of external aid. There is, for instance (and as mentioned by Dart⁵⁸) a bronze epigraphic tablet dated from 78 BCE, acknowledging the naval services of three individuals: Asclepiades of Clazomenae, Polystratus of Carystus and Meniscus of Miletus⁵⁹. The specific circumstances under which they were serving in the Roman fleet are unknown (whether they are under some sort of contract and acting as mercenaries, for instance). Dart classifies them as naval commanders⁶⁰; if that is so, Rome would have been hiring foreign officers coming from Greek city-states during the 1st century BCE. There is also a stone tablet, found in Callatis, accounting for an alliance between this city and Rome, dated, possibly from the late 2nd century BCE (CIL I(2) 2676)⁶¹, which means that either Rome was trying to find allies

⁵⁴ Summerer 2009.

⁵⁵ Including the already mentioned question of Parthia.

⁵⁶ See Marek 2009, 35-36 and Munk 2009b, 96-97.

⁵⁷ Bucher 2000: 454. Ancient sources state otherwise: Justin goes as far as to consider Mithridates intended to conquer all of Asia. See Just. *Epit.* 37.3.

⁵⁸ Dart 2016; Terpstra mentions that the *Senatus Consultum* would have conferred «extraordinary honors and privileges on three Greek naval captains: Asclepiades of Clazomenae, Polystratus of Carystus, and Meniscus of Miletus». See Terpstra 2013, 180; Bucher 2000: 430.

⁵⁹ CIL I(2) 588: «*Asclepiadem Philini filium) Clazomenium Polustratum Poluarchi filium) Carystium Meniscum Iranaei Meniscus Thargeli qui fuit filium Milesium 3 in nauibus adfuisse bello Italio coepto eos operam fortem et fidelem rei publicae nostrae nauasse*].»

⁶⁰ Dart 2016.

⁶¹ On this treaty, see Rich 2015, no. 53. It is considered that this treaty may have been made «as a result of the operations in Thrace prior to the war planned to suppress piracy ca. 100 B.C.»

along the shores of the Black Sea, or that the city-states and kingdoms of the region would themselves seek an alliance with Rome, against the growing local powers.

Why did Rome decide to wage war against its former ally? Perhaps it was an attempt to grasp better control over the sovereignty of the region, but the issue of resources seems to have had some sort of influence over the decision⁶². As for the Roman desire to justify war, it is not a novelty in Roman History, and the attempts of ancient sources to ascertain valid reasons for confrontation are not strange to ancient authors⁶³. The reason behind the Roman interference in Pontus' affairs seems to have grounds which may reveal themselves less elusive to historians than, for example, the defence of the Mamertines in 264 BCE and the subsequent issues it brought with Carthage, with whom Rome had formerly been in good terms. As stated by King:

«(...) the kings of Pontus had carved out control over their territory in the century or so of political turmoil that followed the death of Alexander. They governed a fertile region, the same area whose lush river valleys and dense forests had attracted Greek settlers centuries earlier. (...) Their real advantage, however, lay in their keen appreciation of the power of the sea itself – coupled with some strategic good sense. (...) the Pontic kings looked around the coastline. They built a navy of sturdy galleys able to make the crossing to the north and strengthened ties with the old Greek colonies there. Across the sea, at Chersonesus, they concluded an agreement under which the kingdom would protect the city against Scythian incursions, and they secured the support of the cities on the western coast as well. Their friendly relations with the powerful Bosporan kingdom, centered in the old colony of Panticapaeum, guaranteed their access to fishing on the Sea of Azov. The kings also saw what the growing power of Rome meant for their region. They aided Rome in the wars with Carthage and assisted the legions in defending Roman conquests in the east against local rivals».⁶⁴

The region of Pontus seems to have been prospering economically, and the growing army of Mithridates VI was bound to become problematic for Rome⁶⁵. In this case, it seems as

⁶² It might be worth to mention that, as seen in several references, both in sources and bibliography, several of the city-states under the control of Pontus (and other oriental kingdoms) amassed substantial wealth; this, together with the great military capacity shown by Mithridates – both in terms of supplies and logistics, engines and a strong fleet – might be some of the reasons that explain Rome's attempt to provoke a war against the Basileus. Perhaps one of Rome's interests could have been the Pontic navy, not particularly the warships – they are mostly large warships, which will fall into disuse in later periods – but, in the least, the transport ships, that in several occasions seem to have been quite useful to Mithridates, such as the case of the siege of Cyzicus. During the Second Mithridatic War, as pointed by Madsen, one can also add the «opportunity to collect booty and enhance prestige, essential elements for succeeding in a political career»; Marsden 2009, Webb 2015: as will be shown below, it seems that this very short conflict was little more than a few skirmishes.

⁶³ See the first chapters in Book 1 of Polybius, for instance, and the author's attempt to thoroughly justify Rome's participation in the Mamertines' conflict with Carthage, together with how that subsequently will come to validate the invasion of Sicily and the First Punic War.

⁶⁴ King 2004, 47.

⁶⁵ Marek 2009, 35-39.

if there is an intended desire to control territorial division and management, and to avoid that a single political entity has control over a large amount of resources. Rome directly provokes the Basileus by «encouraging Nikomedes IV to attack Pontos in 89 BC», and by «attacking Mithridates when the latter withdrew to his previous position in Kappadokia»⁶⁶. Thus, the Roman actions may have been provocations in attempt to stir war, as seems to have been believed by Mithridates himself.

It is apparent that one of the greatest assets of Mithridates was his fleet. This is seen in the speech of the ambassadors of Nicomedes sent to Pelopidas. During war preparations, Mithridates' first steps are to make allies and increase his fleet. The list includes an alliance with Thracia and Scythia («συμμάχων Θρακῶν καὶ Σκυθῶν»), Armenia (this one having been concluded through a nuptial contract: «ἐξ δὲ τὸν Ἀρμένιον αὐτῷ καὶ ἐπιγαμία γέγονε»), an intended future agreement with the Egyptian Pharaoh and the Syrian king («Αἴγυπτον καὶ Συρίαν») and the support of several unspecified neighbouring peoples of Pontus («ὅσα τε ἄλλα πλησίον ἔθνη»⁶⁷). Livy also mentions that Thebes would have been on Mithridates' side in the beginning of the war, but that these would have changed to the Roman side when Sulla invaded Boeotia⁶⁸.

Firstly, this speech, regardless of its level of accuracy regarding the steps of Mithridates before and after the beginning of the war, seems to show an underlying interest in making alliances with sea-faring regions. Such course of events seems connected not only to the mere need of assuring allies or associating with wealthy regions to assure funding for the campaign, but to have a close connection to Mithridates' alleged willingness or need to increase his naval power. This can be seen further along chapter 2.13 (App. *Mith.*), when the said ambassadors mentions he has three-hundred cataphract ships ready and more in preparation («καὶ ἑτέρας προσαπεργάζεται»), which is a significant number when one considers those pointed by ancient sources to the last naval battle of great dimension of the First Punic War, the Battle of the Aegates: Polybius suggests the Romans participated with 200 quinqueremes⁶⁹, whilst Diodorus Siculus says 300 warships were involved on the Roman side and 250 on the Carthaginian navy⁷⁰.

⁶⁶ Munk 2009b, 100.

⁶⁷ App. *Mith.* 2.13.

⁶⁸ Paus. 9.7.

⁶⁹ Polyb. 1.59.

⁷⁰ Diod. Sic. 24.11. Mithridates' capacity to assemble such large fleets might be derived, as mentioned above, from several wealthy trade-cities along the Black Sea, of which the Crimean posts might be some of the most important. In Strab. 7.3, Borysthenes / Olbia was already mentioned; 7.4 mentions the city of

In both speeches regarding Mithridates' ally policy (one by the said ambassadors sent by Nicomedes, and the second by Pelopidas, Mithridates' own envoy), the same two matters are underlined. In App. *Mith.* 3.15, the idea of an alliance between a great number of sea-faring nations and of Mithridates' naval power is once more introduced, with particular emphasis regarding the matter of the king's great deal of preparation for the upcoming war⁷¹. However, Mithridates' interest in making allies with sea-faring regions (particularly with Phoenicia and Egypt) seems not as much connected with his desire to improve his naval numbers, but more with a need to provide for capable sailors; his ultimate goals regarding the future of his army might have been more related to demography than to financial resources, which he might have attained both from his former allies and his new territorial acquisitions to the North of the Black Sea. For instance, when Justin is speaking of his alliance with Tigranes, it seems that the bounty would have been distributed in the following way (provided that the Pontic-Armenian faction was victorious): Mithridates was to keep the land and the cities, and Tigranes would have the prisoners and every other «moveable» plunder⁷². More cities would mean a greater demographic potential in the long-term, whilst prisoners and gold might only provide for a temporary solution to any eventual scarcity in human resources⁷³.

The king's interest in further increasing his army's numbers might be related with his policy to procure foreign naval officers and sailors. The fast increase in naval capacity,

Chersonesus, which came to be under Mithridates' control. Several harbours are mentioned in Chersonesus, one of which belonged to the Tauri, who assembled pirate recruits there. Strabo mentions that Chersonesus would have come to Pontic control at some point during the Mithridatic Wars, when Mithridates would be attacking the Isthmus near Perekop in preparation for a Roman campaign and sent part of his army to Chersonesus in aid to the city. Theodosia, also in possession of good harbours, would also have come under his domain. The people of Chersonesus, Theodosia and Sindice would have paid tribute to Mithridates as well (Strabo mentions 180 medimni and 200 talents of silver); there is also a mention of a few forts existing in the region, built either by Mithridates or his enemies. See Strab. 7.4. The capacity to control harbours seems to have been particularly different regarding both climate conditions and traditional means of dislocation: as mentioned by Marek, «there was little or no traffic inland by roads or rivers»; Munk 2009b, 102.

⁷¹ App. *Mith.* 3.15: «νεῶν τε πλῆθος ἔχει τὸ μὲν ἑτοιμον τὸ δὲ γιγνόμενον ἔτι καὶ παρασκευὴν ἐς πάντα ἄξιόλογον». The passage regards the Pontic fleet, stating it would have a large number of ships, both already prepared for war and still being constructed.

⁷² Just. *Epit.* 38.3.

⁷³ It is still difficult to access the matters of demography and urban growth in Pontus throughout the 1st century BCE. According to Munk, the data collected so far points to a reduction of settlements from the iron age to the Hellenistic period. However, as mentioned in this study, the data collected so far and the respective treatment make it «impossible to determine whether this indicates a decline in the population or whether it signifies contraction of the population into larger urban centres» (Munk 2009b, 97). The author leans towards the latter, basing his considerations on «the size of armies that Mithridates was able to raise», and the seeming change of settlement type after the Roman conquest (Mayor 2010a, 54-55). Regardless, there seems to be, in fact, a possibility for a demographic decline, or, at least, of the availability of urban populations to serve in the army, especially in lower ranks.

motivated by Mithridates' naval construction policy in preparation for the war, could have prevented the kingdom of Pontus from the demographic capacity of providing, if not rowers and lower-ranking militia, at least enough qualified staff. The source specifically mentions his sending for «*πρωρεύς*» and «*κυβερνήτης*», who were, respectively, the commanders in charge of the prow of a ship and the steersmen. Thus, we are provided with two naval terms applied to high hierarchical ranks⁷⁴. The «*proraeus*», as first man to see the upcoming way, and the steersman, as the one who guided the ship and assured its safety (preventing the material loss of both ship and crew), can hardly be accounted as secondary characters in the manning of a vessel, and if Mithridates was, in fact, with a need for qualified staff, it could mean that A) he expected a large scale naval conflict / to be able to defeat the Romans through naval superiority, B) the kingdom of Pontus lacked qualified commanders and C) this deficiency is either justifiable by the populational concentration amongst different activities or the lack of demographic capacity.

Even though this work's purpose is to study the Roman command, it seems pertinent to include a mention, however brief, of Mithridates' military capacities, so as to allow for further comprehension of the type of military command that the Roman generals could expect from their enemy. Several myths and legends are told regarding the early life of Mithridates and his education. As much as these might seem like exaggerations, it seems clear that Mithridates' early life was marked by military training, particularly regarding cavalry⁷⁵. It is also stated by Ancient Sources that he survived several assassination attempts during his early years⁷⁶. The surrounding areas and kingdoms would have been under Hellenistic influence by the time Mithridates was born, despite the fact that the Kingdom of Pontus (like Cappadocia and Armenia), said to have had «Hellenised» courts, command styles, titles and coinage, and controlling several Greek cities along the coast of the Black Sea, was not fully integrated, given the «Iranian» origins of their ruling

⁷⁴ Despite the development of modern views on Appian pointing towards an approach of the source's validation as an historical document worth of study («(...) it would also be a mistake to think that Appian had no interest in history except as a vehicle for his program (...)»; Santangelo 2007, 28), investigators also point out that Appian was following an agenda, a «spirit of advocacy; and the presentation of historical data has been thoroughly conditioned by a desire to establish the validity and inevitability of his themes» (Keaveney [1982] 2005, 30). For an analysis on Appian's method and intentionality, see, for instance, Geelhaar 2002: 111 and Santangelo 2007, 28.

⁷⁵ Just. *Epit.* 37.2.

⁷⁶ Hence the legend about Mithridates being so hardened against poison that it would have been impossible for him to suicide by this mean. The contemporary visions on Mithridates suffer from both lack of sources regarding the kingdom of Pontus and former diverging historiographic views that first showed him as an enemy of order and progress (thus, of Rome) and, in subsequent years, as the defender of Greek interests against Roman domination. For a study regarding the evolution of historiography on this topic, see Santangelo 2007, 5; 29.

families⁷⁷. Several legendary or semi-legendary accounts of his life can be found amongst the ancient sources, but the idea of danger to his life prevails, together with his attempt to pursue several alliances and, as seen in Justin, his habit of physical exercise, either through hunting or through strengthening himself during Winter. This philosophy of physical training throughout the «quiet» months of war he would have passed to his army⁷⁸. Coinage seems to suggest that Mithridates would have attempted to strengthen central authority. This centralism seems to have reached the organisation of the military, for it appears the highest military ranks would have been filled by Mithridates' «friends (*filoi*), which would mostly be men of his own choice, not related to former kingships»⁷⁹. These trusted men had mostly Greek names and served as «army officers and commanders of the garrisons». Also worth mentioning is the fact that the «two most commonly occurring titles are «*strategos*» and «*phrourarchos*», which are difficult to distinguish and could imply «a military as well as an administrative function»⁸⁰.

The first numbers introduced by Appian regarding the size of each army seem to predict a naval conflict of large scale. Several commanders are named: on land, Appian mentions Lucius Cassius, a commander or governor in Asia («*ἡγούμενος*»⁸¹); Manius and Oppius (mentioned as «*δὲ ἕτερος στρατηγός*»), each leading 40 000 soldiers (both infantry and cavalry). Aside from the land army, Rome also prepared a fleet («*ἣν δὲ καὶ νεῶν στόλος αὐτοῖς*»), but as for it, Appian does not specify the number of ships or their size. He does, however, mention the name of two commanders, Rufus and Gaius Popillius («*Ροῦφος Μινούκιος*»; «*Γάιος Ποπίλιος*»), stationed in Byzantium and guarding the mouth of the sea («*τὸ στόμα τοῦ Πόντου φυλάσσοντες*»), in this case the Black Sea or Euxine Sea. It seems the Roman commanders intended to blockade the enemy navy inside the Black Sea, preventing it from coming into the Mediterranean and, following this measure, would have stationed their fleet on the narrow strait that controls the exit, by modern

⁷⁷ As mentioned by Marek, at Mithridates' birth, «the Iranian dynasties in eastern Anatolia were backed by the Arsakid Empire at its peak, a system of vassal kingdoms stretching from northwest India to Armenia» (Marek 2009, 25). In spite of it not being a universal rule, the population seems to have been greatly more Hellenized, however, when comparing to the levels of «romanization» of the people under Roman control. See Santangelo 2007, 23-25.

⁷⁸ Just. *Epit.* 37.2-4. Justin's re-telling of the events that lead to the First Mithridatic War seems to focus much more on the goals of each individual figure than Appian's, which is related to the political and diplomatic issues. The former's version includes many details on treachery, murder and (failed) marriage liaisons that, even though not essential to the topic we intend to discuss, are however worthy of mentioning. See Just. *Epit.* 37, and the first chapters of book 38.

⁷⁹ Mayor 2010b, 98-100.

⁸⁰ Mayor 2010a, 47-55.

⁸¹ App. *Mith.* 3.17.

day's Istanbul⁸². It is unknown how long it took between the diplomatic embassies' conversations and the sending of messages between Rome and the stationed generals in Asia, so that a course of action could be decided. However, according to Appian, the generals wouldn't have waited for answers from the Senate in Rome but proceeded immediately to gather resources and assemble their armies.

As far as Mithridates' army is concerned, at this point, his numbers on land seem relatively superior to Rome's: 250 000 infantry and 40 000 horsemen, which makes for a total of nearly 300 000 men. The opposing army was constituted by 120 000 Roman soldiers and 56 000 brought by Nicomedes, including both infantry and cavalry units, which makes a total of nearly 180 000 men, not much more than half of Mithridates' men. Along with the army, he had the already mentioned fleet of 300 cataphract ships (*«νήες κατάφρακτοι τριακόσαιο»*), together with one hundred double-banked ships (*«δίκροτος»*) and other unspecified preparations (*«ἡ ἄλλη παρασκευὴ τούτων κατὰ λόγον»*). Regardless of the seemingly significant number of naval resources on each side, the first few confrontations are set on land. Rome suffers several defeats that lead the land armies (led by Cassius, Manius and Nicomedes) to retreat; the ultimate consequence is that the Roman fleet, becoming aware of the situation, would not have attempted to give battle to Mithridates, but instead would have retreated as well, without an attempt at saving the ships. These would have been left behind, thus providing Mithridates not only with an increased fleet, but also the control of the Strait⁸³.

Why two Roman commanders would decide to leave a whole fleet behind and not attempt to defend the strait is open to interrogation. On the one hand, the severe land defeats inflicted by Mithridates devoided the fleet from its land support. On the other, it is not mentioned whether the fleet was a Roman fleet or an allied one. The ships seem to have already been there – there was no dislocation involved, no sending of ships from the Italian Peninsula or any of the Roman allies or provinces in the Mediterranean. Appian does not mention so, and given the celerity involved in the case and the need to quickly

⁸² Tacitus mentions that the people of Byzantium would have granted aid to Rome several times, especially by taking advantage of the city's strategic situation to allow for the crossing of armies both by land and sea. Amongst the listed occasions for such help are those to three of the main commanders of the Mithridatic Wars: Lucullus, Cornelius Sulla and Gnaeus Pompeius. See Tac. *Ann.* 12.62, also mentioned by Erciyas (2005, 24-25, note 36), note 36, as a «non-relevant» quote regarding the possibility of Sulla intervening in controlling the pirates.

⁸³ *«ὧν, ὅσοι τὸ στόμα τοῦ Πόντου κατεῖχον, πύθόμενοι διελύθησαν καὶ τὰς τε κλεῖς τοῦ Πόντου καὶ ναῦς ὅσας εἶχον, τῷ Μιθριδάτῃ παρέδοσαν»*, App. *Mith.* 3.19: the passage describes the immediate aftermath of the Roman retreat, namely the fact that Mithridates took hold of the Strait and the available ships.

shut the exit of the Euxine sea, it seems more likely that the fleet was already there, whether it was Roman or not; and these individuals might have been there before, not only preparing for an upcoming war (which, if Appian's words are true, Rome had intended upon since, at least, the death of Mithridates V), but also patrolling the entrances and exits between both seas. This might also explain why Mithridates had such a seemingly strong interest in achieving a valid reason for proceeding into war, for the movement of both his fleet and commercial ships might have been severely hampered by Rome's control of the strait.

If these ships were indeed allied ships, then this might explain the fact that they were seemingly abandoned to Mithridates – the city-states could have turned against Rome and decided to support Mithridates, whose early campaign was seemingly successful. There could also be a technological issue, where the ships commanded by Rufus and Popilius could essentially be smaller types of scouting ships or guard-ships, and thus unfit for naval war, which would have been pursued by Mithridates' military-oriented, well-equipped fleet. There could also be the case where the commanders were aware of their technological and technical inferiority towards the enemy's fleet.

Whilst these events were happening in the East, Italy was having issues within the Peninsula itself, with the outbreak of the so-called Social War. It is under these circumstances that a second well-known commander will rise to prominence within the Ancient Sources. This is Cornelius Sulla, who worked together with Gaius Marius in the Numidian campaigns. Sulla's military career greatly differs from Marius' in that some of his strongest foreign opponents were bound to the sea and coastal domains: his early career following war in Numidia seems to have been bound to the sea. In 96 BCE, he was assigned the province of Cilicia. Keaveney considers that «a command in this area could only mean one thing: he was to wage war on the pirates who infested in this neighbourhood»⁸⁴. However, the political development of the Pontic affairs, with Mithridates attacking Ariobarzanes, might have changed such prospects. If we are to

⁸⁴ Keaveney [1982] 2005, 30. According to Geelhaar (2002, 111), from the «lex de prouinciis praetoriis», one can infer that piracy had become a growing issue for Roman interests in the Mediterranean, starting, at least, during the late 2nd century BCE. Cilicia would have been assigned as a «praetorian province to secure the safety of navigation for Rome, its allies, the Latins and foreign nations who had a relationship of friendship or alliance with Rome». Thus, even though there are no specific mentions of Sulla having a naval command prior to becoming a commander in Cilicia, it seems that he would have been in charge of matters that would be essentially naval. In fact, even though the political situation of the Pontic kingdom gave a new turn to what would become Sulla's course of action in the Eastern Mediterranean, a significant part of his affairs would still involve dealing with naval matters.

consider Tac. *Ann.* 12.62, Sulla would already have the advantage of Byzantine support, regarding the closing and opening of the Euxine sea, at least; it seems that, during his appointment in Cilicia, he would have also established a friendly relation with the Kingdom of Parthia (as mentioned by Santagelo, «*Amicitia*»), thus securing «Parthian neutrality» for the upcoming wars⁸⁵.

Regardless of Parthian support, it seems that, in the early moments of war, Sulla would have been struggling with funding the army, something that would have driven him to collect means from Olympia, Epidauros and Delphi (Paus. 9.7). But if Sulla was lacking in funding, it is likely that, throughout his early years in the province of Cilicia, he would have relied upon Roman allies to fill voids within the Roman army. Amongst these allies would lie Rhodes, which is of particular importance when one observes the immediate aftermath of the failed negotiations.

Mithridates' next intended step was an attack on Rhodes⁸⁶ but, before this attack could come to terms, there seems to have been a large-scale action both by land and sea against Romans or Italians living in Eastern settlements: Mithridates' allies attacked men, women and children in Ephesus, Pergamon, Adramyttium, Kaunos and Thralles. Victims of the said episodes are said to have taken refuge in sanctuaries, such as the temple of Artemis in Ephesus, the temple of Aesculapius in Pergamon, the temple of Vesta in Kaunos, and the temple of Concord in Tralles; according to Appian, the eastern city-states allied to Mithridates seem to have taken particularly violent measures to make sure there would be no survivors, including the sacrilegious action of murdering people who fled to such temples⁸⁷. There is one sentence that seems to indicate the usage of naval power to conclude this attack: it is said that some of the Romans and Italians would have attempted to flee by swimming into the sea in Adramyttium; caught by the Adramytteans, these people were murdered, and their children were drowned⁸⁸. It is not mandatory that a fleet

⁸⁵ See Munk 2009b, 103.

⁸⁶ App. *Mith.* 4.22.

⁸⁷ This episode is sometimes called the «Asian Vespers», as seen in Sampson 2013, 64. The same author mentions the Roman migrations to Asia, and the «need to defend Roman interests in the Mediterranean»; the safety of Romans living abroad (such as the «negotiators») was attempted by creating laws such as the «*lex de prouinciis praetoriis*») but, as seen in Appian, with little success.

⁸⁸ The inviolability of temples, which would assure anyone who took refuge there of being safe, is as much of a contemporary value as it was valid in this time-period («*asylia*»); stories of punishment for men who broke this unwritten code are known from the earliest times (for instance, the punishment of Ajax for the rape of Cassandra). Mithridates was a king of Pontus, but nonetheless under the influence of the Hellenistic culture. Even though he did not order the pursuing of people into the sanctuaries himself, the citizens of these city-states did not seem to have religious or pious scruples regarding such a measure, which seems to show the degree of tension between them and the Romans/Italians living there. Some of the causes for such

would have followed these individuals, but it does seem likely that some ships were used on this enterprise, given that men in armour would have found it hazardous to swim after the runaways, due to the weight. Mithridates continues to wage his war in coastal dominions, given that his next step was sailing to Cos⁸⁹.

One of Mithridates' advantages seems to have been his knowledge of the «history, geography, economy, natural resources, towns, roads, fortresses and trade relations of Pontus and the neighbouring lands»⁹⁰; Rome had migrants, but seems not to have been as well-acquainted with such matters regarding this region, given how they rely on allies and quickly lose not only their support, but many of the main coastal cities; the possibility of Rome's army being constituted by a great number of foreign troops, especially during the earlier campaigns of Aquilius and Maltinus, seems to be confirmed by Justin, who mentions that most of their soldiers would come from Asia, most likely from Roman's Asiatic provinces⁹¹. Despite this fact, Rome seemed to have plenty of individuals based in Asia: not only did the Romans seem to be travelling far from their original land base and acquiring new knowledge regarding the seas, but (and this is perhaps the most important factor regarding the upcoming wars) Mithridates seems to be preparing himself for a war that will be mostly sea-based. Thus, Rome and, consequently, Sulla, would have to be prepared for a war that would not be waged in the traditional style (which relied mostly in the Mediterranean land-basin), but reinstated the need for a steady, numerous and effective fleet.

The murder of a great number of Romans in these cities might seem fed by ancient hatred when it comes to the individuals who took charge of it, when one looks at App. *Mith.* 4.23; however, according to the same source, it was the Basileus who took the decision and gave the order, and thus probably had more in mind than the emotional factors; it might have served as a warning, but it can also have meant that these individuals were a threat to his army, somehow. This threat might have been related to resources and to their taking charge of local governments, thus depriving him of allies, manpower, ships and

clash may be, as pointed by Mayor, the increasing demand of Eastern slaves by Roman markets and the Roman dominance of said city-states, which included significant taxation. See Mayor 2010a, 47; 2010c, 110; 2010b. See de Souza 2007, 445.

⁸⁹ A similar sort of event seems to be narrated in App. *Mith.* 5.28, when the fleet of Archelaus attacked several strongholds (amongst which, Delos) and slayed 20 000 men. A significant, albeit non-specified number of these individuals, would have been from Italian origins.

⁹⁰ Sampson 2013, 64-65.

⁹¹ Just. *Epit.* 38.3.

supplies. It probably cannot be assumed that the Romans in said places were owners of powerful transport or war-ships (not only no such mention is made, but, as mentioned, some are said to have fled by swimming), but their influence upon the said coastal cities seems to have been worrisome enough for Mithridates.

The first large-scale combat is the aforementioned invasion of Rhodes. It seems as if the Rhodians⁹² were aware that the King of Pontus would be coming for the city, for it is said by Appian that they took measures to fortify their walls and harbour, and to install some sort of defensive engines (*«καὶ μηχανὰς ἅπασιν ἐφίστανον»*). As Mithridates approached with his fleet, the Rhodians not only destroyed the outskirts of the town (thus preventing the Basileus from having an easy flow of supplies in case of a subsequent siege), but also sent their fleet ahead. Thus, the first naval battle of the First Mithridatic War does not involve the Romans, but their Rhodian ally⁹³. It might be mentioned, however, that Lucius Cassius, who was apparently in charge of Asia⁹⁴, was present in Rhodes, as well as those of the Romans and Italians who had escaped the earlier attacks on coastal cities. But it can be questioned whether these Italians, including Cassius himself, were present in the naval battle against Mithridates, as the source does not specify who the commanders were.

The said purpose of this chapter is to study Roman Commanders in naval battles. It would thus seem out of place to include conflicts such as this one, given that it is not only impossible to prove any Roman involvement in this battle (commander or crew), but also the protagonists would not be Romans. However, given the specific characteristic of the Roman navy, which heavily relies on allied fleets, it seems that the said battle and formations⁹⁵ are worthy of including in this investigation. Regarding this particular event,

⁹² Their naval prowess is described by Diodorus Siculus as being superior to the enemy in number of ships, pilots/*κυβερνήτης* (*«κυβερνητῶν»*), commanders and sailors (regarding the plying of the oars). See Dio Cass. 37.28: *«Ὅτι καθόλου κατὰ τὴν ναυμαχίαν παρὰ τοῖς Ροδίοις πλὴν τοῦ πλήθους τὰ λοιπὰ πάντα μεγάλας εἶχεν ὑπεροχὰς τέχνη κυβερνητῶν, τάξις τῶν νηῶν ἐρετῶν ἐμπειρία, δυνάμεις ἡγεμόνων ἐπιβατῶν ἀρεταί»*.

⁹³ According to Erciyas, even though Mithridates «had most of Asia and Greece under his control» by the end of 88 BCE, «he was not able to achieve full control of Rhodes, however, and he failed to take Patara in Lycia». This means that the Rhodian military/naval capacity might have been capable of keeping Mithridates from taking the island and their resources, and, consequently, that Rhodes, as a Roman ally, could play a significant role in the subsequent defeat of Mithridates, by remaining free from Pontic control and aligning with Pontus's enemy. He also lost several Greek cities, which would have rebelled. See Erciyas 2005 and Grigoropoulos 2009.

⁹⁴ App. *Mith.* 4.24: *Ἀσίας ἀνθύπατος*.

⁹⁵ Pitassi underlines two main types of manoeuvres for ancient navies, the *«diekplous»* and the *«periplous»*; the former would involve «co-ordination and some surprise», as «a galley in the centre of the line would race for the gap between two enemy ships, closely followed by a second; at the last moment it would put its helm over and scrape the side of one of the enemy, shearing off its oars and causing it to slew, which left it open to being rammed by the second attacking galley. The enemy galley was sunk or at least pushed, disabled, out of the line and the attacking fleet then poured through the resulting gap to fall upon the rear

despite the little information provided by the source, one can find the mention to at least two different types of formation. The Rhodians sent some ships to attack the front, and others to attack the flank («καὶ ἐπὶ ναυμαχίαν ἀνήγοντο ταῖς μὲν ἐκ μετώπου ταῖς δὲ πλαγίοις»); literally, they attacked the ones who were right in front of the eyes of the ship commanders and placed some of their ships sideways; see App. *Mith.* 4.24).

As far as Mithridates is regarded, he attempted to take the best advantage of his means: he ordered his ships to increase their oaring speed and encircle the enemy ships («καὶ τὴν εἰρεσίαν ἐπιταχύναντας περικυκλοῦσθαι»), and the Rhodians, having a smaller fleet, seem to have been unable to haste in spreading their flank in order to prevent being surrounded by their enemy. Thus, Mithridates' action caused some fear or concern amongst the Rhodian fleet («ἀμέχρι δείσαντες οἱ Ῥόδιοι περὶ τῇ»): the commanders seem to have considered it preferable to keep their ships safe (particularly given the fact that they had a smaller fleet, which needed to be preserved) and fight from their newly protected walls⁹⁶. In this way began Mithridates' siege of Rhodes, a military action that didn't seem to be as successful as his first naval encounter – that, if one is to be accurate, did not develop into a battle, given the instant retreat of the Rhodian resources. Not only did he fail at gaining entrance to the Rhodian harbour (thus being unable to attack their fleet), but the king also had issues with his infantry, part of which was being ambushed by the Rhodians; plus, Rhodes maintained its ships close at hand and ready to attack his fleet as soon as a proper occasion showed.

Even though it is not the intention of this chapter to analyse the types of ships of this period (the said subject is meant for a subsequent chapter), there is one point that seems useful to mention regarding that topic, given that it is related to the commander. Mithridates is said to have sailed around in a quinquereme («πεντήρης»). This is a fairly

of the remaining enemy ships»; this would be more suitable for the «fastest ships, which could come up upon the rear of an enemy target which was itself trying to accelerate way». The latter would be «best suited to a fleet with greater numbers than its opponent. Whilst the enemy is pinned by the attacker's fleet at the front, the attacker extends one flank sideways, out and round the enemy, from where it can attack the enemy flank and rear. The quandary in these manoeuvres was that by taking precautions against the one, a fleet laid itself open to the other. With both sides seeking to outmanoeuvre the other, most battles resolved themselves into an advance in line abreast and discharge of a shower of missiles, preceding the two lines smashing into each other bow-to-bow, the deck crews sitting just before impact to avoid being thrown about by it and the rowing masters yelling their orders to back water» (2009, 15-16). As possible naval artillery he mentions the Gastraphetes (19), the «formula artillery» of «Ptolemy's military engineers» (37), the Corvus (57).

⁹⁶ App. *Mith.* 4.24: «μέχρι δείσαντες οἱ Ῥόδιοι περὶ τῇ κυκλώσει ὑπεχώρουν κατ' ὀλίγον: εἴτ' ἐπιστρέψαντες ἐς τὸν λιμένα κατέφυγον καὶ κλείθροις αὐτὸν διαλαβόντες ἀπὸ τῶν τειχῶν τὸν Μιθριδάτην ἀπεμάχοντο», a passage which describes the Rhodian retreat into the harbour and the subsequent measures.

large ship and is better known for its usage during former conflicts (for instance, the First Punic War). Throughout the centuries, it seems that the preferred typologies of ships used in naval combat are small, fast vessels; one can ask whether this preference for large ships can be attributed to the fleet as a whole, or if the quinqueremes, which formerly were of standard use in naval battles, are now reserved for the leaders. This is particularly relevant when one observes the following details: 1), that the Rhodians were in possession of the said smaller typologies of ships, in this case, those with two-oars, probably a typology of biremes («*δίκροτος*»); 2), that Mithridates himself used triremes («*τριήρης*») in his fleet, together with the said quinqueremes; 3), that the smaller ships, through swiftness and a well-prepared crew, were able to take down larger typologies of ship. The Rhodians earned some successes against the larger fleet of Mithridates by adopting a method of smaller incursions and skirmishes against the larger ships and were also able to ram them («*Ροδίων δ' αὐτοῦ τὰ σκάφη σὺν ἐμπειρίᾳ περιπλέοντων τε καὶ ἀνατιπρόντων*»).

The Rhodian method of ramming is also seen in chapter 4.26. In this case, the Rhodian commanders, attentive to the meteorological conditions, are said to have taken advantage of the adverse climate conditions that affected the enemy fleet by disabling some of its ships. It is the first time in which Appian reports the use of this sort of knowledge to take advantage in a naval engagement. The storm which is said to have affected Mithridates' fleet supposedly blew from Caunus, so it must mean that the Rhodians were informed of the poor state of the enemy fleet, either by informants stationed in strategical points, the use of *naues speculatoriae* as a way to quickly convey information from one point to the other, or a combination of intel and deduction on the side of the commanders.

There seems to have been an evolution in command regarding the one seen in the previous centuries. During the First Punic War, the naval battles were more similar to those in which Mithridates seems willing to engage: by amassing a large fleet of very large ships, he expected to over-power the enemy in a more «traditional», Punic-Hellenistic type of battle. The Rhodian commanders, however, were well-aware that they could not beat the king in the open-sea and used their undersized ships to engage in fast attacks against their enemies, thus managing to bring down the triremes and quinqueremes. It seems as if a new style of naval battle is either being introduced or developed in the Eastern Mediterranean.

During this chapter, one is also introduced to other naval positions aside from that of the admiral, some of which had already been accounted for. Regarding the admiral, in Greek,

ναύαρχος, one can say that this terminology is not applied to Mithridates in this chapter, who is usually referred to as the Basileus, but only to Demagoras, the commander of the Rhodian fleet. It seems this could be evidence of Lucius Cassius not being a direct participant in the naval battle, despite being in the city. The specific circumstances under which Demagoras participates are unknown, and it is not mentioned whether Cassius delegates the naval functions in Demagoras, or whether the Rhodians, as proprietors of the fleet, can determine who is to command. One cannot know whether Lucius had some sort of role in other fields, either in planning or managing the flow of information. Aside from the admiral, one finds the steersman (*κυβερνήτης*) and the officer who commanded the prow (*πρωρεύς*). This is one of the situations in which one can see the importance of the two said roles, which have previously been shown to be mentioned together (which might account for some sort of importance in the strategic connection between the two): the failure of these men was, in the eyes of Mithridates, responsible for the shock of two ships (an allied ship from Chios and the king's own).

The said clash can once again account for the new style of fighting adopted by the Rhodian commanders. Using small and fast ships against the larger, heavier quinqueremes and triremes on the enemy's side gave them not only the advantage of speed, but also allowed them to generate some sort of confusion between the several divisions of Mithridates' fleet. These would subsequently benefit the Rhodians by episodes such as when two allied ships collapse and cause damage to each other, without any further Rhodian interference. There is one point that is yet to be accounted for, which is the alleged night dislocations made by Demagoras. If these indeed happened, one can ask how the technology allowed for them. Firstly, one must ask how did Mithridates' fleet not notice that it was being attacked: even though it is a night skirmish, one is not to assume that the king's fleet would be left unguarded, thus, either the moonlight was strong and the sky clear enough for the ships to be dislocated, or the Rhodian ships carried some sort of light, which would be visible by the Pontian lookouts.

The source does mention the attacks themselves not to have happened by night, but by the sunset, which would account for there being at least some light still; and, if Mithridates' ships were facing the sun and Demagoras placed his own fleet in that direction, the strong light of sunset would have, if not prevented, at least diminished the probabilities of the enemy's fleet being noticed in time. Mithridates' fleet was also sailing away, but one may ask if there was some sort of mismanagement regarding this retreat,

and why Mithridates did not stand his ground with the fleet or retreat earlier; an ancient commander was probably aware of the dangers related to sailing towards or against the sunset. Also, depending upon the relative position of each ship, the Rhodian ships might have cast some shadows upon the sea. Even if, as Appian mentions, only the return was bound to be at night, given the size of Mithridates' fleet, one may ask why they did not turn around in chase of the Rhodian enemies, if not to attack, at least to attempt entering the harbour.

Appian also introduces another point of the military techniques used in such a war, namely the usage of war-machines integrated in the ships. The typologies of such engines and questioning how they could have been used will be left to a subsequent chapter; for now, it remains to be said that Mithridates was preparing his fleet for a siege (*πολιορκία*), and that this siege would obey a very specific type, through the usage of the ships as platforms for mounting the siege-engines. Appian mentions him as having specifically utilized the «sambuca» (*σαμβύκη*) on two ships; the source does not mention the size or typology of the said ships, and one can only propose that these would probably have been one of the larger warships, in order to support the weight of the engine (*μηχάνημα*). However, it remains to be questioned how Mithridates and his commanders managed to get these ships significantly close to the shore, without them being damaged or getting stranded between rocks or sand. Regardless of Mithridates' attempts to use the ships as siege platforms, the attempts to enter the city came to nothing, as the Rhodians managed to repel the attack, despite Appian considering them to have been worried with the usage of Sambucas.

There seems to have been a specific military strategy associated with naval siege attacks, especially in cases involving engines: the ships carrying the Sambucas (as mentioned, whether military or large transport ships, it cannot be said with certainty) would be surrounded by other ships, presumably of a different typology (those mentioned as *σκάφος/σκάφη* by Appian; one does not know if he mentioned the hull of a ship, or merely a different type of vessel) and smaller, so that they would be able to quickly surround the platforms without hazard⁹⁷. These *σκάφη* would have been filled with soldiers (*στρατιῶται*) and these, in turn, would carry ladders (*κλίμακες*), so that they could enter the city as soon as the Sambuca managed to tear down one of its walls. These techniques

⁹⁷ App. *Mith.* 4.27.

and strategies, even though used by the oriental, hellenised Basileus Mithridates, seem in fact much closer to those of Roman Naval warfare than to the Greek and Carthaginian standards: in spite of there having been naval confrontations and skirmishes throughout the siege of Rhodes, when it seems impossible or overly hard to be successful through these methods, Mithridates relies on using his fleet as a way for extending the war to floating platforms, extensions of the land. One can wonder why Mithridates would have chosen to apply the siege engines to the ships, instead of attempting to breach the walls from a land-point; one of his motivations might have been the actual landscape around Rhodes, which would have proven overly irregular to allow for the usage of Sambucas, whilst the sea, despite the inevitable agitation caused by the movement of so many vessels, might have provided a better chance⁹⁸.

The immediate aftermath of the siege of Rhodes seems to have been unfortunate to Mithridates, but a new factor was soon to be added to the war, which would have been significant and highly beneficial for his faction: the alliance between Athens and the King of Pontus, concluded after Archelaus managed to take hold of a series of strongholds formerly belonging to Athens' influence⁹⁹. Having supplied Mithridates with a good share of the plunder of the sanctuary of Delos, he would have given him renewed means for a successful campaign. Simultaneously, some of the former Greek city-states in Italy seemed to be on the verge of a change of policy. Mithridates now had on his side the Achaeans, Lacedaemonians and a great number of Boeotian settlements and, through his commander Metrophanes, successfully attacked Etubcca, Demetrias and Magnesia¹⁰⁰. At this point, there is a renewed, specifically Roman intervention in the war. So far, regarding the naval confrontations (which seem to have been significant so far) one can

⁹⁸ Ashton considers there is numismatic evidence for the siege of Rhodes by Mithridates in 88 BCE, through the analysis of several coinage emitted throughout this period. See Ashton 2001 and Grigoropoulos 2005, 16.

⁹⁹ According to Pausanias, the alliance between Athens and Pontus would have been brought to good terms by means of his general Aristion; this alliance would mostly comply the lower social strata, with the remaining Athenians leaving to the Roman side. Pausanias confirms the subdivision of charges already shown by Appian, with Aristion in charge of Athens and Archelaus in charge of the Piraeus. One might ask, however, how and by what means the members of higher social strata would have left Athens without the notice, or with the compliance, of the enemy, especially when Pausanias also mentions that Sulla, upon taking the city, would have punished those who opposed him (implying that some of Rome's supporters would have remained behind). See Paus. 1.20. The importance attributed by Mithridates to the «network of fortresses», either pre-existent strongholds or those built on his orders, is stated by Munk, who mentions that most of these have a feature of tunnels «cut deep into the rock in order to reach a secure water supply» (Munk 2009b, 103). Most of these strongholds would be afterwards destroyed by Pompeius. See Keaveney [1982] 2005, 16.

¹⁰⁰ According to Livy, Magnesia will be the only city to remain loyal to the Romans during the siege of Athens. Livy *Per.* 81.

only account for the early failed attempt to block Mithridates inside the Black Sea, and for the presence of a Roman commander in Rhodes during the siege, albeit his role is unknown. Now, the figure of Bruttius emerges as taking specific military action, not against the main fleet of Mithridates, but against Metrophanes.

Once again, the Romans will have to rely on their allies. Even though Bruttius is the commander, the fleet which is used to fight Mithridates comes not from Rome or Italy, but from Macedonia. Through their combined efforts, he manages to sink two of the enemy's ships («πλοῖον καὶ ἡμιολίαν»; the latter, the *hemiolia*, is a smaller typology of ship, and might be related to the «skaphos» mentioned earlier)¹⁰¹. The following sequence of events regards either dislocations or the seeming avoidance of naval confrontation. Before advancing to the next point of this analysis of naval military commanders, there are two ideas that might be underlined regarding Rome's intervention. During the early stage of the First Mithridatic War, Rome's naval intervention seems to have been residual: she relied mostly on foreign fleets, which seem to have been insufficient to face the large, well-prepared naval forces of Mithridates, and have thus often either retreated or, in worse-case scenarios, abandoned the ships to the enemy/joined him. The one point from which Rome does not seem to abdicate is the command. This can be compared to the Carthaginian stance throughout the First Punic War, where one can notice that, regardless of there being many mercenary hosts, the commanders were nearly always Carthaginians.

Just like Rome is said by Polybius to have adapted its early fleet from Carthaginian models, it seems as if the evolution regarding naval command hierarchy is also taken from their former enemies. There is always a Roman commander present during significant moments of the war (such as the siege of Rhodes), which would probably be accompanied by a garrison. Why Cassius would be in Rhodes and not participate in naval actions, as Bruttius will subsequently do after Mithridates retreats, is up to debate: why is it that during the siege Cassius left all military actions to Demagoras, but afterwards Bruttius took on the fleet himself and not only faced enemy ships (successfully taking some of them down), but also attacked some land-settlements? There seems to be a difference between the two commanders, and one can wonder whether it is related to rank. Bruttius,

¹⁰¹ App. *Mith.* 5.29: «καὶ Βρύττιος ἐκ Μακεδονίας ἐπελθὼν σὺν ὀλίγῳ στρατῷ διενανμάχησέ τε αὐτῷ καὶ καταποντώσας τι πλοῖον καὶ ἡμιολίαν ἔκτεινε πάντας τοὺς ἐν αὐτοῖς ἐφορῶντος τοῦ Μητροφάνους», the excerpt which regards Bruttius, his Macedonian forces, the naval battle and the sinking of an unspecified ship and a hemiolia.

for instance, seems to have been a legate of Gaius Sentius, stationed in Macedonia¹⁰², whilst Cassius, on the other hand, would have been a governor.

Following the early stages of war, Roman intervention becomes more assertive. Lucius Cornelius Sulla will rise to prominence during the upcoming years, and one of his first well-known leadership roles begins after Bruttius' retreat¹⁰³. This brings the investigation to Sulla as a military leader in his own right. The former turning point of his career is seemingly his participation in Marius' expeditions against Jugurtha and, later, against the Germanic invasions of the Cimbri and Teutones¹⁰⁴; thus, he is, like Marius, a general of terrestrial fight, and most of his actions prior to the Mithridatic wars were not on naval means. His acquired experience up to the year of 88 BCE was in Africa, and thus corresponds to a different setting from which he will have to face against Mithridates. His first priorities as «strategos» (στρατηγός) seem to be those of a land-commander: to gather soldiers, supplies and resources. His subsequent actions are mostly siegeworks (against the Piraeus and Athens), and it does not seem that he used the same strategy as Mithridates, for there is no mention of ships being used as platforms for rising siege-engines in order to destroy the walls. At this stage, the fleets on either side seem to have been used mostly for the transport of troops: first, Sulla's own army, from Italy to Attica; second, the reinforcements sent by Mithridates to Archelaus, led by Dromichaetes¹⁰⁵.

However, the Roman need for a skilled, well-manned and properly equipped fleet is not to be disregarded. Regardless of having first attacked cities through land-siege works, Sulla, now encamped for the Winter in Eleusis, will subsequently be preoccupied with attaining a larger number of ships. In this second stage of war, one of the greatest problems caused by Mithridates' fleet seems to have been its ability to control the sea, by which it was impossible, for example, that the Rhodians would send Sulla the ships he

¹⁰² According to Plutarch, as a praetor, which would make Bruttius Sura a praetorial legate. The exact terminology used by the source for Bruttius is «πρεσβευτής», whilst Sentius is said to be «τοῦ στρατηγοῦ τῆς Μακεδονίας» (Plut. Vit. Sull. 11.4). As mentioned by Sampson, we do not have further information regarding Bruttius Sura, aside from that provided by Appian and Plutarch. See Sampson 2013 and McGing 1986, 150.

¹⁰³ Sulla and Murena are mentioned by Cicero as very capable commanders, who could not, nonetheless, put a term to war. This is excused through Cicero's rhetoric: Sulla had to return the Italian Peninsula and Murena was recalled by Sulla, and thus they were unable to pursue what they would otherwise have done with success. See Cic. Leg. Man. 8: «*Et enim adhuc ita nostri cum illo rege contenderunt imperatores, ut ab illo insignia uictoriae non uictoriam reportarent triumphauit L. Sulla triumphauit L. Murena de Mithridate duo fortissimi uiri et summi imperatores sed ita triumpharunt ut ille pulsus superatusque regnaret uerum tamen illis imperatoribus laus est tribuenda quod egerunt uenia danda quod reliquerunt propterea quod ab eo bello Sullam in Italiam res publica Murenam Sulla reuocauit*».

¹⁰⁴ Bradford 2007, 50.

¹⁰⁵ App. Mith. 5.31-32; Livy Per. 81; Eutr. 5.6.

required from them. No further mention is made during the subsequent chapters of the Macedonian fleet commanded by Brutius, whether it had been dismissed or remained under Sulla's command, and it is also not mentioned whence came the ships that carried Sulla and his army to the East. These would, in all likeness, not be Rhodian ships, nor from any of Rome's eastern allies, given that the sea was under control and hard to navigate. What is mentioned is that Sulla felt the Roman fleet to be inadequate to face his enemy, especially regarding its numbers (*«ὁ δὲ Σύλλας νεῶν δεόμενος μετεπέμψατο μὲν ἐκ Ρόδου»*), and subsequently sent Lucullus, who would later become a «strategos» during this same war, to find ships in Alexandria and Syria (whose naval production would be considered superior by Sulla)¹⁰⁶. The source does not mention who would pay for these ships, which may have been acquired in a clandestine way, given the earlier mention of these same regions siding with Mithridates; it is known that Sulla attempted to gather means with which to maintain his army, but its origins (whether provided by the state or by Sulla's funds) are unclear. It seems that, in spite of the hiring of these vessels, Rome would still rely on its allies, for one of the jobs attributed to Lucullus would have been to bring the newly hired fleet and meet with the Rhodesian vessels, thus giving them the necessary support to bring them to Sulla.

This passage and the subsequent chapter present a few problems. If the sea was indeed being monitored by the enemy's fleet, and given the former fuelling of anti-Roman or anti-Italian feelings, it can be questioned how a Roman managed to sail to Syria and Alexandria while remaining anonymous, despite the seemingly continuous switching between different vessels. There is also the matter of how these ships would be manned, who would be the oarsmen and the military-men, and the difficulty of discretely carrying a fleet from an enemy-controlled area to Eleusis without encountering the fleet of Mithridates or one of his allies on the way. In fact, one might question how the whole action would be carried without enemy knowledge, given that it would hardly be unnoticeable for a large number of warships to be stationed in the shores of Alexandria or Syria ready to sail. There is also the possibility of Sulla sending for large transport-ships to carry his army instead of actual warships, but this seems to contradict the fact

¹⁰⁶ App. *Mith.* 5.33: *«ἐς Ἀλεξάνδρειαν καὶ Συρίαν λαθόντα διαπλεῦσαι παρά τε τῶν βασιλέων καὶ πόλεων ὅσαι ναυτικάι»*. Another officer is mentioned by Pausanias which does not appear in Appian, by the name of Menophanes, who would have attacked the sanctuary of Delos with a fleet. Like Lucullus, Menophanes also receives the title of *στρατηγός* in Greek sources.

that by these ships' presence the Rhodian fleet would then be able to move: if there were no warships to fight alongside them, it might have been difficult to dislocate to Eleusis.

The war will proceed with a focus on supplies. The siege of Athens and the Piraeus by Sulla does not directly regard naval command, but it does imply a strategic use of the sea as a means for transportation of the army and nourishment, both by Sulla and Mithridates. Both factions will attempt to grasp Athens; Mithridates, by first having sent Archelaus against rebelling strongholds and cities (amongst which Delos; App. *Mith.* 5). On Mithridates' side, it seems as if Archelaus is put in charge of defending the Piraeus. Plutarch refers to this general, Archelaus (whom he mentions as Mithridates' most powerful military man) as controlling the whole sea and a significant number of its islands. However, in spite of Plutarch's particular attention to Archelaus' sea prowess, Appian shows a different account, focusing mostly on the fight between Archelaus and Sulla and how it was mostly a conflict for supplies – for keeping a steady supply flow within one's army but, more importantly, to prevent the enemy access to nourishment.

Sulla's success in this matter seems to have been significant if one is to consider Appian's mention of a worrisome lack of provisions within the city of Athens, which becomes particularly relevant following the failed attempt to take the city by force¹⁰⁷. One can question whether Sulla's control of Athens (thus denying the city fresh supplies) was only land-based, or if Lucullus and the hired fleet had some sort of involvement in these activities, especially when one considers that Mithridates' fleet might have attempted to reach Athens with a fair number of soldiers – Sulla's army would have been under attack from the walls and the ships. However, no situation similar to the former in Rhodes seems to have happened, and even though there are no naval battles mentioned, Appian did mention the hiring of new ships and hints for a possible conjoined action with the Rhodian fleet, which was previously shown to be able, if not to defeat, at least to contain Mithridates' navy. One can also question where the Athenian fleet was to be found, especially when observing chapter 6.40 of the *Mithridatic Wars*, which says that Sulla did not have any ships when he attempted to take the Piraeus.

¹⁰⁷ App. *Mith.* 3.35-37.

Equally important is to notice the difference between Sulla's actions regarding the city of Athens and the Piraeus¹⁰⁸: the former, he ordered to be spared¹⁰⁹. The latter, however, seemed to him much more problematic than the actual city, and he thus ordered its full destruction, including that of the armoury, the docks, and other well-known, though unspecified, elements (*«τῆς ὀπλοθήκης οὔτε τῶν νεωσοίκων οὔτε τινὸς ἄλλου τῶν ἀοιδίμων»*)¹¹⁰. Why did Sulla preserve Athens, but destroyed the harbour? In case he lost the city, the enemy would need to reconstruct the harbour before it could be deemed as safe to leave a large fleet stationed there. On the other side, Sulla did order new ships, so one can question his intentions once more, regarding Lucullus and the Alexandrian/Syrian/Rhodian fleet. In spite of this, there is no mention of its use, nor an indication that it was to come to Sulla, to help with the siege or with conveying men and supplies (which might strengthen the theory that it was left to patrol and control the seas, preventing Mithridates' approach).

The whole campaign of Archelaus seems to be sea-based: when Bruttius Sura manages to defend Roman territory and defeat Archelaus in Chaeronea¹¹¹, he sends him back to the sea¹¹². Bruttius' intervention in Chaeronea seems to be disregarded by Appian, who mostly mentions Sulla's presence. Even after the Roman victory at Chaeronea, the Romans are still mentioned as not having any ships, which would have allowed Archelaus

¹⁰⁸ It seems worthy of mention that Athens would have been in charge of Delos, which had a good position for economic growth (given its location and the fact that it was a sanctuary). Conquering Athens would have been not only a means for getting the city itself, but perhaps some of the other cities under its influence, which would have been beneficial to the Roman treasury. See Strab. 10.5.

¹⁰⁹ At some point, he would have left one of his subordinates in charge of the siege, departing for Boeotia to attack the army of Mithridates, under the command of Taxilus – this would have resulted in the well-known Battle of Chaeronea. See *Paus.* 1.20. However, the matter of the destruction of the Piraeus must be interpreted with caution, for if it is likely that the siege resulted in a demographic decrease and subsequent loss of dynamics within the harbour, epigraphical results seem to show that the reduction in demography had started before Sulla's intervention, and that the Roman Piraeus was not a «synecdoche of demographic and urban decline», but a «dynamic population hub with a demography that reflected varying degrees of continuity and change, and the novel socio-political, cultural and economic position of Greece and Attica in the Roman empire». Thus, the idea of Sulla's destruction of the harbour may have been an exaggeration of the sources, and the aftermath of the siege may not have differed much from what was usual following such occasions. See Bradford 2007, 50.

¹¹⁰ Finding the archaeological traces of the siege has been revealed a strenuous task. As mentioned by Grigoropoulos, the archaeological data from the Piraeus before the siege is scarce, and the subsequent destructions of the site are an added difficulty for such studies; however, this study also mentions that there have been sediments where one can observe destruction which can be attributed to this period with a relatively large assuredness regarding chronology. As already stated in note 109, even though there has been a siege to the harbour in 87 BCE, one cannot precisely state the degree of destruction. See Grigoropoulos 2009; Freeman 2008, 87.

¹¹¹ Strabo also mentions the battle of Chaeronea: see Strab. 9.2.

¹¹² Plut. *Vit. Mar.* 11.

to both successfully retreat and attack coastal cities¹¹³. Some cities formerly allied to Mithridates seem to have moved to the Roman faction, including that of Chios, which seems to have had a naval tradition¹¹⁴; however, the idea of Rome's lack of ships is repeated long after these events¹¹⁵. It might be questioned whether the source means that Rome itself has no ships, or Sulla, for Appian seems to be specifically referring to the commander and not to the Romans as a whole. Only in chapter 8.51 will there be a new specific reference to Lucullus, who was still in charge of the fleet. It seems that the change regarding Sulla's policy will only happen after a new confrontation with Archelaus in Chalcis: at last, Sulla decides to order the building of new fleets, this time not to be commanded by Lucullus, but by himself.

Why Sulla would opt by such a measure then, when Lucullus' fleet was finally sent for, is a matter that might be related to several factors: 1) there might be a correlation between the pace in which this second half of the wars happened, that would not have allowed for much time in building ships – in spite of Sulla having spent the Winter stationed by Athens and the Piraeus, this might not have been the most propitious timing for naval construction. His constant need for land-action might have deprived Sulla of the opportunity of shipbuilding. 2) Sulla's apparent inexperience in naval war and as a naval commander: as mentioned, his participation in former wars was not as the highest commander on his own right, but as a member of the Marian campaigns, which were set under different conditions from the Mithridatic wars; perhaps Sulla only came to realize a need to have his own fleet after these events, which would have shown him the necessity to defend the sea against the Mithridatic control and thus assure steady routes for dislocation and supplies. Regardless of Sulla's option, it seems as if he would not have the time or opportunity to manage it, for it was during this period that Gaius Marius and Cornelius Cinna managed to have him declared an enemy of Rome, destroying his property – which would have deprived him of valuable resources.

Sulla was now not only a commander in his own right but leading an army under his own name. From the moment he became an enemy of Rome, he depended on the resources which could be provided by himself and his men, and on his own army's loyalty. The Mithridatic command was attributed to the newly elected consuls Cornelius Cinna and

¹¹³ App. *Mith.* 6.45.

¹¹⁴ App. *Mith.* 7.46.

¹¹⁵ App. *Mith.* 7.50.

Flaccus, the latter of which was sent to take control of the Mithridatic Wars, together with a man called Fimbria, who would have gone on his own account, as *στρατηγία*¹¹⁶. In theory, Sulla did not have any ships at this point, and these men sailed from the Italian Peninsula with a fleet, but it would have been destroyed by poor weather and Mithridates' own ships. It seems as if the Mithridatic war is now divided in three factions, instead of the former two: one has Mithridates, who has a strong fleet but a fewer number of naval interventions, and seems to be far from most physical confrontations himself, delegating the tasks of command to his generals; the other, constituted by elements of the Roman side, now includes two factions: the first constituted by men who were previously strangers to this war, one of them seen as having little experience in such matters, and whose first attempt to sail from the Italian Peninsula was quickly debunked; the other, by Sulla, who is now standing alone against two enemies, both with a greater ease of attaining resources and investing on naval construction, and has acquired some experience regarding the importance of naval matters in war, though he was not personally involved in any. It seems that Mithridates is now coming closer to the Italian Peninsula, instead of focusing his fleet on the East, which might have allowed Sulla the advantage of more time to prepare and less enemies to face on the side of Pontus¹¹⁷.

The Roman faction – which now excludes Sulla – seems to have had internal issues throughout this period, regarding the commanders. Fimbria murdered Flaccus, the consul in charge, and appointed himself as commander for that war, winning several battles against Mithridates' son, and chasing Mithridates, firstly into Pergamus, then into Pitane, and afterwards to Mitylene¹¹⁸ (there seems to once again be a case of an older, appointed consul having to rely upon a younger individual to fulfil the naval functions). Fimbria seems to be capable of both war on land and sea, at least in regard to naval transportations and routes – he does not seem to fear Mithridates' fleet. Sulla's following step is a strategic move to assure himself not only a powerful ally, but also one with a powerful fleet: seeing that he was powerless to have his own ships built, given that Rome was not providing him with any currency, he attempts peace with Archelaus. Sulla's purpose to

¹¹⁶ Livy, however, says that Fimbria was Flaccus' legate: «*legato ipsius*». Livy *Per.* 82.

¹¹⁷ App. *Mith.* 8.51.

¹¹⁸ Mentions of Lucullus' deeds are very rare and usually included in the larger narrative regarding Sulla's feats. Even though Lucullus commanded a fleet which consisted of individuals and ships of several origins (Cyprus, Phoenicia, Rhodes, and Pamphylia, in the least), attacked several coastal cities and chased Mithridates, it all seems but secondary in Appian's narrative. See App. *Mith.* 8.56, where much more importance is given to Sulla's meeting with Mithridates than to Lucullus.

acquire a fleet is made clearer in the speech attributed to him by Appian in 8.55: the terms he offers to Mithridates and Archelaus are thus implying that Sulla himself could take charge of Archelaus' whole fleet, amongst which some Roman prisoners of several origins¹¹⁹.

It seems as if Sulla's main concern at this stage, even regarding Rome, to which he intends to return, is to make sure that Mithridates' fleet will not be problematic in the future, by reducing it and, simultaneously, acquiring a certain share of it into the Roman navy. It also seems that he achieved his purpose, for Mithridates, who met Sulla on the terrain, is said to have accepted the formerly proposed terms. Why, however, would the King of Pontus make peace with the Romans? Or, in a different perspective, why would he not make peace with the Romans, but with a man who was in such a delicate situation as Sulla? It seems that, in spite of having been deprived of his charge and receiving no help from the city-state, Sulla was regarded by Mithridates as a more powerful enemy than Flaccus and Fimbria, which would be coherent with the idea of the many internal conflicts and their seemingly minor participation in the war.

The Basileus does not seem to be as concerned with the Romans in the Western Mediterranean, but with their presence in the East, close to his allies, who might have eventually made advances towards the Bosphorus Strait and the Black Sea. From this point of view it seems that Sulla was the greater threat, perhaps not only due to his land-army and his successful siege of Athens, or his apparent alliance with Rhodes (the Rhodesians do not seem to abandon Lucullus' fleet), but due to Lucullus remaining faithful to Sulla instead of turning his naval power to Rome.

Judging by the sources, Lucullus seems to have but a small role in the First Mithridatic War; however, this is probably a modern misconception, founded on the concerns of the historical sources that speak mostly of Sulla's enterprise and focus on Sulla's personal feats, and do not attempt to show how he might have needed or relied upon his commanders¹²⁰. The threat of Lucullus' fleet might have seemed far greater to Mithridates than that of a «Roman» fleet that was far from his land-base and disorganised – after all, he is said to have fled from Lucullus from city to city, until eventually agreeing upon

¹¹⁹ Other demands were made, including the forgiveness of the people of Chios, who would be returned home, the removal of Mithridates' garrisons which were not his prior to the beginning of the war, and the payment of the costs of the conflict. If Mithridates were to accept, Sulla intended to make the Romans accept peace.

¹²⁰ Which follows Ladewig's views on the Consular triumphs, for instance, seen in Chapter IV.

settling peace with Sulla¹²¹. The lack of focus on the navies in what seems to have been a primarily naval war makes it difficult for the historian to correctly interpret the developments of the First Mithridatic War, but it can hardly be believed that Sulla, despite not having a fleet of his own, would not have understood the importance of keeping Lucullus on his side as a capable naval commander with a fair amount of resources; and by acquiring Mithridates' ships, he had now a fleet of his own¹²².

3. The Second Mithridatic War

The immediate consequence of the First Mithridatic War seems to have been an increase in piracy. The said pirates would have been hired by Mithridates to assure him of the hold of some regions, and would now be attacking not only ships, but also settlements, including the subsequent capture of places such as Iassus, Samos, Clazomenae and Samothrace. Sulla, however, in spite of now having two fleets at his disposal (Lucullus' and his own), seems to have done nothing but to leave. It is believed that these pirates would mostly be what is commonly asserted as Cilicians, and further in History one shall see that the Romans will have to act against such an issue and will thus engage Pompeius in such task¹²³. This is but an early introduction, however, to a larger conflict. Regarding the war itself, it seems that the aftermath of the First Mithridatic War leaves the province of Asia far from being pacified, not only due to the growth of piracy, but also due to continuous Roman and Pontian intervention. In spite of the peace assured by Sulla, his commander, Murena, attempted to start a new war, while Mithridates was already involved in conflicts with the Colchians and some Cimmerian tribes from Bosphorus.

The early stage of the so-called Second Mithridatic War seems to have been similar to that of the first, and the time lapse between them can make investigators question whether these could be considered as two separate wars, or one single conflict. Peace between Sulla and Mithridates was settled around 84 BCE, but new conflicts arose in 83 BCE and, as previously seen, even this period of a year between the peace and the new conflicts

¹²¹ It is said by Appian that Fimbria caused great trouble to the enemy throughout this war. However, his arrival to the conflict is late when comparing to Sulla's, and it does seem as if he would be more focused in defending the Italian Peninsula than to actually attack the East. See App. *Mith.* 9.60.

¹²² Livy's account of the last events of the war in the *Periochae* is strongly summarized. Firstly, Mithridates is defeated by Sulla in Thessaly; afterwards, Archelaus surrenders to Sulla, together with the fleet. Flaccus would have been murdered by Fimbria and the Thracians would have invaded Macedonia. See Livy *Per.* 82.

¹²³ App. *Mith.* 9.63.

seems to have been filled with disturbances of different natures, one of the most significant ones being the alleged fact that Mithridates would not have yet returned the whole of Cappadocia to Ariobarzanes by 83 BCE. As he'd done nearly five years before, Mithridates once more prepares for war not only by gathering a land-army, but also a new fleet. Either because Murena was eager to distinguish himself in a new war, as mentions Appian, or because the peace was not as clear as the source tries to make believe (thus giving haste to new fears regarding the King of Pontus' resources), it seems that it is Rome who attacks first and sets for renewed hostilities. As had happened with Marius and the Cimbri / Teutones, one of the first larger confrontations happens on a riverbank (specifically, the river Halys), this time between Murena and Mithridates. The Basileus of Pontus not only wins but achieves to grant himself a better position for renegotiating the terms of peace, managing not only to ascertain the parts of Cappadocia which he had not yet delivered to Ariobarzanes (who became betrothed to Mithridates' four-year-old daughter), but also granting that new areas remained in his power. The Second Mithridatic War seems more of a skirmish than an actual war, especially given the fact that there is only one battle. As conclusions, one can say that the fleets remain Mithridates' priority, and that once again a river bank is used as a setting for a battle – the said river would have probably been crossed by Murena and his army, which may account for a transport fleet accompanying the Romans.

4. Lucius Licinius Lucullus¹²⁴ and Pompeius: The Third Mithridatic War

Following nearly a decade of facing Cornelius Sulla, Mithridates will now have to deal with a different enemy. Around 78 BCE, he seems to have felt himself capable of leading forward a series of campaigns against the populations of Bosphorus and Achaea. That same year, Ariobarzanes complained to Rome about Mithridates' retaining Cappadocia (which seems to contradict the former agreements between the two kings); however, the leader of the negotiations with Mithridates, Cornelius Sulla, passes away. Mithridates then makes a joint attack to Cappadocia with his son-in-law Tigranes. This seems to have been a very profitable campaign for both in terms of slaves and riches¹²⁵. Meanwhile, instability in Iberia seems to come to Mithridates' aid, for the governor (*«ἡγέομαι»*), Sertorius, apparently decides to rebel against Rome, and proposes an alliance to Mithridates¹²⁶. Two new commanders are thus brought to the centre stage of the conflict. The men appointed by Rome are the already known Lucius Lucullus¹²⁷, who had participated in the First Mithridatic War under the service of Sulla and controlled the fleet, and Pompeius, who will later be pointed as «Master of the Seas» by this same source. The new commanders seem to have some degree of correlation to the sea, much greater than that which might be observed in Sulla. It is a possibility that Rome, now well-aware of Mithridates' naval capacity, further invested upon capable naval commanders,

¹²⁴ There is somewhat of an indication, however faint, that there could be some sort of familiar connection to the naval offices. During the Third Mithridatic War, an individual named Publius Clodius is said to have been under the service of Lucullus; he would also have been his brother-in-law, through the marriage of Lucullus with one of his sisters (Dio Cass. 36.14). At some point in the war (probably in 68 BCE, the year of Marcus Rex's consulship), Lucullus would have required help from the consul Quintus Marcus Rex, who would have been assigned as governor of Cilicia; Marcus refused, and proceeded to his province instead. When in Cilicia, he is said to have received two deserters: firstly, a man named Menemachus, who fled from the enemy side; second, and most important to this subject, Clodius, Lucullus' brother-in-law. Dio Cassius says that Marcus would have assigned Clodius as commander of the fleet, and the reason presented for this is that Marcus would have married to one of Clodius' sisters (Dio Cass. 36.17: *«καὶ τὸν Κλώδιον ἀποστάντα ἀπὸ τοῦ Λουκούλλον δέει τῶν ἐν τῇ Νισίβι γενομένων ἐπὶ τὸ ναυτικὸν ἐπέστησεν ἀδελφὴν γὰρ τινὰ αὐτοῦ καὶ ἐκεῖνος»*). It seems there was a family liaison between these three characters, and the fact that Clodius was received by Marcus and assigned to a naval post seems to have some sort of connection to the fact that he was his brother-in-law. It also seems that Clodius faced some struggles and was subsequently captured by pirates, who released him not long afterwards.

¹²⁵ App. *Mith.* 10.68.

¹²⁶ Livy *Per.* 93. Other sources fail to mention and confirm this, but Cicero says that Lucullus would have defeated a fleet commanded by Sertorius, which would be heading for the Italian Peninsula. See Cic. *Leg. Man.* 10.

¹²⁷ Of whom we know that he would have been elected tribune of a legion in 89 BCE (Freeman 2008, 87), and subsequently entered Sulla's service during the campaigns «against the Hirpini and the Samnites», remaining loyal to him throughout the rest of his military career.

which is especially relevant in the case of Lucullus, given he was already known for having been successful several times against the King of Pontus. It also seems that one can finally account for the specific charge of Lucullus during Sulla's consulship: Appian mentions him as having had a function of *ναυαρχέω/nauarkeo* (App. *Mith.* 10.68) under his command. One can ask whether there was a specific charge created for the Roman naval hierarchy, or merely a way of Appian's referring to a consular legate who was in charge of naval matters.

The preparations of Mithridates for this third war against the Romans seem to have been as large, if not larger, as the ones for the former conflicts. This time, there is the same focus on naval construction, but also in gathering up materials and supplies¹²⁸. He also makes new alliances, amongst which are mentioned the «Chalybes, Armenians, Scythians, Taurians, Achaeans, Heniochi, Leucosyrians», and the population who lived close to the river Thermodon, together with the Sarmatians, the Basilidae, Jazyges, Coralli and some of the Thracian tribes, and the Bastarnae. One should also notice that, in spite of his effort for naval preparation, it seems Mithridates is now investing further on means for dislocations on land, which were not mentioned in former chapters and wars, by gathering men to open new roads (*ὁδοποιός*), carriers and a group referred to as *ἔμπορος/ἔμποροι*, which vaguely translates as ship passengers. It seems as if Rome and Pontus have gone in opposite directions. Rome starts the Mithridatic Wars with the usual land-based efforts, and later develops a larger investment in naval command; Mithridates, as a commander, begins his career against the Romans by gathering up naval resources, and only later will invest upon land-resources. The Basileus' increased attention to figures such as road-makers and men to help dislocate supplies by land might mean that he struggled with carrying such supplies by sea in the past, which seems to account for Lucullus' ability as a naval commander in previous conflicts.

Mithridates begins by invading Bithynia, a coastal city which was under Roman rule, through the figure of Cotta, the governor (*«ἡγέομαι»*). Once again there seems to be a distinction between the first general in command (the consul) and the naval commander (*ναύαρχος*): in this case, Cotta had a man named Nudus in such a function. However, Nudus does not seem to be exclusively meant for a naval commander office: his role in

¹²⁸ App. *Mith.* 10.69: «καὶ τὸ λοιπὸν τοῦ θέρους καὶ τὸν χειμῶνα ὅλον ὑλοτομῶν ἐπήγγυντο ναῦς καὶ ὅπλα καὶ σίτου διακοσίας μεδίμνων μυριάδας ἐπὶ θαλάσῃ διετίθει», a passage that regards the naval preparations made by Mithridates prior to the Third Mithridatic War.

the siege of Bithynia is on land. In spite of the land confrontation, Mithridates seems to have travelled to Bithynia by ship, and some of his first actions are to destroy some of the enemy's ships (most likely Bithynian ships, and not Roman) and take away the sixty that remained. There seems to have been somewhat of a skirmish when Mithridates enters the harbour, despite Nudus and Cotta remaining inside the walls, because Appian refers to a loss of twenty Bastarnae, who would have been killed following their entrance in the port.

The next moment of the war happens at Cyzicus, and Appian's chapter 11.72¹²⁹ focuses mostly on the subject of supplies, which seems transcendent to the whole of the Mithridatic wars. The source specifically mentions that most of the king's supplies either came from foraging or by sea, and these would have been able to feed an army of 300 000 men (which would signify a large traffic of transport-ships across the sea). Lucullus attempts to prevent Mithridates from moving his army forward, and by successfully stationing the army, eventually prevents Mithridates from receiving supplies by river or by land, thus limiting the enemy's main source of provisions to those which arrived by sea-transport. These would soon also stop reaching the army, given that Winter was approaching.

Mithridates does not immediately abandon the siege of Cyzicus but blockades its harbour and the city through the building of walls, orders the building of new siege engines, and once more applies the technique he had previously used in Rhodes, which is the use of ships to carry the said mechanisms. In this case, unlike that of Rhodes, we get a specific mention of the typology of ships used in such a function, which, as previously supposed, would be the quinquereme, the largest ship mentioned as part of Mithridates' fleet. Two quinqueremes (πεντήρης) would have been used, not to carry a Sambuca, but a tower (πύργος), through which a bridge (γέφυρα) could be engaged near the wall and allow the soldiers' entrance. This technique seems to have come to little effect: the bridge appears to have been impractical, given the fact that the warriors were slow to enter the city and thus the Cyziceans not only rid themselves of the invading men, but also attempt to burn the ships and force them to retreat¹³⁰. During this period, Mithridates made new attempts at the land siege and sent his horses back to Bithynia; at least part of this journey seems

¹²⁹ See also Livy *Per.* 95.

¹³⁰ The success of the land engines seems not to have been much greater than that of the quinqueremes; even though they managed to break a piece of the wall, the heat caused by fires seems to have given the Cyziceans enough time to rebuild their defence. See App. *Mith.* 11.74.

to have been achieved by transport ships, for Lucullus manages to catch a flow of men, horses and supplies on the river Rhyndacus.

When Winter comes, the possibilities of transporting supplies by sea diminished, and the famine seems to have been so great that the siege was abandoned¹³¹. According to Strabo, Cyzicus would have had the advantage in this regard: not only was it a vast and fertile territory, but it also had good means for preserving its resources, including a technique of grain preservation that consisted in mixing it with a specific sort of soil, which the source names as Chalcidic earth. Thus, they could hold out the city on their own for a length of time, and then, with the aid of Lucullus and the factor of famine weighing over the enemy's army, came out victorious from this siege¹³². It seems that one of three things happened: 1) Mithridates underestimated the city's capacity for storage, and probably believed that, by cutting their accesses on land, would prevent them from getting enough supplies; 2) Mithridates believed his own supplies would have sufficed, and miscalculated; 3) Mithridates believed he could take the city by force. 2 and 3 are directly related. Either way, the Pontic defeat at the siege of Cyzicus might indicate a miscalculation from Mithridates regarding the amount of supplies needed by his army, the amount of ships that were needed to carry them, or some unknown loss (either of crops or cargo-ships) that would have affected him.

Mithridates divides his army between two retreat routes, with the land-army crossing the river *Æsepus*, and Mithridates choosing to remain with his ships (once more, the preference of the king of Pontus for naval military resources seems dominant¹³³). However, one can hardly suppose that the land-army would have crossed the river by swimming (firstly, because Appian does not mention so, as he did for the case of the Cimbri, and secondly, because the river was carrying a significant amount of water, possibly due to Winter rains; there was also the matter of army material). This group, Lucullus would attack and defeat. We do not know, however, if he tried to board the ships

¹³¹ One might question, however, whether Lucullus made any attempts to prevent these supplies from reaching Mithridates. They are not mentioned, so one might question where they came from, by what means, and how did Lucullus not attempt to prevent it, given that his main focus seems to be to deprive Mithridates from provisions.

¹³² Strab. 12.8.

¹³³ Particularly given that, as mentioned by McGing, «the Pontic fleet was the only powerful weapon left to Mithridates». According to this study, the fleet would have then been divided into three: «forty ships» sent to Sertorius, «fifty (...) under the command of Marius, Alexander and Dionysus», and the «remainder of the fleet» with himself, thus resulting in a «splitting of resources», combined with «Lucullus' ability in collecting a new fleet and of bad weather», which would have ultimately resulted upon depriving «Mithridates of his supremacy at sea». See McGing 1986, 150; Freeman 2008, 87.

carrying the army or waited by the river-banks to attack; in either case, it seems that the transport ships either were destroyed or became property of the Roman army, for Mithridates had to send new ships to retrieve those who had made it to Lampsacus.

Mithridates' ships manage to escape, despite the city being currently besieged by Lucullus; one can suppose that, at this point, Lucullus probably did not have any warships with him, felt the attack itself was not worth the resources he would spend, or perhaps felt unequal to the enemy fleet. The king of Pontus then sails to Nicomedia with most of his ships (according to Appian, only fifty would have been left behind), losing some along the way due to a storm¹³⁴. Lucullus, on the other hand, goes on to collect a fleet (which seems to confirm that he was indeed lacking in naval resources), and distributes the command amongst his several generals (Triarius, who attacked Apamea, and Barba, who went for the cities of Prusias and Nicæa¹³⁵), who are mentioned by no other term than «στρατηγοῦσιν»¹³⁶. Afterwards, there seems to have been another actual battle, which is the first in which we see Lucullus' actions in naval command. The enemy faction consisted of the enemy generals Varius, Alexander and Dionysius. Lucullus first attempted to draw the enemy to battle by sending two ships ahead (much like the light cavalry units would be used on land), but the enemy would not give battle; thus Lucullus disembarked part of his infantry, forced the enemy onto their ships, and thus attacked them both by land and sea¹³⁷. Like Mithridates, Lucullus also made a combined use of both naval and land resources, not to settle war-engines, but as a moving platform from which his army could attack the enemy ships with projectiles, cornering them from both land and sea.

Meanwhile, Mithridates was sailing back to Pontus. Having already lost some of his ships during a storm, he finds a second, in which he is said to have lost at least sixty ships, whilst several others were damaged, including his own flagship. He is said to have then boarded some sort of small ship commanded by pirates¹³⁸, regardless of being advised against it. Why did his men attempt to dissuade him, or why did Mithridates not fear to

¹³⁴ According to Livy, he would have returned to Pontus, suffering several losses due to shipwrecks. See Livy *Per.* 95.

¹³⁵ Both seem to be Roman names; thus, we can conclude that they are, once more, second-in-command, perhaps «legati», like Lucullus himself had been.

¹³⁶ App. *Mith.* 11.77: «Λεύκολλος δ' ἐπεὶ τὸ κατὰ γῆν εἴργαστο διὰ τοῦ λιμοῦ ναῦς ἐκ τῆς Ἀσίας ἀγείρας διέδωκε τοῖς ἄμφ' αὐτὸν στρατηγοῦσιν», regarding Lucullus' assembling of fleets and the subsequent delegation of command.

¹³⁷ App. *Mith.* 11.77.

¹³⁸ App. *Mith.* 11.78: «τῆς στρατηγίδος ἐς ληστῶν σκάφος».

board a pirate ship? The king of Pontus might have hired pirates, as previously mentioned, and these could be some of his own mercenaries; however, if Appian is correct, there seems to have been some sort of reluctance regarding this action. Mithridates himself did not fear the pirates, and they did not harm him till his arrival in Sinope, so either Appian made more of the situation than it truly was, or there was some reason to suppose that these pirates would turn on Mithridates. If the latter is to be believed, it might derive from one of two reasons: either the so-called pirates felt it was more profitable to engage in plundering the cities of their own accord, or there was a bigger profit to be made from the enemy side – either Rome’s side or one of Rome’s allies.

The following military events are, once again, terrestrial. There is a mention of Lucullus sending for supplies in Cappadocia¹³⁹, but it seems that this time they would be carried by land, given that Mithridates would have sent his cavalry to intercept them. Only after a series of attempts to cut supplies on each side and an incident with Mithridates’ cavalry (which will force the king to flee) will there be a new mention to naval enterprises, with Lucullus ordering his fleet to attack several cities of Pontus, including Amastris and Heraclea. Lucullus will then suffer a setback against the people of Sinope, who seem to be mildly successful in the open sea, but unable to handle a siege, thus deciding to destroy their bigger ships (heavier in weight) and flee from the city on their lighter ones¹⁴⁰. It is unknown why the Roman fleet was unable to prevent this escape, and difficult to explain the burning of the larger ships, which would have been a useful addition to any faction’s naval resources. Lucullus would then have restored Sinope to the citizens of Amisus, who would have lived there before Athens’ rise as a thalassocracy, and gave them their freedom back. If Lucullus received no orders from Rome regarding this process, one can assume that he, as a consular commander, had the authority to decide the fate of the captured cities, to make agreements with local leaders¹⁴¹.

After crossing the Euphrates river to reach Tigranes, with whom Mithridates would be hiding¹⁴², and once more being successful through military operations that regarded, mostly, the enemy’s supplies, Lucullus then sent his legates to the Parthians, asking them

¹³⁹ App. *Mith.* 12.80.

¹⁴⁰ App. *Mith.* 12.83: «πολιορκούμενοι δὲ τὰς ναῦς τὰς βαρυτέρας σφῶν διέπρησαν καὶ ἐς τὰς κουφοτέρας ἐμβάντες ἀπέδρασαν», regarding the destruction of heavy ships during the siege of Sinope.

¹⁴¹ In this case with Machares, son of Mithridates, ruler of Bosphorus; Lucullus demanded that Mithridates would surrender, and also maintained the tribute created by Sulla. It seems as if Lucullus now has the authority his former commander had, during the First Mithridatic War.

¹⁴² Livy *Per.* 97.

not to participate in the fight, or to ally themselves with the Romans – Mithridates and Tigranes would have done the same, but the Parthians seem to have had little intention to intervene¹⁴³. The remaining period of the war seems to consist of mainly land skirmishes that ended inconclusively on each side, and at this point Rome sent the proconsul of Asia orders to dismiss Lucullus¹⁴⁴, on the accusation of not putting an end to the war in due time. Unlike what happens with Sulla, most of his army does abandon him, with very few staying behind.

At this point, Lucullus' role in the Mithridatic Wars will be replaced with Pompeius¹⁴⁵. The situation with piracy seems to have been severe enough to cause famine throughout the Italian Peninsula, and Mithridates was then free to invade Cappadocia once more. The pirates would have evolved in their strategies: their earlier attacks from smaller ships would have shifted to organised raids made from larger ships, which would have been highly profitable and would not have ended with the closure of the Mithridatic Wars. These men now attacked both ships and coastal cities alike (Appian mentions the number of 85), capturing people, asking for ransoms, and using their profits to build bigger, more powerful fleets from their land base in Crag, Cilicia, which was hard to attack due to its geology. People from several origins (including Syria, Cyprus, Pamphylia and Pontus) joined these men, looking for a better life in unstable times. The issue seems to have brought severe losses to the Romans, who suffered naval defeats and had to deal with the instability of commerce. Murena and Seruilius Isauricus are mentioned as two of the men who attempted to solve the problem but were unsuccessful. It was at this point that Pompeius came to be the commander of the sea, allegedly with absolute power over all the Mediterranean, and with diplomatic support from all of Rome's allies. Chapter 14.94 of the Mithridatic Wars provides more information regarding the names of the subordinate commanders than, perhaps, all the others: Appian mentions *πρεσβευτήρ/πρεσβευταί* (ambassadors), who received, among each, the command of ships, cavalry and

¹⁴³ Unlike what seems to have been the case in earlier wars. It can also be mentioned that it is not until this point that one will hear again the names of Lucullus' generals, Fabius and Triarius, in Appian's version; they will be seen engaged in land operations against Mithridates. See App. *Mith.* 13.88.

¹⁴⁴ According to Livy, Lucullus is forced to abandon the war not due to orders from Rome, but a sedition in the army, which would have happened before he could finally reach Mithridates and Tigranes and put an end to the conflict. See Livy *Per.* 98. Chapter 100 of the *Periochae* also mentions that the replacing of Lucullus with Pompeius (on the orders of Gaius Manilius, tribune of the *plebs*) would not have pleased the aristocracy.

¹⁴⁵ Following several successful victories. During his consulship, and throughout the battles, he is said to have destroyed nearly one hundred thousand men of the Mithridatic army, both on land and sea. Eutr. 6.6.

infantry, and they would have received the symbols of the *στρατηγία*¹⁴⁶. We also have the name of the generals and their assigned regions¹⁴⁷. It is the largest list of naval commanders presented throughout the Mithridatic Wars, with all of them having charges of high command, probably similar to those that Lucullus had when serving under Sulla.

Appian mentions that the force and its respective organisation were of such a large scale that the pirates would have retreated to their land-bases and Pompeius would have subdued them without a fight, so one might ask why former Roman commanders failed to succeed; this seemingly antagonistic idea continues as the pirates seem to have surrendered their cities, ships and build materials to Pompeius without any struggle¹⁴⁸, and is even more incoherent when the source mentions that 306 ships were captured after surrendering, but 71 would have been captured in battle and 10 000 pirates would have been killed during conflicts. It seems that the campaign, despite relatively fast, was not as devoid of combat as it might appear. Pompeius seems to have had a very large number of resources to solve these issues. Appian mentions not only a land army of 120 000 infantry and 4 000 cavalry, but also 270 ships, not counting the allies. This number might justify the celerity with which piracy is put to an end, but also give some indication as to the large number of pirate ships sailing across the Mediterranean. After Pompeius eliminated the pirate threat, he received the command of the Mithridatic Wars. His powers were similar to those of Lucullus and Sulla: he could decide on war, peace and alliances, and probably on repopulating or destroying cities as well. Pompeius will be successful in a series of land confrontations which will, yet again, regard the issue of supplies, once more carried by land and not sea or river.

Appian supplies little information regarding Pompeius' actions during the Third Mithridatic War. To understand Pompeius' path as a commander, one needs to turn to other sources. One of these is Cassius Dio, who gives a detailed account of most of his military career. His description of the Pompeian campaign against Mithridates starts after actions against the Iberians and the Albanians, and the crossing of the Cynus. It seems

¹⁴⁶ App. *Mith.* 14.94, «καὶ στρατηγίας σημεῖα περικεῖσθαι».

¹⁴⁷ Tiberius Nero and Manlius Torquatus, the Iberian Peninsula and Gibraltar; Marcus Pomponius, the Gallic and Ligurian waters; Lentulus Marcellinus and Publius Atilius, Africa, Sardinia and Corsica; Lucius Gellius and Gnaeus Lentulus, the coast of Italy; Plotius Varus and Terentius Varro, Sicily and the Ionian sea till Acarnania; Lucius Sisenna, the Peloponnesus, Attica, Euboea, Thessaly, Macedonia and Boeotia; Lucius Lollius, the Greek Islands, the Aegean and the Hellespont; Publius Piso, Bithynia, Thrace, the Propontis and the mouth of the Black Sea; Metellus Nepos, Lycia, Pamphylia, Cyprus and Phoenicia.

¹⁴⁸ Why he would have burned materials, as mentioned by Appian, doesn't seem understandable, unless he lacked the means for transporting them. See App. *Mith.* 14.96.

that Pompeius would have attempted a war of blockade: instead of advancing continually through unknown enemy territory or engaging in sea-travels that he deemed perilous due to the lack of harbours, he would have used the fleet as means to prevent Mithridates from achieving supplies, while using the land-army to attack the Albanians himself. It seems that Pompeius was not in charge of the fleet blockading the Pontic king but, instead, preferred to occupy his place as commander of the land army. He would ford the river Cynus with the following logistics: firstly the cavalry, then the supplies and beasts of burden, and last the infantry – the most mobile. The horses would have been used to cut the impact of the current¹⁴⁹. Later during the campaign, Pompeius would have engaged in diplomatic actions – as he would do during his campaigns against the pirates – and assured peace with several tribes along the Caucasus and the Caspian Sea.

Mithridates would make one final attempt against the Romans. At this point, the king seemed to have exhausted his resources and was aware of his difficult position. He not only attempted to make allies (once again, by giving away his daughters in marriage), but also sent ships against his son's kingdom, and managed to have Machares killed¹⁵⁰. His former ally Tigranes surrendered to Pompeius, who redistributed the kingdoms of the region amongst his former enemies and allies (namely, Tigranes, his son and Ariobarzanes); Antiochus, king of Commagene, also entered into an alliance with Pompeius. On the meantime, Pompeius made war against some other sites, capturing Jerusalem, parts of Cilicia and Syria, Phoenicia, Palestine, Idumea and Ituraea; and, if what Appian mentions is true, even came so far as to get a secret alliance from one of Mithridates' concubines or wives, who would have delivered part of his treasury to the Roman commander. There was an attempt by Mithridates to gather new resources, including ships and new coastal strongholds, and to occupy Phanagoria, a trading-post at the Bosphorus strait, to take hold of the passageway; however, there was a civil revolt in Phanagoria, and Mithridates' allies had to surrender. Other cities followed the example of Phanagoria.

The final act of the war is told as follows: Mithridates attempted once again to get new allies by marriage, sending five hundred men to accompany his daughters. These revolted

¹⁴⁹ A technique also seen during the Gallic Wars. The river is mentioned as being of very low temperatures, and became hazardous even as drinking water, so one might question why Pompeius would have decided against rafts; perhaps the river lacked the depth, the current was too strong or the wood they were able to attain was of insufficient quality.

¹⁵⁰ According to Livy, Machares, king of Bosphorus, would have made a treaty with Lucius Lucullus. See Livy *Per.* 98.

and took the young women to Pompeius¹⁵¹. Mithridates then tried an alliance with the Gauls, in the hopes of one day invading the Italian Peninsula, supported by the Italian revolts. Meanwhile, his son and likely heir Pharnaces attempted a failed conspiracy against his father and was spared. However, Pharnaces would then attempt to engage the Roman deserters on his side, including the naval forces, in a coup attempt. It seems another, and clearer mention, of the fact that the land-army was accompanied, whenever possible, by a naval counterpart. Mithridates' situation was thus unbearable, for all his allies had forsaken him, and his last army and strength had passed to his son's side. In the year of 63 BCE, after twenty-four years of conflict, the Basileus of Pontus committed suicide, at the age of sixty-eight or sixty-nine. Appian then summarizes all of Mithridates' deeds, amongst which is one that seems to have been unmentioned before: the capture of Lucius Cassius and Quintus Oppius, who were later returned to Sulla, and the capture and murder/execution of Manius Aquilius¹⁵². As mentioned by Livy, under Pompeius, Pontus will become a Roman province¹⁵³, and Pompeius' deeds will be mentioned by several ancient sources, including Pliny the Elder, who compares him to Alexander the Great and Heracles. Beginning his military career under the orders of Sulla, Pompeius rises to be seen as the commander who frees the seas from piracy, and wages wars successfully in Asia, Pontus, Armenia, Paphlagonia, Cappadocia, Cilicia, Syria, Scythia, Judaea, Albania, Iberia, Crete, and the lands of the Basterni, aside from having defeated Mithridates and Tigranes¹⁵⁴. It is possibly the first time in documented sources that a Roman commander's naval career achieves these levels of recognition¹⁵⁵.

¹⁵¹ Pompeius' task would also have been made easier by the conquest of Crete by Quintus Metellus and the treaty with Parthia. See Livy *Per.* 100.

¹⁵² According to the ancient sources, through the pouring of gold into his mouth. See, for instance, Plin. *HN.* 33.14.

¹⁵³ Livy *Per.* 102.

¹⁵⁴ Plin. *HN.* 7.27. Amongst Lucullus' established acts against these kings, it is mentioned the destruction of Tigranes' new city (or attempt to found one) in Iberia, named Tigranocerta. See Strab. 11.14. This means that he would have been travelling back and forth along the Mediterranean.

¹⁵⁵ One could argue for the case of Duilius, but not only does Pompeius' career seem to go beyond his own in terms of numbers of successes, but also Duilius seems to have a localised occasion of a celebrated victory, whereas Pompeius is celebrated for several achievements and attained greater source acknowledgement for his exploits at sea.

5. Pompeius and Piracy

Appian's account of Pompeius' deeds against Mediterranean piracy is brief, possibly because the campaign itself was of short duration. Dio Cassius provides more information. According to this source, piracy was a common practice from the beginning of time; however, it was usually circumscribed to certain areas. The increasing instability and wars across the whole of the Mediterranean basin had increased piracy and it had become difficult to manage, with fleets growing considerably and being under capable commanders. This would not stop even in the aftermath of the Mithridatic wars, with pillage happening to both ships and harbours, and the pirates settling communities in several coastal cities¹⁵⁶. According to Dio Cassius, these communities would have grown to an extent that would threaten in-land districts, the security of grain supplies and the harbour of Ostia, where they would have proceeded onto the destruction of several ships¹⁵⁷.

For a time, Rome would have remained relatively unconcerned, and sent only minor expeditions under specific circumstances (which, however, Cassius does not clarify)¹⁵⁸. The commanders of these expeditions are designated by the source as *στρατηγός/στρατηγοί*; it is not a specifically naval nomenclature, and might indicate that, in spite of fleets being sent, there was a focus of dealing mostly with issues amongst coastal and in-land communities, and that little would have been done regarding the actual problems at sea. When Rome decides to take serious measures in this matter, it seems that Gabinius,

¹⁵⁶ Dio Cass. 36.20-21.

¹⁵⁷ Either the communities lacked the men to provide crews for these ships or safe places to harbour them, or this would be unlikely, given that stealing the ships instead would provide the pirate communities with further resources. See Dio Cass. 36-22.

¹⁵⁸ Although the issues of piracy become more evident in the aftermath of the Mithridatic Wars, according to Arslan, it had been growing since the 2nd century BCE, due to the «political instability in the Mediterranean and the increased economic opportunities (...) due to the demand of slaves in Rome». Cilician piracy («Cilicia Tracheia in particular»; Arslan 2003: 196) was particularly advantageous due to local topography (a mountainous area, close to «plains and extensive farmlands» which would be «open» and easy to raid), its proximity to the sea (which provided «wood for building ships, naturally sheltered harbours, fortified outlooks and hidden inlets») as well a connection with the trade route «along this coast from Syria to the Aegean and western Mediterranean»; there was also the possibility of collecting ransoms (199). The geographic advantages are explained by Strabo, whom Arslan quotes, together with Shaw (1990, 263), who considers that «permanent control» would require «permanent administrative presence in the region» and the «deployment of massive military resources». The mid-late 2nd century BCE was a period of instability in Cilicia, although there seems to have been scarce Roman intervention until at least 102 BCE, with Marcus Antonius' first campaign (Arslan 2003: 200), followed by a *Senatus consultum* that declared «pirates the enemies of the people, friends and allies of Rome» (201). As Arslan summarises it, Rome's intervention in piracy is only «half-hearted» until there is a threat to «its own food supplies» due to unsafe Mediterranean navigation (208).

the tribune, would have endorsed Pompeius with complete powers for three years¹⁵⁹, together with a significant amount of resources and commanders, the latter being referred to as *ὑποστράτηγος*/subordinate – thus, once again, the source does not use specific naval nomenclature¹⁶⁰. According to the speech of Catulus, it seems that it is the first time that such powers are endowed on a private individual – at least, regarding the sea – which would mean that, for the first time in the history of Rome, there is a privatisation of sea-control and patrolling¹⁶¹. Pompeius did not follow the ancient precedent by being elected a dictator, with limited powers (six months instead of the proposed three years) and a limited area of action (the Italian Peninsula): his is an entirely new position – in the perspective of Catulus’ speech – and a new perspective of leadership that was unheard of in the traditional system of Rome¹⁶².

Catulus argues against the complete commanding power of a single man with arguments of a more practical nature. It would be impossible, he states, for a single individual to wage war through the whole sea at once; the pirates would be hard to capture and could easily take refuge. Thus, he justifies the need for a great number of second-in-command officers and warriors, to which he refers with the nomenclature of «*στρατιώτας καὶ στρατηγούς*»¹⁶³. He argues that even if full powers were given to Pompeius, he would still need aid from other men, and here, for the first time in the allegations for and against Pompeius, one finds a naval terminology: Catulus mentions «*καὶ ναυάρχους καὶ ὑπάρχους*», thus «navarkos» and «hyparkous». Whilst the latter isn’t specifically naval, the «navarkos» is definitely a naval terminology. Whether it could be used interchangeably with the several occurrences of the word «strategos» is arguable, but it is likely that the word for land general could be used to refer to the commander of a fleet

¹⁵⁹ Dio Cass. 36.23.4: «*στρατηγὸν ἓνα αὐτοκράτορα*». Once again, specific naval nomenclature is not used.

¹⁶⁰ It may be added that, within the speech of Catulus, there is a passage which mentions the continuous lack of well-prepared commanders, since the consuls always gave away leadership to the same individuals. However, this may either be a fact or a resource of oratory and rhetoric to prevent Pompeius from attaining the command of the war against piracy; it is worthy of considering, as a possible indicative of the lack of men prepared for leadership not only on land, but also at sea. See Dio Cass. 36.32.

¹⁶¹ Dio Cass. 36.33.

¹⁶² «*ἔχοι καινὴν ἡγεμονίαν*», in Dio Cass. 36.34. As stated by Drogula, Pompeius’ role was *sui generis*: «his provincia overlapped with the *provinciae* of other commanders», while it was also granted for three years, with no further need for the Senate to renew his authority. Drogula underlines that this was not unprecedented, however, and that others had their command attained for more than one year, such as Scipio Africanus («prorogued *rei gerendae fine* in 203 BC»); he adds that «a single prorogation could keep a commander in his *provincia* for more than a single year»; changes in the traditional way to assign provinces and to the Senate’s authority begin to make themselves noticeable and will continue through the 1st century BCE (Drogula 2015, 318-20).

¹⁶³ Dio Cass. 36.35.

– or, perhaps, the captain of a ship. The exact degrees of authority belonging to the «strategos», the «navarkos» and the «hyparkos» cannot be ascertained within this passage; the matter with these commanders is mostly the process of selection, given that this would be an indication of the source of authority. Catulus argues that Metellus himself should assign these men, who would thus have a different degree of authority than if it came directly from Pompeius: if Metellus chose them, they would receive it from the Roman state; if Pompeius did so, from a private individual. If there was any real chance of opposition to Pompeius' full command, it did not prevail. He received power over all of the sea, all the islands and the coast, together with a promise for all resources he needed, including ships¹⁶⁴. It seems that fifteen *ὑποστράτηγοι* were assigned to him; whether Pompeius influenced this choice, it is not mentioned.

One may notice that, in spite of ancient sources containing a significant amount of information regarding Pompeius' career, very little is found regarding his actions against piracy¹⁶⁵. Much is made of it by Cassius, but the chapters dedicated to the speeches for and against the full power of Pompeius are more numerous and longer than the single chapter in which he speaks of Pompeius' actual deeds at sea. In fact, there are more mentions of Pompeius' land-actions by Cassius (particularly during the Mithridatic Wars) than to the fight against piracy. The source says that he would have delegated power in his subordinates and, by patrolling most of the sea simultaneously, he would have achieved the solution to the problem the same year his campaign begun; however, he does not mention significant naval battles and, in spite of the mention to a fleet, there is also that of the infantry, and it seems that the war would have fought both on land and sea. As Sulla did before him, so did Pompeius delegate his naval authority upon several legates, which would be simultaneously operating in different areas of the sea; and, as mentioned by Bradford, «their mission was to engage the pirates in the different areas of operation and fix them there so that they could not go to the aid of any other pirates or seek refuge

¹⁶⁴ Dio Cass. 36.37: «τῆς δὲ Ἰταλίας ἀντὶ ὑπάτου ἐπὶ τρία ἔτη προσέταζαν αὐτῷ ὑποστράτηγους τε πεντεκαίδεκα καὶ τὰς ναῦς ἀπάσας τὰ τε χρήματα καὶ τὰ στρατεύματα ὅσα ἂν ἐθελήσῃ λαβεῖν ἐψηφίσαντο». On this subject and the discussion surrounding the Lex Gabinia and its approbation see, for instance, Seager [1979] 2002b.

¹⁶⁵ Bradford observes Cicero's writings to understand the causes of Pompeius' success, *De Imperio Cn. Pompei*, stating that they were a combination of the «vast resources of Rome», the organisation of the campaign (through delegation and subsequent isolation of the pirates) and the attempt to fix «the root causes of piracy», enabling former pirates to survive without returning to their former occupation. However, Pompeius' campaigns did not perpetually exterminate piracy, and it would grow yet again during his lifetime, during his civil wars with Caesar and the latter civil wars of Antonius and Octavianus. See Bradford 2007, 49-51; Seager [1979] 2002b, 43 adds the 75 BCE campaign of M. Antonius' son.

elsewhere, while Pompeius, himself, in command of a central fleet was to move systematically from area to area, driving the pirates before him, corner them, and administer the coup de grace»¹⁶⁶.

The other important component of Pompeius' action was not one of war, but of diplomacy: through showing clemency, attempting to reach an agreement with the communities and attributing vacant lands or redistributing them amongst scarcely-populated settlements, he would have managed not only to fix the issue of piracy in the immediate present, but also through the years to come¹⁶⁷. Thus, it seems that, however much the ancient sources and Pompeius himself might have attempted to establish a reputation for great naval prowess, this might not have derived exclusively from his piracy campaigns, given that he reached success through several methods, of which one of the preponderant consisted in agreements, and had to rely on several other commanders to assure all the sea was patrolled at once. Cassius himself seems to make a similar statement: he owes a great deal of Pompeius' deeds to not only good fortune, but also his army; and despite acknowledging him as having great authority on land and sea, he also recognised that the commander had a number of advantages: wealth, derived from his campaigns; diplomatic liaisons with several cities and kingdoms, who were disposed positively towards him¹⁶⁸.

Pompeius' campaigns against the Iberian tribes¹⁶⁹ seem to reveal a factor that will also be significant – and, possibly, with greater intensity – throughout the Gallic Wars, which is the necessity for the control of bridges. It seems that Pompeius will have preferred to make use of bridges to cross rivers, instead of using boats or rafts. The first example mentioned by Cassius is the crossing of the Cynus: Pompeius would have successfully controlled not only the territory but the bridge itself. Soon after, his enemy Artoces would have crossed the river Pelorus and ordered the burning of a bridge behind him. It seems

¹⁶⁶ Bradford 2007, 50; Cabrero Piquero et Fernández Uriel 2010, 265-67.

¹⁶⁷ As stated by Paine (2015, 122-23), who describes it as «unusual», and considers that Pompeius' actions granted him their «allegiance» during the Third Mithridatic War. The motivations behind the campaign and its immediate aftermath are still being discussed. There are historiographic divergencies in the way authors interpret Pompeius' intervention: Morrel disagrees with De Souza's views, which state that Pompeius' sparing the pirates would have been done in his own interest, rather than due to any clemency (Morrel 2017, 64-66; De Souza [1999] 2002, 171-7), in order to accelerate the resolution of the issue and assume the control of the Mithridatic Wars. Morrel observes that, through his actions, Pompeius would have attained the creation or control of several ports, shipyards and ship sheds, as well as the ships themselves, increasing his maritime resources and creating subsistence means for these populations.

¹⁶⁸ Dio Cass. 37.20.

¹⁶⁹ Those in the modern-day regions of Georgia and Armenia.

that the river would have been fordable or on the verge of it, given that some of Artoces' warriors would have attempted it and failed in the process. Pompeius himself would have forded the river with his army later in the year¹⁷⁰.

6. The Parthian Wars

The Parthian wars have little to be said regarding the naval action of the involved commanders, due to a lack of information from the sources. Regarding Crassus' entry in Parthia, for instance, it is mentioned that he crossed the Euphrates, but the method is unspecified at first; all that is said is that the locals would not have expected his crossing¹⁷¹. Only in Dio Cass. 40.18 will it be made clear that the army would be crossing by means of a bridge – together with the narration of a number of prodigies – and that the said bridge would have collapsed. Cassius also refers that Crassus would be marching alongside the river with his army, and it is likely, though not completely specified, that the supplies would have been carried both on land and by ship, given that the source mentions that they followed the army along the river banks and the river's stream (Dio Cass. 40.20)¹⁷².

7. The Gallic Wars and the fluvial corridor: the Rhone, the Saône and the Rhine

Most of Julius Caesar's Gallic campaigns do not have a substantial number of naval actions (excepting the period prior and during the incursion to Great Britain), given that they are land-based campaigns. However, this does not remove the importance of river communication: most of the early conflicts with the Helvetic and the Germanic tribes are strongly related to river-crossings and the use of rivers as a means for transporting men and supplies. Not all these crossings are made by boat, with a significant amount taking place through bridges, particularly on the Roman side; it seemed pertinent to include these

¹⁷⁰ Dio Cass. 37.1-2.

¹⁷¹ Dio Cass. 40.12.

¹⁷² On the Parthian campaign and the Battle of Carrhae see, for instance, Stark [1966] 2012, who observes that the Parthians would not make war during winter, and that Crassus would have stationed several garrisons in «little semi-Greek settlements across the river», spending «the winter in harassing»; see also Woolf 2012 and Brice 2014.

episodes in the ambit of this dissertation, to present rivers and river-transport as a complement to the land-army even when facing continental confrontation.

Prior to the Gallic Wars, Caesar would have had contact with the issues of transport and of a commander not being well-provided in terms of ships. According to Suetonius, he wouldn't have been a stranger to dealing with fleets and naval transports: whilst serving in Asia under the command of Marcus Thermus, he would have been sent to Bithynia in order to retrieve a fleet¹⁷³; afterwards, he would have served in Cilicia. If ancient sources are to be believed, he would also have been captured by pirates whilst travelling to Rhodes, against which he would have later sent a fleet¹⁷⁴. Caesar's early career in the military thus contrives a series of dislocations, most of which by ship, thus providing him with early contact and practical knowledge on how to command a fleet.

Whichever sort of maritime knowledge Caesar may have attained during these early stages, it seems that the sequence of his military career – which will take him away from the Mediterranean and into the Atlantic – will have frequently deemed it insufficient for his campaigns abroad. There are at least two registered cases in which Caesar's army will struggle with the inadequacy of naval means, one being his course of action in Lusitania, the other being his campaign in Great Britain. Both involve the same issue: an inability for the army to safely disembark. During his early campaigns in Lusitania, he would have pursued the populations until they reached the ocean, but these were able to cross to an island¹⁷⁵. In his attempt to attack them, he would have prearranged some rafts, but his

¹⁷³ Suet. *Iul.* 2. Caesar would have arrived in Bithynia as ambassador, with the purpose of attaining the aid of Bithynia in terms of their naval capacity. This was granted, and a Bithynian fleet was used by Caesar's commander, Thermus, to attack Mytilene (Billows [2009] 2012a, 57). His stay in Bithynia would have also enabled him to develop a network of *clientelae* (Osgood 2008: 690).

¹⁷⁴ These issues with piracy and Caesar's presence in the Eastern Mediterranean coincide with the timespan of 78-77 BCE (Goldworthy 2006, 104-105); Caesar would have served under Seruilius Isauricus, one of the individuals who would have attempted to put an end to the issue of piracy.

¹⁷⁵ «La identidad de esa isla sempre ha sido objeto de debate. Hoy por hoy, la mayoría de los historiadores acepta la antigua tesis de Schulten, según la cual sería Peniche, a 45 kilómetros de Lisboa, o, tal vez, las cercanas islas Berlengas (...). También han sido propuestas las islas Cíes.» Bugalhão et Lourenço 2011: 256; Schulten 1992, 91, basing himself on Avienus (*Ora Maritima*, 154-171). The difficulty of dating Roman archaeological findings in the Berlengas is an added struggle to the identification of the island; however, the earliest finds are thought to date from the 2nd to 1st century BCE, which could coincide with Julius Caesar's expedition (namely, a Dressel 1 amphora probably made in the Italian Peninsula). See McElderry 1963 for an archaeological record of the Berlengas. Guerra (2005) presents another interpretation, accounting for the significant variation found in sea levels and the coastal and estuarine areas, underlining the importance of further geological research and signalling that whilst contemporary authors have attempted to find ways to connect what is the current geological situation and historical sources, this can often be forced, and that it is unlikely that the *Berlenga Grande* is the island, following linguistic interpretation of the word *pelagia*. This work states that this island is more likely to be that of Peniche: although modern historiography still needs to undergo further studies to understand the outline of the Portuguese coast for the period in cause, Roman occupation is «well documented» and attested for this

infantry was not successful, due to struggles while disembarking. This would have made Caesar order several ships from Gades, in order to cross to the island, and the Roman army was subsequently easily able to subdue the tribes, already lacking in supplies¹⁷⁶. As mentioned by Freeman, tides are significantly different between the Mediterranean and the Atlantic: «In the Mediterranean, the tide varies no more than a few inches, but on the Atlantic seaboard the water can swiftly rise several feet», which resulted in «the Roman soldiers [being] trapped and all but one cut down by the Spanish rebels»¹⁷⁷. Caesar was thus possibly used to Mediterranean dislocations by this point (it seems, for instance, that he would also have travelled from Hiberia – and probably to Hiberia as well – by ship, given that his return, and that of his army, would have been made by use of a fleet), but that his practical knowledge as a commander in the Atlantic Ocean will only begin to be developed in later periods¹⁷⁸.

region, and that it is likely there would have been several islets between the *Cabo Carvoeiro* and the *Rio de Aveiro* which are now part of the continental area. There is further support by archaeological findings in this location (both on land and at sea), which seem connected to «oceanic navigation».

¹⁷⁶ Dio Cass. 37.54. Caesar's campaign would not have been the first in the Iberian Peninsula, and the intervention of Gades in Roman military actions through the late 2nd century – early 1st century BCE can be observed or deduced from historical sources. Rui Morais (2007: 101) states that Gades would have been supporting armies with supplies and a fleet and possibly accompanied early campaigns, such as those of Seruilius Sicipio in 139 BCE and Decimus Junius Brutus in 137 BCE (the latter more certain than the former), as well as having a possible participation in M. Perpena's intervention in 74 BCE, during which Cale would have been taken and Roman presence extended to the centre-west. Until Perpena's expedition in 74 BCE and Caesar's in 61 BCE (a campaign which, according to Morais, would have intended to establish Caesar's sovereignty in a location with flourishing trade), the Douro river would have acted as border between territories with and without Roman presence (111), and the importance of Gades' intervention is seen, for instance, in the attribution of the title of *praefectus fabrum* to Balbo, a Gaditan (117). Gades' support would have been significant to extend Roman presence to Brigantium (117). According to Morais, therefore, there are two stages of Roman presence, namely a first between the 2nd and 1st centuries BCE, with the «first military campaigns» and a growing presence of products of Italian origin in Iberian trade, and a second from the 1st century BCE onwards, with growing participation of the Iberian Peninsula in the imperial markets and its integration in the wider Mediterranean economy (120-21). Thus, Roman presence in the Iberian Peninsula up to the Douro river would have been in a period of consolidation during Caesar's campaign, which subsequently «expanded Rome's political dominion as far as the Gulf of Ártabro, in Galicia» (Morillo, Fernández Ochoa et Salido Domínguez 2016: 275), with *Brigantium*, modern day La Coruña, playing an important role: «a partir de meados do século I a. C. os romanos dominam já uma extensa frente atlântica, não sendo de estranhar as relações preferenciais manifestadas por gentes habituadas a frequentar o mar Oceano, veja-se os episódios do apoio gaditano a César, nas suas campanhas peninsulares e na expedição a *Brigantium*, naturalmente, para além da conhecida investida britânica do mesmo» (Fabião 2009, 57-58).

¹⁷⁷ Ruiz 2017. On Mediterranean and Atlantic tides see, for instance, Pugh et Woodworth 2014; Omrani 2017, 60-61, who points out the stronger Atlantic influence in the areas close to the Strait of Gibraltar. For a specific scientific approach to Mediterranean tides and an introduction to closed sea vs Atlantic tides, see Arabelos et al. 2011; on Caesar's «Celeritas»; Riggsby 2017, 72.

¹⁷⁸ The matter of Caesar's geographic knowledge is of significant importance to several subjects in Roman History. According to Riggsby, there is a «sense of mastery that Caesar projects through his control of geography»; his expeditions allowed him to acquire tactical knowledge which may have benefited the Roman army in situations such as, for instance, the first Helvetii attempt to cross the Rhone (Murray 1909). For a more recent scientific approach to tides and their influence upon navigation in Ancient time (regarding matters such as the influence of tides and wind in ship-speed) see Grainge 2002.

Julius Caesar's contact with naval actions during the Gallic Wars starts early in the conflict. To prevent the enemies from crossing into the Italian Peninsula and considering that this crossing would begin through using ships or rafts on the river Rhone, he orders the cutting of the bridge at Genava and fortifies several key points (Caes. *BGall.* 1.7-8; Dio Cass. 38.31)¹⁷⁹. River crossing¹⁸⁰ will be a constant amongst the Helvetii, especially throughout their attempts of traversing the Alps¹⁸¹, and will possibly be of equal importance to the Roman army, considering that «roads had not yet been constructed in independent Gaul in Caesar's time»¹⁸². After their first failed attempt to cross the Rhone¹⁸³, they are said to have crossed the Saone, a minor fluvial course, in small skiffs tied to each other, most likely improvised rafts¹⁸⁴. Caesar is said to have been aware of these movements and to have taken advantage of them: the Helvetii crossing seems to have been a slow process, despite (or due to) the river's stillness, and when most of the units had already arrived in the other side, a smaller section was still left behind¹⁸⁵. This section would have been attacked by Caesar's army, with positive results for the Roman faction. Cassius mentions the Helvetii as crossing the river Arar¹⁸⁶, not through skiffs nor

¹⁷⁹ The academic community has frequently discussed the nature of these fortifications (and the reasons behind the delay in the Helvetii crossing), and it is now generally agreed that there would not be a continuous line, but several fortifications amongst key-points along the river, which would, by themselves, work as a natural barrier. See Dodge 1963, 62-63; Raaflaub et Ramsey 2017: 3.

¹⁸⁰ Years before, Lucius Marius and Seruius Galba would also have crossed the Rhone; the methods used, however, are unclear, but they managed to achieve several victories. This enterprise was close in time with the attack to Valentia by Manlius Lentinus, and it seems that while the Valentians had a significant amount of river vessels to cross the Isara, the Roman army did not (Dio Cass. 37.47). As mentioned by Omrani, «in the first century BC, if a person dwelling on the north bank of the river Rhône in Geneva wished to travel into southern Gaul, their most natural route would be to cross the river and then take a road leading southwest towards Valence (...). If the bridge was out of action (...), the only viable route was to follow the north bank westwards out of the city, and after about twenty miles, pass through a narrow defile of the Jura Mountains (...)» (Omran 2017, 60). With the bridge being cut, the change of route would lead to «the muddy edge of the Rhône», with the path «reduced to a stony ribbon, balanced on the edge, scarcely wide enough for a cart to pass». See also Cawthorne 2005, 20.

¹⁸¹ Drogula 2015a, 154-90. The Romans would have been well-acquainted with river crossing, both by boats and bridge, given Rome's location on the banks of the Tiber. See Dio Cass. 37.58.

¹⁸² Together with river crossing, there will be river defence. As far as the Rhone is regarded, it seems as if there would have been strategic interests: as mentioned by Cawthorne, «(...) the Rhône-Saône-Rhine corridor was fast becoming the most important trade route in pre-industrial Europe. Britannic tin was traditionally transported along the rivers Garonne and Seine (...)». Cawthorne 2005, 20. See also Campbell 2003.

¹⁸³ On the importance of the Rhône, its navigability and river transport in this period, see Riggsby 2006, 74. See also Raaflaub et Ramsey 2017: 11.

¹⁸⁴ Caes. *BGall.* 1.12.

¹⁸⁵ Riggsby underlines the significant technological and human effort implied in this operation: between the building of the fortifications, the destruction of the bridge, and a subsequent construction of another, the author considers that «The Romans' first technological feat is a virtuoso performance, though it does not by itself have a decisive effect». Riggsby 2017, 74. See also Cunliffe 1982.

¹⁸⁶ Another name for the Saone, as seen, for instance, in the translation presented by Ademma 2017, 125.

rafts, but by fording it, which would have allowed the Roman army to take advantage of this moment of logistical frailty and attack them¹⁸⁷.

His following measures would have been to keep tracking the remainder of the enemy's army, which would involve crossing the river; however, Caesar will not cross his army by boat or even improvised rafts, as the Helvetii, but instead order the building of a bridge. One might question the different options of each commander, which might be related to the load – both armour, supply and beasts – each army transported. It is likely that the Roman army had a heavier weight load, which would have prevented it from crossing in improvised rafts, even if there were some available, left behind by the defeated Helvetii. There is also Caesar's usual decision for celerity¹⁸⁸: as will be shown through his actions during the wars in which he was involved, his usual course of action, as a commander, would often rely on movement speed to grant him either surprise attacks – as far as an attack of an army of large dimensions against an enemy with available scouts can be a «surprise attack»; in this case, we mostly mean the relatively unexpected appearance of Caesar's army at a determinate location, days or weeks ahead of what could usually be predicted – or the hold of better positions. This might justify the building of a bridge, especially given that the Helvetii people were unable to cross the whole of their army in time to prevent enemy attacks. The Roman army might be easily attacked if they remained in the same position, as were the Helvetii.

¹⁸⁷ Dio Cass. 38.32. One must have into account that it is believed this period would have corresponded to «a peak in a warming period in central Europe», which not only allowed the Roman army to cross the Alps earlier in the year (early May, according to Raaflaub and Ramsey), but may have also influenced the strength of river currents due to the melting of snow and glaciers (Raaflaub et Ramsey 2017: 3; this work, dedicated to establishing a chronology of the Gallic Wars, also has information regarding the army's traveling speed). On the early conflicts with the Helvetii see Stevenson 2015, 86.

¹⁸⁸ However, as mentioned by Goldsworthy, celerity is not a synonym for recklessness: «Caesar was typical of Roman commanders in attempting to seize the initiative and maintain the offensive during his campaigns. This did not mean that he was willing to engage the enemy in open battle under any circumstances. It was common at this period for two armies to move swiftly into close proximity, but then to hesitate, camped a few miles apart and wait for days before fighting a battle, or even separate without having fought». Goldsworthy 2009, 204.



Fig. 1. The Rhone, the Saone and modern-day Geneva.

Nonetheless, Caesar's views regarding the crossing of the river do not seem to apply regarding the transport of supplies. Some of the cereal meant to be available to the army would have been sent through transport ships. The fact that the source mentions the inability to use these is problematic, however: despite Caesar meaning to closely follow the Helvetii and seeing that these would have strayed farther from the river, that does not necessarily mean the supplies could not be sent to the army. They could have been transported onto carts and subsequently sent to the camp. There are several viable explanations to this affirmation; one could argue about the lack of proper roads to transport the alimony in good time, which, however, can be counterargued, given that the army's passing would have, at least, opened trails (these might be deemed unusable, however, if the meteorological conditions made the roads or trails overly muddy). It is also possible that such chariots or carts to transport the cereal were unavailable at the time, or already taken by the army; that Caesar meant to store the cereal at some specific place, considering the army's return; or even that there were enemy incursions alongside the river and some of the cargo was lost. The source is not clear about the specific reasons why Caesar could not use the cereal; either it was a voluntary misrepresentation by the author, or the matter would have appeared clear enough to a reader of the 1st century BCE. From all the hypotheses presented above, and given the lack of mention regarding enemy excursions against the said ships, it is likely that it was mostly a problem of movement

and the lack of technical resources to transport the cereal from the ships to the army. One might also argue for the lack of escort units available to transport the cereal – if all the army left with Caesar, there would be no unit to protect the supplies from being taken by enemies.

From chapter 30 onwards, the *Gallic Wars* will focus on the Roman issues with the Germanic¹⁸⁹. The Germanic tribes, together with Germanic mercenaries, were either crossing the Rhine or establishing themselves amongst the margins, waiting for a proper opportunity to do so¹⁹⁰. During the early stages of the conflict, which do not include heavy military conflicts – in fact, they seem to consist, mostly, of diplomatic actions between several tribes from Gallia/Germania and Rome –, Caesar's increased concern with these river crossings will eventually lead him to a meeting with one of the Germanic leaders, Ariouistus. The Roman commander will attempt to impose on Ariouistus that no other tribe would be allowed to cross the river, unsuccessfully. This seems to announce an inability, however temporary, to prevent large-scale migrations and river crossings of the Rhine, which would probably be crossed through ships – if the Germanic tribes had opted for crossing bridges placed on areas with a lighter flow, Caesar might have been able to prevent these prior to his talks with Ariouistus by attempting their destruction. The Germanic army would have attempted to cross the Rhine once more, and whilst some are said to have taken some boats (possibly small skiffs belonging to local populations), many others would have attempted to save themselves by swimming¹⁹¹.

¹⁸⁹ In Cassius, the narration of the Germanic invasion begins in Dio Cass. 38.34. See Raaflaub et Ramsey 2017: 15-18; Stevenson 2015, 87; Freeman 2008, 132-45.

¹⁹⁰ Dio Cass. 38.35. Caes. *BGall.* 1.31.

¹⁹¹ Caes. *BGall.* 1.51-52.



Fig. 2. The three big rivers of the Gallic Wars. The tribes were approaching Rome through East and West and becoming close to the last natural barrier, the Alps.

The next stage of the conflict will also be related to fluvial/coastal tribes. Cassius mentions the Belgae (specifically, the Nervii), both those who lived close to the Rhine and those who lived in Britannia¹⁹². Against these peoples Caesar would have encamped by the river Axona, whilst his enemies would have taken hold of a bridge¹⁹³. Even as Julius Caesar was coming to and from Britain in his expeditions, the escalating tensions in Rome forced him to return. Following his arrival in Gallia, he would have travelled further South with his army, and is said to have done so «along the river Rhine»¹⁹⁴. It is unknown whether the commander and his forces were carried by transport vessels or if they marched along the river instead, but the choice to travel along the river (aside from the immediate access to drinkable water) would probably imply the presence of some sort of vessels to carry heavier loads (particularly provisions), which would have been more

¹⁹² Raaflaub et Ramsey 2017: 18-23. On the several Belgae peoples and their regional differentiation, see King (1990, 31-32), according to whom there is archaeological evidence to express a division between the Northern, more Germanic Belgae and the Southern, more Gaulish. Therefore, the Rhine would not act as absolute division between Gaul and Germania, but there is a «series of ethnic and archaeological groupings which divide north-south rather than east-west». Note also Crompton, who observes that during this time period the region in question, «controlled by the Belgae», would have been «wetter and swampier than it is today» (seeing as it was altered by Dutch-built dams), and that the Rhine «splits into many different Channels as it nears the North Sea, creating a bewildering mass of water and swampy land.» This would have been where the Belgae were stationed, «amidst these channels and rivulets» (2003, 45).

¹⁹³ Dio Cass. 39.1.

¹⁹⁴ App. *B Civ.* 2.5.

easily attacked on land, as well as delayed the army's march, given that a carriage or a chariot, pulled by horse or ox, will usually travel more slowly than a ship. Whilst carriages are easily attacked from the road, a ship traveling alongside the army can only be attacked by either getting through that army, reaching the vessels through other ships – and, given it's a river, it's likely to be easier to control than the sea, and there could always be a reeded and an advanced garrison to keep watch – or through projectiles. It still seems a possible preferable method to the wagons, which would be easier for the enemies to reach during an ambush.



Fig. 3. Through the observation of the rivers, one can see how Caesar's Gallic Campaigns head further north through central Europe, between the Rhone and the Rhine.

In *Caes. BGall. 2.5*, Caesar's preference for bridge crossing will once again seem evident – the army crosses the Axona (Aisne) and, even though the method is not specifically mentioned, the source specifies the existence of a nearby bridge, which would have been guarded by the soldiers¹⁹⁵. Caesar would have taken advantage of the river itself to protect the army from incursions. The river seems to not have been of significant depth, at least in some locations, including those close-by: the source says that the Germanic would have attempted to ford it, with an underlying strategy of attacking the Roman camps and outposts on the other side and cutting access through the bridge, most likely to prevent a Roman retreat on this side. It is possible, however, and even likely, that they did not

¹⁹⁵ Raaflaub et Ramsey 2017: 19.

manage to ford the river, given that Caesar is mentioned as having crossed the aforementioned bridge not long afterwards, in order to face them; and the source itself says that the Germanic would have felt the need for retreat given the impossibility to wade across. There are, at least, two points that might be questioned: why the Roman army would not have forded the river itself, choosing to cross the bridge instead (which might be easily answerable by the bridge's better pathway for the logistics in cause, including the cavalry and eventual transports¹⁹⁶); and how was it that the army quickly became aware of the enemy's attempt to do so. This means, most likely, that either Caesar constantly sent scouts across the margins – given his seemingly adamant option to defend the crossing – or that some other advanced river outposts, not mentioned in the source, had been built.

The devices or methods used in transport are not always clear. During his campaign against the Nervii and following a change in the marching lines – which seems to have particularly regarded the transports – Caesar would have crossed yet another river with his army, a crossing which would have included cavalry units. They would have crossed the river at a particularly shallow point; however, one must account for the need to safely cross the transports as well, and it seems likely that wading would not have been the best method, given the risks of the carts or chariots becoming stuck in the riverbed. It also seems that the enemy was expecting this crossing, which might signify that they either had scouting units or were aware of local geography, and thus knew that spot would be the most likely to provide an easy crossing. The Nervii would have also waited for the transports' attempted crossing to attack, which implies the frailty of the situation for the Roman army. It seems that, in this specific situation, the commander or his subordinates would not have opted for river transports, either due to the impossibility of defending them or, which seems more likely, due to the shallowness of the river itself, which would not allow navigation. The battle that follows, known as the Battle of the Sabis River, seems to confirm this second hypothesis, given that the source itself says the 9th and 10th legions would have chased the enemies to the river, and the latter would have attempted to cross it, closely followed by the Roman army¹⁹⁷.

¹⁹⁶ As might be observed in *Caes. BGall.* 2.16. The description made of the logistics says that each legion would have been separated from the other by the transports.

¹⁹⁷ K. Kagan [2006] 2009, 128-54 calls the Battle of the Sambre «atypical». In her analysis, she states that the situation would not have been as advantageous for Caesar as those of former conflicts, stating that the Nervii, unlike the Helvetii, would have moved their armies quickly and effectively and thus caused greater trouble for Caesar. The author mentions the several movements of both armies along the river. Whether the

The Roman contacts with foreign navies will intensify following the aforementioned conflicts. The army will cross its path with the Veneti¹⁹⁸, which seem to reveal, in due time, a new way to make war, and to open new possibilities for Caesar in the North. This people is said to have had not only a significant merchant fleet, through which it would engage in trade with Britannia, but also a meaningful experience in navigation¹⁹⁹. They would have had a line of fortifications or harbours alongside the Channel, and those intending to sail there would have become their tributaries. The Veneti would have been the first elements to begin a resistance against Roman domination, by detaining Silius and Velanius in order to retrieve their own captives. This would have led the neighbouring tribes to hold Trebius and Terrasidius. At some point, the entirety of the shoreline would have engaged into a common cause, reacting in order to free themselves from Rome and Caesar²⁰⁰.

In this episode one sees a noteworthy mention of Caesar's behaviour as a general, not specifically in combat, but regarding the matter of resources. He would have been in Illyria, relatively far from the place where these events occur, and ordered new ships to be built – specifically, long ships, thus, warships (*«naues longas aedificari»*) – by the River Loire, because it emptied into the Ocean (*«quod influit in Oceanum»*), and ordered the hiring of rowers, sailors and steersmen (*«remiges ex prouincia institui, nautas gubernatoresque comparari iubet»*²⁰¹). It is not the goal of this chapter to discuss ship

Romans followed the Nervii into the river and continued the fight whilst fording the water is debatable. It seems unlikely that the heavier units would have benefited from this action, given that they would not only have their movements slowed, but might also prejudice their equipment. The lighter auxiliary units might have engaged in this sort of combat, but the Nervii in the river could have benefited from already being in the water or the crossing site, whilst the Romans would be slowed in their movements while entering it and thus present some frailty. The river was meant to have been used as a natural barrier to slow the enemy and, given the Roman situation of apparent disorganisation, chasing the enemy through a course of water might not have been the best possible option. Regardless, one might always point the psychological and emotional effects of battles, which might have led the soldiers to engage in otherwise technically difficult situations. See Caes. *BGall.* 2.23.

¹⁹⁸ For an archaeological analysis on the trade between Brittany and Britain and how Caesar's incursions would have affected the area, see, for instance, Yenne 2012.

¹⁹⁹ Caes. *BGall.* 3.8. Yenne makes a comparison of the difficulties faced by Caesar in 56 BC and those endured by General Patton in 1944, during the US army's mission of taking Brittany. Both armies struggled with the local topography; the US Army, for instance, would have ignored the forts of Saint-Nazaire and Lorient, which would not surrender until 1945. If, as Yenne mentions, the Allies «wrote off a seaborne landing on the rugged coast of Brittany as potentially too costly», Caesar's efforts with the technology of the 1st century BCE would have been even more significant. Both the Roman army and the Allies would have felt the need of controlling the sea and become a leading «maritime power» in the region, in order to dominate the area. See Yenne 2012; Cardwell 1860.

²⁰⁰ On the background and beginning of the Veneti uprisings see, for instance, Billows [2009] 2012b, 142.

²⁰¹ Caes. *BGall.* 3.9.

typologies or shipbuilding – that will be left for the following chapters²⁰². Whether Caesar actually had these ships built or freighted, who would have built them, where and with which materials are questions we will attempt to answer afterwards, though one might point out that, like Appian, Cassius also mentions that Caesar would have ordered the building of the ships, not specifically due to former struggles, but because he would have heard that these were the most advantageous vessels to fight in the Ocean; these ships would have been brought down the river Liger²⁰³. The intention is to observe Caesar's actions as a commander, and what seems less liable of being doubted is the affirmation that ships were sent to the North and that Caesar is said to have ordered the building of these ships²⁰⁴. If both of these affirmations are truthful, and if these ships were not freighted from local communities instead, this is one of the first circumstances in which a Roman commander is said to have ordered the building of ships during the first century BCE (thus, long after the First Punic War and the first outburst of Roman naval construction was over), instead of «recycling» the ones captured in battle or relying on those borrowed by allies. It is also the first time that a large-scale expedition will be sent to the northern Atlantic Ocean, a new space with different navigation styles²⁰⁵. Thus, it is possible that we are in presence of a novelty in Roman flexibility: the Romans, no longer able to rely on their allies as ship providers – for they were not fighting in familiar seas, the Mediterranean and the Euxine – now had to attempt new strategies. One might also

²⁰² As an introductory note, one may point Yenne's statements, based on Caesar's: that the Veneti vessels would rely mostly on sails and be built for endurance, whilst the Roman ships would rely on speed and oarsmen. See Yenne 2012; Salway 1993, 7.

²⁰³ Dio Cass. 39.40. According to Cassius, who confirms what Caesar says in *De Bello Gallico*, the naval investment may have been motivated because most of the Veneti cities were inaccessible to the Roman infantry and the usual Roman fleet (Dio Cass. 39.40). However, and according to the same source, these ships seem to have been relatively unimportant, with the bulk of war granted by other typologies of ships brought from the Mediterranean by Decimus Brutus. These would have been light and fast vessels, very different from the large, sturdy enemy ships (Dio Cass. 39-41).

²⁰⁴ This account is explained by Levick, who considers these events to be of uncertain chronology (but after the winter of 57-56 BCE, and during a period in which Caesar would have «thought that Gaul had been pacified»). The author analyses preparations on both sides and the formation of a type of coalition between several population groups; Levick 2009, 64-65. See also Raaflaub et Ramsey 2017 for a more detailed account of Caesar's campaigns on land, and note that, prior to the conflicts with the Veneti, Caesar would have sent one of his subordinates to attend to issues with «the maritime nations along the Atlantic (2.32)» (namely Publius Crassus), thus not attending this initial stage of confrontation with Atlantic populations himself.

²⁰⁵ Nonetheless, the lack of military intervention does not signify that Rome did not have contact, however indirect, with Britain, and that this would not have influenced the Roman interest in the area. As mentioned by Salway, «(...) archaeological patterns do faithfully reflect important cultural and political changes in Britain in the period between 125 BC and Caesar, and that the traffic between the Continent and Britain that originated in the Roman-dominated Mediterranean had much to do with them». Given that the Veneti, «and possibly the Osimi», dominated the trade-routes, Caesar's military expedition may be justified further, given that Rome would possibly have this knowledge at the said period. See Salway 1993 and Dando-Collins 2002.

observe the likeliness of a great part of the crew not being Roman. Caesar orders the hiring of people from the Gallic provinces – rowers, sailors and steersmen.

There is one issue which might be debatable regarding these circumstances, and which cannot be answered without further analysis of the events. If the Veneti were so well-known for their naval prowess²⁰⁶, why would Caesar have decided to confront them at sea, especially in an unknown territory, when Rome did not have a significant naval tradition²⁰⁷? There are several hypotheses. The one postulated by Cassius says that the Veneti would have been defeated due to being unacquainted with the ship types brought into the battle and considered them a smaller threat than they truly represented; however, the ship types used by Caesar seem to be confusing, when both sources are compared. Cassius also mentions that the Veneti would have struggled against the meteorological conditions, due to the material of their sails; however, Caesar consistently speaks of their advantage at navigation, due to them knowing the location better. By observing the following points, one might reach some conclusions. Firstly, there will be a combat between both parties. The Gallic alliance began by organising their fleet and equipment (*«pro magnitudine periculi bellum parare et maxime ea quae ad usum nauium pertinent providere instituunt»*²⁰⁸), and allegedly felt confident due to their advantage: a great geographic knowledge of the region. They are said to have relied on the fact that some of the land paths became insurmountable during the high tides, and navigation itself was difficult due to topography and the lack of harbours. Caesar also affirms that the Veneti knew the Romans did not have a navy, did not know the inlets, the bays, the islets nor the harbours, and would struggle with Oceanic navigation, which would be very different from that in the Mediterranean Sea. Their other premises would have been their belief in the Roman lack of supplies (present or future) and their naval superiority.

According to the *Gallic Wars*, in spite of all the apparent difficulties, Caesar would have opted for entering the war due to the *iniuria* against the Roman *equites*, the uprising, the

²⁰⁶ They may also have been warned of the Roman expedition by their allies. See Rhys [1882] 2014, 49-50.

²⁰⁷ Since the earliest studies on the matter, several authors mention Caesar's account of the Veneti ships, which, according to Rhys, «had made a deep impression on his mind». In the latter decades of the 19th century, Rhys goes as far as to state that the Veneti and their allies could be considered as an «Armoric or maritime league» (Rhys [1882] 2014; Dougherty 2014, 284). The position regarding the Veneti trade supremacy in the Northern Atlantic has been relatively undisturbed: in 2014, Dougherty mentioned that «the conquest or annexation of the Veneti was inevitable sooner or later, given that they controlled the coastal trade routes and posed a threat to Roman shipping in the area», with a strong emphasis upon their «position» and «settlements», their «ship design and seamanship», together with the «knowledge of local waters». See also Goldsworthy 2006, 360-61.

²⁰⁸ Caes. *BGall.* 3.9.

desertion and, above all, fear that other communities would follow these into rebellion. His disposal of forces would have been the following: Titus Labienus was sent to the Rhine, to close the river crossing to the Germanic tribes, in case they attempted to cross it with their ships; Publius Crassus goes to Aquitaine to prevent those peoples from helping Gaul; Quintus Titurius Sabinus goes to other Gallic territories; more important to this study, he sent Decimus Brutus to command the ships and fleet provided by the Gauls, and ordered him to go to the Veneti, whilst Caesar himself would travel there with the infantry. It seems that there would have been a series of skirmishes throughout the season, which are not specified in this source, but are briefly mentioned by it, including the struggles the Roman army and fleet would have to face and the defensive methods of the enemy population. The topography of most settlements would include mostly promontories and spits of land, which would become inaccessible to both the infantry (when the sea rose) and fleet (during the low tides; the ships would get stranded on the sandbars). The Roman engineers seem to have attempted to counter this effect, by building *moles* and *moenia*, to contain the sea level; but the besieged cities would take the inhabitants to their ships and retreat to other settlements and fortifications.

From this topic one can infer at least two conclusions. Firstly, Caesar, as a general, would have preferred to delegate the command of his fleet on Brutus and take charge of the infantry himself. Secondly, some technological effort would have been made to change the landscape. The source mentions that Rome's enemies would have retreated by ship, which seems to indicate that the Roman efforts were directed towards trapping water rather than draining it, or that the enemy fleet had a typology of ships which allowed for dislocations through the sandbanks, something that the Roman ships would be unable to follow. There are mentions of difficulties in sailing on the Roman side, due to poor meteorological conditions and the lack of safe harbouring locations, as well as issues sailing in open sea.

According to this source, the enemy's ships keel would have been lower in height – which would allegedly benefit them against the sandbanks – whilst the bow would have been taller in height, and the stern sturdy and strong; overall, these ships would have been heavier and sailed with a different type of sails. It seems that the Roman ships would be lighter and faster, but that factor would not bring them any advantage against the sturdy, tall ships of the Veneti – neither the spur nor the projectiles would have been able to cause much damage. This brief introduction was included at this point of the study to explain

the strategy of the Roman navy in battle against the Veneti, and the causes for their subsequent failure – the Roman fleet, despite being equipped in order to be able to attack ships with spurs, still had a strong preponderance of the traditional techniques of approach, combined with infantry attacks. At this point, they were unable to succeed through such techniques, due to the inadequacy of the fleet.

Chapters XII, XIII and XIV of Book 3 conclude by saying that Caesar would have realised he was unable to capture the fortifications and decided to wait for the fleet, commanded by Brutus²⁰⁹. Whereas Brutus was the commander of the fleet, the ships themselves were distributed amongst military tribunes and centurions²¹⁰. The number of ships under Roman service (either Roman or Gallic) is unclear; the enemy had 220. Having the need to adapt to the height of the enemy ships (against which turrets are said to have been insufficient as a counter measure), they would have resorted to the use of *falces*, a sort of hook or sickle, through which the Romans would cut ropes attached to the masts; this technique would only be possible through the strength of rowers²¹¹. The enemy sails were then disabled, the ships unable to move, and the Roman fleet would send two or three ships, from which the soldiers could approach and board the enemy vessels. This would have resulted in a significant victory for Rome.

One can infer several significant points from this combat:

²⁰⁹ According to Professor Lawrence Keppie, «many of these promontory forts have been identified, but archaeology as yet supplies no direct evidence for a Caesarian onslaught». See Keppie [1984] 2001. One may question why Caesar would have delegated command of the fleet, seeing as his early career is said to have involved several naval episodes and dislocations. Caesar is said to have «commandeered a small fleet, led it back to Pharmacusa, and brought the pirates to battle, capturing several ships and their crews»; this would not have been a major naval occurrence, but a smaller skirmish, and it is possible, if not likely, that Caesar was in charge of the fleet himself, given the private nature of the conflict (Jiménez 2000). The case of the Veneti, however, involves Atlantic navigation, so one might question whether Brutus and his subordinates were in charge of acquainting themselves with this sea.

²¹⁰ «*Neque satis Bruto qui classi praeerat uel tribunis militum centurionibusque quibus singulae naues erant attributae*» (Caes. Gall. 3.14.3); these men would not have known the best combat tactics to adopt, since they were unaware of the results their ships would have against the enemy's; this seems to indicate a lack of previous combats. It is also one of the few cases in which there is a specific mention to the lower command hierarchies.

²¹¹ Caesar does not specify exactly what sort of *falx* this would be. The word itself is ambiguous, being used both in agricultural and military contexts; it is not mentioned how it would be propelled against the ropes and kept in place until the Roman rowers were able to achieve significant speeds in order to trim them. These events would have occurred about one century and a half before the Romans had contact with the more well-known and widely studied Dalcian *falx* (see, for instance, M. Schmitz 2005). There is a comprehensive study of *falx* typologies amongst the Romans, but it mostly regards agricultural tools; however, it is likely that, given the time-period, the device used in these circumstances would not vary significantly from the agricultural sharp blades, attached to a pole. See White 1967.

- 1) The importance of the second-in-command. It is not Caesar who commands the most successful – if any – ships, and even Decimus Brutus, the commander in charge with the fleet, is not specifically mentioned. The «falx» technique is not said to have been suggested by either. The source specifically mentions the military tribunes and centurions, and the fact that each of them would command a ship; given that these ranks are often devoid of any mention throughout the battles might suggest their relevance during this naval conflict.
 - Cassius – unlike Caesar – mentions that Brutus would have considered abandoning the ships altogether and fighting on land, which would be consistent with the Roman preference for land battle (Dio Cass. 39.42), and only changed his approach due to an alteration in meteorological conditions which hampered the movement speed of the Veneti ships.
 - This source also mentions ramming and does not seem to specify the use of the «falx» during the early stages of conflict: the falx would be left for a later stage, when the Roman victory would be close to assured, and would serve mostly to prevent the enemy ships from being able to move yet again (thus, in Cassius' writings, the function is similar to that described by Caesar, but it seems the moment of battle in which it is used is unclear). According to Cassius, the formation would have been broken – or, at least, changed – according to the circumstances: at some points, Brutus would have opted for having several ships attacking a single enemy, whilst at others, the numbers would be kept relatively equal (Dio Cass. 39.42). However, Cassius does not dismiss the presence of the traditional Roman naval combat, through boarding and infantry fight. He also mentions another point which Caesar fails to specify, which is that the Veneti would not be using archers, slingers or any type of projectile against the Roman ships²¹².
- 2) The seemingly great skill of the rowers, who would have had the strength to dislocate the ships in significant speeds and thus allowed for the immobilisation of enemy ships. This would have subsequently enabled the Roman army to follow the usual method of approach and boarding, which must have included ladders, if the enemy ships and the Roman ships did have such a great disparity of size.

²¹² Cassius also mentions that some Veneti ships would have been set on fire, but does not specify how this would be possible (the method or fuel, for instance, which would be dangerous to carry inside Roman ships). Dio Cass. 39.43.

- 3) The duration of the combat is fairly large, according to the source. Though specialists debate the meaning behind Roman time – the combat is said to have lasted from the Fourth Hour until sunset – it can be deduced that it may have lasted, in the very least, an entire afternoon, and, at most, a whole day. It is unlikely that the peak of the combat lasted for such a long period, given the physical exhaustion that would have overcome both armies and rowers. It might be argued that a naval combat could last longer, depending on the manoeuvrability of the ships; however, this account of time might probably include the hours that went from the moment of the approach of both fleets and preparation of combat techniques and formations, to the moments that followed the battle itself, such as the capture of the enemy ships and reorganisation of the fleet.
- 4) Regarding the «falx», it is probably safe to affirm that the instruments had been loaded into the ships prior to the battle. This means that someone must have considered this technique – might even have been aware that it worked against the Veneti ships – and suggested it; they could also have been carried to the Roman ships by *naues speculatoriae* swiftly moving between the centre-stage of battle and the shoreline. One might question, especially given the inclusion of Gallic ships in the incursion, whether some of the low-rank commanders were not local individuals, aware of the fighting techniques and how to make the Roman disadvantages come to a better outcome.
- 5) The immediate outcome seems to have been the complete surrender of the Veneti. This people seems to have felt very comfortable in their navigation, topography and geography, in order not to fear the Roman fleet. Thus, one of three possibilities might be presented:
 - The Romans inflicted several other unmentioned defeats upon the Veneti and their allies before this battle, either on land or at sea, and might have been able to cut their supply lines.
 - The Veneti naval superiority was not as significant as the source seems to show. This might explain not only the quick surrender, but also why there were no other naval battles prior to this. The 220 enemy ships might not be representative of a very large fleet, but of one consisting mainly of these 220 vessels. Chapter XVI seems to confirm this, for it says that the Veneti had gathered most of their ships during that battle.

- The campaigns of Quintus Titurius Sabinus and Publius Crassus across the remainder of Gaul were successful and prevented the Veneti from receiving much further assistance from their allies. Regarding the former, this seems unlikely, for the results of both Caesar and Titurius' campaigns seem to have been nearly simultaneous; Crassus' campaign might have been even longer, for it is mentioned that, when he was victorious, Caesar would have already been intending to wage war against the Morini and the Menapii, whilst Summer would be nearly at a close. Considering the three hypotheses presented, the second seems the most likely. Not only had the Veneti lost a considerable amount of their vessels – thus losing their capacity for transportation – but a significant part of their demography, particularly the younger men who were able for war.

Before the military campaigns in Britain began, Caesar would have undergone a series of events, which were mostly of diplomacy and display of strength. The issues would concern the Germanic tribes and, despite being connected to land and settlement, had their starting point at the crossing of the river Rhine. Following a series of diplomatic actions on the Germanic side, and after a successful land battle, Caesar would have decided to cross the Rhine himself, allegedly to impose fear and respect upon the Germanic tribes, and to comply with the requests of his Ubian allies. Regardless of the reason, it seems that Caesar would have made a short incursion on the other bank of the river with his army. Even though it is not a naval event, it is worth observing Caesar's action as a commander. Despite the fact that his allies would have offered him their own transport ships to cross the Rhine, Caesar would have decided to build a bridge instead, for two reasons: the *dignitas* (of the Romans and his own) would be offended in crossing it by ship, and the unsafety he would have felt on doing so²¹³. It seems likely that the second motivation – the possibility of losing men and cargo during the crossing – would have been the most prevalent²¹⁴, but one may observe here some sort of ideology

²¹³ Or, according to Cassius, to attain fame for himself. Dio Cass. 39.48-50.

²¹⁴ As mentioned in note 2 of the Portuguese translation by Victor Raquel, Caesar might have intended to assure a fast way not only to cross large segments of the army, but also to retreat; a bridge would also have made it easier to cross supplies, if carried in carts (Raquel [2004] 2016, 142). During the Gallic revolts following his return from Britannia, Caesar will also be seen ordering the building of bridges (for instance, in the territory of the Menapii – Caes. *BGall.* 5.6); the Roman struggles to cross rivers will also be faced by Labienus against the Germanic tribes, with the former settling the camp close to a river, but not crossing it, a course of action shared by the enemy. The said river will be crossed by Gallic forces, and Labienus would have attempted to lure them away from the water – Caes. *BGall.* 5.7-8.

regarding the use of river vessels – and borrowed ones – by a commander-in-chief, and question why the source mentions something as the *dignitas* of Caesar and the Romans. Even if only to attenuate the image of the difficulties endured by the Roman army regarding river transport across the Rhine, it is, nonetheless, a remark that might show Caesar's preference, as a general, for land transportation²¹⁵. However, as seen in several instances throughout this chapter, Caesar is also known to be a commander who relies mostly on the celerity of his troops' movement; the fact that he decides for safety instead of speed, together with the remark that the bridge would have been destroyed by the army once they returned, might be representative of a particular necessity for safety, not only of men, but also of supplies²¹⁶.

8. A change of tides: the first incursion in Great Britain²¹⁷

In 55 BCE, following his victory against the Veneti, Caesar will attempt his first journey to the island of Great Britain, allegedly to prevent the local populations from supplying the Roman enemies in Gallia²¹⁸. The matters of Caesar's actions as a commander are seen throughout the chapters XX-XXXVI. It seems that there is little space for doubting Caesar's intentions during this first attempt: these would not have been of conquer, but

²¹⁵ Caesar may have been the «first Roman general east of the river» (Kaiser 2017, 69). Regarding the technological processes of building a Roman bridge, see, for instance, Troitsky 1994 and Ulrich 2007; the latter provides a detailed analysis of the current efforts to understand the bridge's design and building efforts.

²¹⁶ This might be confirmed by the fact that some of the Gallic tribes would have crossed the Mosa river to concur in pillage actions, and taken a substantial amount of cereal, which might have made it difficult for the Romans to gather supplies from the territory and them to rely mostly on what they already had.

²¹⁷ The precise location of the army's arrival remains uncertain; early 20th century historiography was led to believe that it may have been «along the coast between Walmer and Deal» (Holmes 1907, 311). However, very recent archaeological survey in the county of Kent has led archaeologists to believe that the landing site was Ebbsfleet; the belief that Caesar would have landed in Kent has long been attested by researchers (since, at least, the 19th century; see, for instance Longmate 2001, 95-96). Nearly 500 years later, Ebbsfleet was probably also the landing site of the new communities invading Britain (Yenne 2012, 79). As for Caesar's presence in the area, investigations carried by the University of Leicester have found what is believed to be the remains of a Roman weapon, together with several hillforts. See <https://www2.le.ac.uk/offices/press/press-releases/2017/november/first-evidence-for-Julius-caesars-invasion-of-britain-discovered> and <https://www2.le.ac.uk/departments/archaeology/research/projects/footsteps-of-caesar/in-the-footsteps-of-caesar-the-archaeology-of-the-first-roman-invasions-of-britain>. The excavation team in Pegwell Bay has, so far, found the remains of what seems to be a Roman *pilum*, pottery and bone fragments, including a femur which «shows signs of a cut that was inflicted by a sharp blade», and support the claims that this was the landing place, at least, for the second invasion. See Fitzpatrick 2018.

²¹⁸ Eutr. 6.17. Eutropius summarizes Caesar's feats as having crossed to the British ocean, subdued Gallia between the Rhone, the Rhine, the Alps and the Ocean, made war upon the Britons and invaded Germanic territory by crossing the Rhine. They are all bound to geographic landmarks, most of them rivers and the sea.

of reconnaissance²¹⁹. The island was virtually unknown to the Romans, and it seems that not even the tradesmen were able to provide Caesar with enough information regarding the harbours, population numbers, lifestyle and war-style. It seems, however, that for some reason the island would have been attractive enough for Caesar to attempt to gain further knowledge²²⁰. Once again, he will not be the main naval commander, at least during the early expedition, sending Gaius Volusenus instead; as for himself, he would have left for *Icius Portus*, in the North of modern-day France, and gathered his fleet, including the ships built to fight the Veneti. These movements would not have been unknown to the Britons, who would have sent diplomatic entourages to Caesar (although, unlike what Caesar mentioned, they might not have intended to submit themselves to the Romans). Volusenus returned without having disembarked, and another individual, named Commius, was sent for further information, although nothing is heard of his return.

Prior to his departure, Caesar is said to have made peace with the Morini. Despite the source's mention of Caesar's acceptance of their submission, it is possible that he would have agreed on a truce in order to hire ships and crew capable of sailing across the Channel²²¹. The expedition departed with eighty transport ships, distributed amongst his quaestor, legates and prefects; eighteen others would have been left behind, with the *equites* in charge. It is the first circumstance in which the cavalrymen are presented as being in charge of sea vessels, and it is particularly relevant when one notes that there were still significant parts of the army (amongst which stood some legates) which were left behind and sent to other parts of Gallia.

From this moment onward begins the incursion itself. Caesar departs with the eighty ships – the eighteen others left with the *Equites* suffer a delay – and arrives at a promontory where it was impossible to disembark. Thus, the fleet keeps moving and the men attempt to disembark at a nearby beach²²². The Britons would have been awaiting the Romans

²¹⁹ Goldsworthy (2006; see also Hoffman 2013a, 26) considers that about 4000 men of two legions would be present, that some of the legionaries may have served as oarsmen, and that the majority of the army would have remained behind, close to modern-day Boulogne. As for the departure, Keppie suggests «Pas de Calais» or «West Flanders» as the point of departure of the greatest contingent and refers we do not know from where the cavalry could have left (Keppie [1984] 2001, 62).

²²⁰ See also Dio Cass. 39.50.

²²¹ The statement that says that the legate Publius Sulpicius Rufus would have stayed behind to guard the harbour with a garrison might denote some degree of uncertainty or distrust regarding the Morini, which may confirm this statement.

²²² The operation of disembarking seems to have presented significant trouble for the Roman army. As mentioned by Grainge, Caesar would not have known «the layout» of the coast, regardless of being aware of the «rise and fall of the tides». «The warships, which had been hauled ashore and were no doubt lying on their beam ends, filled before they could float, while the transports, lying at anchor, lost 'cordage,

with their cavalry and war chariots²²³; as for the Roman fleet, the disembarking of the army continues to be problematic²²⁴. The ships were too large to come closer to the beach, thus forcing the soldiers to leave the vessels and move through unsteady water with heavy armour, while fighting the advances of the enemy cavalry and darts. During these earlier moments of battle, it seems that both transport ships and war ships were close-by, which once again seems to point that Caesar's intentions were not of conquest, but recognition; otherwise, it is likely that the round ships would have stayed in a second or third line, surrounded by warships, protected against enemy incursions for long-term sustenance. Given the situation, Caesar orders some of his warships to right-flank the enemies and shoot from slings, bows and ballistas. The effect seems to have been slight, but enough for the infantry to recover and advance further to the shoreline.

The formation lines remained broken for most of the conflict, and the Britons took advantage of their knowledge of shoals, their cavalry and their projectiles²²⁵. The Roman soldiers would still be struggling with their movement, having reduced speed and increased weight, but they would have been relieved by new hosts, able to disembark closer to the shore through the use of skiffs, such as the *naues speculatoriae*. Thus, they managed to be successful in sending their enemies into retreat. Even though the source says that Caesar's victory was not complete due to the absence of the cavalry, which

anchors and the rest of their tackle' and several 'went to pieces' (*B. Gall.* 4, 29)»; Grainge mentions the possible use of «Iron fisherman (hook-shaped) anchors», or «stone sinkers and warps». See Grainge 2002.

²²³ Harding considers that, given the archaeological findings in Wessex hillforts, «consistent with the use of sling-stones or hand-thrown stones», it is «perhaps surprising that Caesar made no specific reference to coming under attack from Gaulish or British slingers». If slingers were a usual component of the armies, it is possible that these would have also been present amongst the host awaiting the Roman army during the first disembarking in Kent; further archaeological survey might aid with the understanding of the sort of forces awaiting the Romans at the beach. See Harding 2012, 195. On the subject of Iron Age warriors, weapons and hillforts, see also Hoffman 2013b. Regarding Caesar and the matter of borders, see Lendon 2015.

²²⁴ Bradley considers that it «is unlikely that the coastal Britons had faced an amphibious landing prior to 55 B.C., and this may have been a cause of Caesar exaggerating the capabilities of his opponents»; however, he adds that the «horses used in war, as with other teamwork, would have been conditioned for this type of activity». According to the same author, «modern reconstructions have determined the chariot's ability to travel at around ten miles per hour even over rough ground». See Bradley 2009: 1080. According to Cunliffe, archaeological works within the hill-fort of Danebury, «strongly redefended early in the third century», have found that «horses account for more than a quarter of the animal bones and exceptional quantities of horse gear and chariot fittings were found»; thus, «The implication would seem to be that activity within Bury Hill now focused on the building of war chariots and the training of teams of horses to power them». With the chariots, «powered by two well-trained horses», having been «used in Britain as an item of elite display from at least the fifth century», the author believes that, during the period of Caesar's invasion, «chariots were now well integrated into the systems of warrior display and prowess» (Cunliffe 2013, 323-24).

²²⁵ In Dio Cass. 39.51, the conflict seems less significant, as most of the Britons would have retreated before the Romans had landed.

would have been delayed, it is possible that he did not intend on taking them to Britain at all, considering the nature of the expedition and the small number of ships left behind. Their later journey to Britain might have been motivated by Caesar's initial struggles, or a desire to strengthen his position. It was, however, unsuccessful, due to heavy storms that also damaged a significant part of the larger fleet²²⁶.

The destruction of the fleet put Caesar's army in a disadvantageous position. They had no means of returning, and not enough supplies²²⁷. Caesar is said to have sacrificed twelve ships to repair the others with their materials, whilst attempting to gather as much grain as possible. The Britons would have attempted an attack and been defeated, and their new situation would have driven them to make peace with Caesar. The diplomacy between Rome and Britain throughout this first incursion seems unstable, with both sides being less willing to fight, unless they could assure success; and whilst Caesar is said to have demanded more hostages, and to have these carried back to continental Europe by the Britons themselves, one might question whether this is not be an indication for Briton ships carrying the Roman army back to continental Europe not due to fear of Caesar, but to rid their land of unwanted invaders. One can wonder, considering how Caesar's fleet was partially destroyed, whether this is not a discrete way of the source saying that some Briton ships would have been used to carry the Roman army back to continental Europe, which would allow not only for the army to be safely transported as a whole – without soldiers being left behind – but also for the army to become acquainted with the ship-types, their respective construction and navigation style.

The return to the continent was not peaceful²²⁸. It seems to point towards the former issues with the Morini: Caesar left for Britain with a truce, but this would have been broken, a hypothesis which shows the frailty of leaving a relatively less stable territory behind in 55 BCE. Two transport ships carrying three-hundred soldiers were lost from the main

²²⁶ According to Billows, and considering Caesar's own account of the facts, it seems that there would have been three core points: first, that «his cavalry transports had been unable to make the crossing»; thus, Caesar could not count with a significant part of the army. Second, that the ships were used as platforms for the artillery: «the accompanying warships were rowed into shallow water on the flank from where they provided covering fire with on board artillery: catapults and stone throwers». Last, that skiffs and small ships were used for faster transport into rougher fighting areas: «Caesar embarked as many soldiers as he could on small boats to row to where the fighting was thickest and lend aid». See Billows [2009] 2012b, 146. See also Payne 2006.

²²⁷ The reliance on sea and river transport for supplies is not an exception, but the rule: The Roman army would have heavily relied upon grain transports, rather than foraging. Regarding sea and river transport of supplies, and the respective logistics, see Roth 1999.

²²⁸ Dio Cass. 39.52-53 speaks of Gallic disturbances, which would be a contributing factor to hasten Caesar's return to the continent.

fleet on Caesar's return, and the Morini would have attacked these men. The *equites* left behind would have been the ones to come to their rescue, which once more seems to indicate that some cavalry would have been purposely left behind, rather than losing its way from the main fleet, to prevent this type of situation. Thus ends the first invasion²²⁹.

9. Caesar's solution: the second invasion of Britain

Caesar's second invasion of Britain seems significantly different from the first, not only in terms of his apparent intentions, but also regarding the way he orders the expedition to be organised and dispatched²³⁰. There is a renewed investment in naval construction and repairs, and the innovation lies in the modification of the ships, which are now lower in height and larger in width, and all have sails and oars, or so the source says. These interventions would have been made so that they could easily cross the Ocean, transport the cargo (possibly including horses for the cavalry) and, most important, to allow the men to disembark more easily. This seems to have been a large effort of construction, with materials coming from Hispania, and resulting in six hundred ships of the new model and twenty-eight long ships fully equipped – or nearly. These would depart from Itius to Britannia. There are two main points that we will now underline from the first chapters of Book V:

- 1) Caesar orders the building of a large number of ships with the new typology.

These would have been meant mainly for an extra aid with transports and

²²⁹ For an analysis of the impact of the expedition, see Eaton 2014, 56: «his campaign was geographically limited and any influence he had won was located to the south-east». There are also records of how coin imagery becomes «increasingly sophisticated» and «closely mirrors that displayed on Roman coins»; so, numismatics also attests Caesar's invasion. Eaton 2014, 57.

²³⁰ Salway states that «we shall probably never know exactly why he [Caesar] launched his two expeditions to Britain in 55 and 54 BC nor whether he intended conquest», although he parallels it to a «punitive foray» like those «across the Rhine into Germany». The author also states that even if the military aftermath was «modest» (a «temporary confederation of the British tribes» would have been an impediment), the expedition was impactful both in Rome («Caesar had put Britain on the Roman map», although with what he calls «an aura of mystery») and in Britain, creating «precedents» for future Roman presence, such as the establishment of a tribute to Rome and the instalment of a Gaulish prince as «king of the Trinovantes of Essex». See Salway [1984] 2010, 8-9. See also Birley, who discusses the presence of *legati* unmentioned by Caesar (such as Quintus Tullius Cicero), and states that «Britain was not left entirely alone between Caesar's second invasion in 54 BC and Claudius' expedition of AD 43», a period in which Octavianus «occasionally showed signs of sending troops to reassert it», but invested less on military presence and more on diplomatic efforts. Birley (1979, 22-23) also states that Commius, «Caesar's agent», upon turning against Rome in 52 BCE, would have «fled to Britain in 51 or 50 when resistance ended in Gaul»; Commius would have «established a kingdom south of the middle Thames, where he struck coins», and had several successors. This indicates that although the contacts are not as evident and constant, they are far from inexistent. For an account of Caesar's invasions, see also Todd 2004, 42-44.

disembarking. However, the warships themselves are only twenty-eight. This means that not only did Caesar not expect a war at sea, but also that his investment in the navy, as a commander, was to have it as a support of his land force²³¹.

- 2) It is worthy of mention that prior to gathering in Itius with his legions, he would have had some struggles with the Transrenanian Germanic tribes, commanded by Indutiomarus and Cingetorix. These tribes are said by the source to have had the strongest cavalry in Gallia²³², and Caesar would have ordered Indutiomarus to come to him with two hundred hostages (*obsides*). Even though the source does not specify it, it is possible that some of these men would have been horsemen which Caesar intended to take on his expedition to Britannia, particularly when one observes his alleged intentions of strengthening the ships to allow the transport of animals. Despite mentioning beasts of burden (*iumenta*), horses could have also been transported across the Channel.

Caesar departs to Britannia with all but sixty ships, and, according to Cassius, lands on the same place as before (Dio Cass. 40.1); this contradicts the *Gallic Wars* to an extent, for Cassius mentions the existence of a harbour, whilst Caesar mentions mostly beaches. The point mentioned in 2) is revived in chapter 5, which states that horsemen from all across Gaul (4000 men) would have gathered in Itius with the important warriors of all tribes; and though Caesar mentions that he would have left only the loyal Gallic men behind, taking the hostages with him, it is possible that their situation wouldn't have been exactly one of hostages, but of auxiliary cavalry troops. The speech of Dumnorix is also relevant: he mentions that Caesar's intention in carrying the men to Britannia would be to have the most of warriors perish in battle. Whether Caesar did have second intentions in carrying the Gallic cavalry to Britannia cannot be analysed through the words of Dumnorix alone, especially given he was a Gallic chief. One can question whether Caesar would have had the capacity to force the tribe's chiefs into a foreign expedition and battle against their will. Even though the Gallic and Germanic tribes had struggled against his legions, one can argue that, once in Britannia, they could have joined the British tribes, especially given their alleged former alliances (for instance, with the Veneti). A possible explanation for Dumnorix's speech is the statement that he feared the sea and was unused

²³¹ Cassius confirms the building of new ships, mentioning these would be a mixture of the fast vessels of the Mediterranean and the Veneti cargo ships, so that they would be swift but sturdy, and so that the army could pull them ashore. Dio Cass. 40.1.

²³² Caes. *BGall.* 5.3: «*Haec ciuitas longe plurimum totius Galliae equitatu ualet magnasque habet copias peditum Rhenumque ut supra demonstrauius tangit*».

to sailing, which might underline the novelty in Caesar's military actions against Britannia, but mostly seems to confirm that Caesar had no intention of building a strong navy in the Northern sea, and instead intended to have a strong land-army when the ships landed on the island, with the cavalry being one of its main elements²³³.

The crossing itself happens in different guidance from that of the previous year. This time, Caesar left a strong force behind to guard the harbours and provide them with supplies, which implies that some ships could be coming backing and forth between the Continent and the Island. He departed with five legions and two thousand cavalrymen, and it seems that the adaptation of including oars in all ships was particularly useful, given that the wind pushed the transport ships out of their route. Nearly eight-hundred ships would have arrived in British shores, and these would have been guarded by ten *coortes* and three hundred cavalrymen, led by Quintus Atrius. Several remarks can be made on this episode:

- 1) One can possibly presume that the warships were not the ones to come ashore, but the new ships, that would transport horses and warriors. This way, Caesar's army was able to disembark and would have easily confronted the enemy, if faced with a similar situation as in 55 BCE.
- 2) This time, the enemy was not waiting for Caesar with the chariots. According to the source, they would have been frightened by the large number of ships. This might only be part of the truth, however: it is possible that the British tribes would have been aware of the new ships' possibility to land ashore (either through some informers or by noticing that the soldiers were not leaving the larger ships and coming ashore on skiffs) and, given the size of the fleet, they might have felt outnumbered and retreated, knowing that the enemy would no longer have the disadvantage of not being able to disembark directly on land.
- 3) Caesar seems to have been able to safely disembark the horses, given that the cavalry will be a constant mention throughout the subsequent chapters.
- 4) There is still a certain degree of inexperience relatively to the management of the ships. Even though they are able to come close to the shore, they aren't pulled to the sand, and a strong storm would have destroyed a large number of

²³³ Although not relevant for this particular analysis, one can observe the episode of Dumnorix's flight with the Aedui: even though it was only one unit, Caesar would have taken the time to send men after them, in order to retrieve the horsemen. When Dumnorix refuses to return, he is executed.

vessels²³⁴. This seems to indicate that the large number suggested by the source might be a fallacy, for Caesar immediately turned back and took a significant amount of time (at least ten days) in fixing the broken ships and pulling the remainder of his fleet ashore, to prevent further destruction; these last are enclosed in some sort of fortification. It might be added that Caesar also sent word to Labienus to build more ships; only when the vessels seem safe will the legions depart once again, and the text gives us the notion of a restless repair action, working day and night. It is likely that Caesar did not intend to be trapped in insular territory yet again. The lack of success of the expedition was eased by the capacity of retreat following diplomatic measures with local chiefs, enabling the commander to take both his army and some prisoners back to the continent. This took several voyages, and it seems that several ships never made it to their destination on time, including the sixty which Labienus had built.

10. The second crossing of the Rhine and the campaign against Vercingetorix: bridges

Following his return from Britannia, it seems that Caesar once more crossed the river Rhine, yet again due to problems with the Germanic tribes. Caesar will opt for the building of bridges instead of ship crossing, with an allegedly well-known and tried method that would have eased the construction and hastened it²³⁵. The bridge receives a heavy guard on its entrance, and Caesar crosses it with the remainder legions and cavalry. He will not advance deeply into Germanic territory, however, and following his return it seems that a significant part of the bridge is destroyed, and the end is fortified with a tower and trenches²³⁶; this might indicate that Caesar feared a river crossing from his enemies and desired to prevent it. Knowing Caesar's approach, the Gallic tribes would have taken refuge in forests, swamps, or islets, in case of the sea-bound populations; with

²³⁴ Dio Cass. 40.1 confirms the storm and the destruction of several Roman ships (Dio Cass. 40.2) and mentions the subsequent attacks of the Britons to the vessels: once after the storm, and another post the fording of the Thames by these same tribes (Dio Cass. 40.2-3).

²³⁵ Regarding the crossing of the Rhine and the building of bridges, see Kaiser (2017, 69-71). The author compares the crossings of the Rhine to the campaigns in Great Britain, seeing as they extended outside the «ecumene and entered completely new territory», something which should be observed in relation to «the backdrop of Roman politics». See also Freeman 2008, 175-79; Stevenson 2015, 184.

²³⁶ Also seen in Dio Cass. 40.32: the army would have destroyed the part of the bridge close to the bank inhabited by their enemies, building a fortification (*φρούριον*) on that same side.

the evolution of the campaign, some of the Germanic tribes would have crossed the Rhine themselves, not through the building of bridges, but by the use of small skiffs and rafts, relatively close to Caesar's entrenchment, but not within attack range²³⁷. Their defeat would have driven them back to the other side of the Rhine, which means that they possibly managed to protect their small vessels from the Roman army.

The conflict between Vercingetorix and Caesar also becomes, following the siege of Avaricum, a struggle for bridges. There are several mentions of bridges being cut by the Gauls, in order to prevent the Romans from crossing the river (e.g. Caes. *BGall.* 7.19; Cassius mentions a similar occurrence regarding the Auerni tribe in Dio Cass. 40.35). Following Caesar's success in Avaricum, he advances to Gergovia following the river Allier, whilst Vercingetorix orders the destruction of all the bridges along the river. Caesar was unable to ford it but determined to make use of trickery against the enemy and rebuild one of the destroyed bridges, whose pillars remained standing²³⁸. This means that, at this point, Caesar was not likely to be travelling with transport ships along the river, but that the supplies were being carried by carts; no signals of archery attacking transport ships are written down. Following the failure of the first campaign against Gergovia, the Roman army returns to the Allier and builds yet another bridge (Caes. *BGall.* 7.53). When he reassembles the army, it's in Noviodunum, a city of the Aedui, placed on the riverbank; in this specific occasion, it seems more likely that transport ships were used, given the higher bulk being transported – not only grain, but also hostages, army luggage, valuable metals and horses. The usage of transport ships in this river is in fact confirmed in chapter 55, not regarding the Roman army, but its enemies: they took whichever supplies they could, loaded them on the vessels, burned the city and departed. This would have given the Gauls a double advantage over the Roman army: if Caesar's legions did not, in fact, use ships, having to rely only on bridges, and if the Gauls were able to destroy these bridges and carry supplies by river vessels, they would attain a greater movement speed, which is one of the factors that usually comes in Caesar's aid. At some point, Caesar would have given up on bridge construction to gain greater celerity

²³⁷ Caes. *BGall.* 6.35.

²³⁸ According to Cassius, before the siege of Gergovia, Caesar would have made use of rafts to cross the river, instead of fording it. See Dio Cass. 40.35.

and, in fact, forded the Loire with his army, apparently utilising his cavalry to diminish the strength of the current (by which method, it isn't specified)²³⁹.

When the Roman army advances to Lutecia, they will have to rely on river transports, given that the city would have been located within an islet of the river Seine. Through the use of small transports, Titus Labienus, for instance, is able to make small, fast incursions in other islets, which would have been hard or impossible to do while struggling to cross swamp areas²⁴⁰. However, once again, the bridges will have a significant role: the bridges to Lutecia are destroyed to prevent the Roman army from entering the city. One might question, however, the mention in chapter 59 of the legions being separated from the supplies and luggage by a wide river. Either there was a significant haste from the Roman side to reach Lutecia and engage in the small incursions throughout the Seine, or – given the mention of the small ships used in these incursions – Labienus expected the supplies to be sent by ship, if necessary. However, these same ships, together with some others which Labienus would have attained, are quickly dispatched with soldiers, commanded by the *equites*; some would have gone up the river – which would probably imply the existence of oars (mentioned in the same chapter), to counter the current – and most would have followed the current itself, the latter transporting three legions. Despite the fact that the river was being watched, it seems that the Roman incursions by use of ships would have been unexpected. Through the aid of this manoeuvre, Labienus manages to cross the river with the army. From these statements, one might infer the following:

- 1) Even though Caesar is frequently mentioned as having to rely on bridges, Labienus, for instance, achieves a significant increase in the army's movement – which was being handicapped by the destruction of the said bridges – through the usage of ships. It is not mentioned where and how he gets both the fifty ships he sends with the *equites* and the subsequent reinforcements, and chapter 49 says that the army would have been separated from their luggage by the river. It seems dangerous to leave supplies behind, unless they could easily be conveyed. Despite the fact that the situation is referred as being, in the least,

²³⁹ As mentioned by Laurence, «The role of river transport and construction of canals in the Roman empire is something that remains largely ignored by scholars involved in the study of the ancient economy» (Laurence [1999] 2011, 109). It is likely that, during his stay in Britain, Caesar would have been acquainted with different types of river-transports, which are referred as «British skin-covered craft» by Hornell. These would have been used by Caesar in 49 BCE, whilst fighting Pompeius' army in Hispania. See Hornell 1946, 112.

²⁴⁰ Also in Dio Cass. 40.38.

worrisome to Labienus, and that, in the early stages, he does opt for attempting the pathway of the swamps to reach Lutecia, he quickly gives it up in favour of boats.

- 2) Even though the use of small transport ships to accompany the army is not mentioned, Caesar frequently travels along the riverbank. This could, however, be easily justified by the need of attaining drinking water. Following Labienus' incursion through the Seine, however, the Alobrogi seem to have established several fortifications along the Rhone. These would have prevented Caesar's march from advancing smoothly through the riverbank, but could also have served to destroy any potential transport ships and depriving the enemy of valuable supplies.

It is difficult to determine why a commander would have opted for bridges rather than boat crossing. Most military treatises, whether ancient or modern, focus on the existence of the different possibilities, rather than providing an explanation as to why each would be advantageous by comparison to the other. The same happens with bibliography: in 1953, Edward Echols wrote an article intitled «Crossing a Classical River», where he presented the issues surrounding ancient river crossing: traveling downstream is usually not problematic, and traveling upstream can be achieved, even if it takes towing; the issue is crossing between the two banks of a river. In terms of legion dislocation, this could be achieved through several methods, of which swimming would be a «last resort», considering the weight of armour on a soldier whilst trying to swim across. The main methods to achieve it would thus be fording²⁴¹, «boats and rafts» and bridges. The latter often seem to be a preference, especially during Caesar's campaigns in Gaul, and the importance of bridges for river crossing is seen in several works from antiquity to the current era²⁴². Frontinus, for instance, on the *Strategemata*, recalls the episode in which Themistocles declined the destruction of a bridge, something that would have prevented Xerxes from crossing and thus forced him to fight in desperation (Frontin. 2.6, in

²⁴¹ It is described as «easy or difficult» depending on «enemy position; the temperature of the water; the type of river bottom; the depth of the river; and the rate of the current»; it would have been particularly difficult in three situations: after the snows began to melt, thus increasing the strength of the current; if the river bottom was plentiful of rocks; or if the river was too deep. Echols 1953: 215-16. The author also mentions several methods used by ancient commanders to slow the current (such as using the cavalry).

²⁴² Echols (1953) mentions, for instance, Lucan (4.130-136), who describes a circumstance in which Caesar would have opted for ships after a bridge had proven to take too long to build. In this case, there is a clear preference, seeing as ships were a second resort.

opposition to Caesar's options)²⁴³. Bridge destruction is seen as a way to cover retreats, with the example of Horatius Cocles, who would have ordered his supporters to cross a bridge and then destroy it to prevent the enemy from following, defending the bridge until the army had crossed.

Vegetius adds other points. According to his writings, it would be essential to teach all soldiers how to swim, seeing as sometimes it was impossible to retreat through a bridge; this passage has no mention of ships. Retreating through swimming is something seldom mentioned in the Roman army, but which sometimes appears regarding foreign populations; however, the possibility is covered in military treatises. Equally noticeable is the passage in which Vegetius mentions skiffs being transported alongside the army, given these could then be fastened together with chains and covered with boards in a way to allow for them to be used as a bridge, suitable for both cavalry and infantry²⁴⁴.

Roman authors seem to underline the importance of predicting situations in which bridges are unavailable²⁴⁵, as well as looking at their use during retreats. Machiavelli will follow this tendency: in his *Art of War*, the character Fabrizio states that it is important to teach soldiers how to swim, as there are not always bridges nor ships which may be used; this is a near-direct quote from Vegetius. Later, it is equally stated that some rivers can be diverted to the rear-guard of the army, so that they can be crossed (similar to the episodes mentioned by Frontinus); there is also a description of the usage of horses to cut the current. Afterwards, Machiavelli begins to explain what can be done in case an enemy is blocking the crossing, and the example he uses is that of Caesar and Vercingetorix: as Caesar was being prevented from crossing, he marched along the river and found a

²⁴³ There is also the mention of Croesus, who would have opted for building a ditch and changing the course of a river, seeing as bridges and ships would be unavailable.

²⁴⁴ Vegetius is a 4th century author, and one can question when this technique came to use. However, one can ask whether ancient sources are often referring to the disassembling of these pontoon bridges, rather than the actual destruction of a structure. Caesar never mentions the transport of these skiffs alongside the army, however, and the fact remains that there is a prevalence of enemy destruction of bridges, which means they would have been pre-existent structures. As seen in Vegetius: «*Scafæ quoque de singulis trabibus excauatas cum longissimis funibus et interdum etiam ferreis catenis secum legio portat quatenus contextis isdem sicut dicunt monoxylis superiectis etiam tabulatis flumina sine pontibus quæ uadari nequeunt tam a peditibus quam ab equitatu sine periculo transeantur*».

²⁴⁵ In the *Arthashastra* (2014), a Sanskrit manuscript of uncertain dating, the matters of rivers are equally mentioned, as well as the issues of crossing them: if a river can be crossed by a «bridge formed of elephants», «wooden bridges» or boats, it is also stated that rivers are «not always deep» and a river can be «emptied of its water»; this is meant to underline the advantages of mountain fortifications rather than relying on rivers for protection (411); it is also added that when the enemy has «obstructed» the crossing, the invading army «may cross it elsewhere together» with «elephants and horses» (524). In Caesar's campaigns against Vercingetorix, this seems to be the case: an obstructed crossing involves a change of location so that a portion of the army can come across.

suitable place to form a camp, where he built and fortified a bridge; by ordering part of the legions to advance, he would have deceived Vercingetorix and part of the army could cross²⁴⁶.

The issues of river-crossing will continue through time, and it will remain considered a moment of frailty. Napoleon Bonaparte would state so in the 19th century: when an army has to retreat over a bridge and the other has its troops in a wide area, the latter has the advantage and should make use of it by manoeuvring towards the flanks²⁴⁷. He would have also considered that river crossing was often advantageous regarding marches, especially in mountainous areas, as a bridge could be built in 6 hours with 19th century technology, whereas a road would take 6 months; a pontoon bridge could be made in twelve²⁴⁸. The general stated that a river with several bridges should be crossed through a single column to distract the enemy, whilst the light infantry would prepare its own crossing in a different location (a similar system to that suggested by Vegetius and followed by Caesar); as stated by Colson, who edited his writings, «it was rare for one to be able to tactically force the crossing of a river that was defended», something that would have required «psychological and physical superiority»²⁴⁹. On the other hand, Carl von Clausewitz notes that «nowhere can a fortress serve so many purposes or play so many parts as when it is located on a great river», where it can ascertain «safe crossing», prevent the enemy from crossing himself, control the flow of ships and shelter them, prevent the enemy from reaching roads and bridges and defending the river bank²⁵⁰. Alongside these advantages, Clausewitz also dedicates a chapter to river crossing, stating that the main

²⁴⁶ The remainder of references to bridges in Machiavelli's *Art of War* is mostly dedicated to the need of controlling them, defending them, if necessary, with fortresses and similar structures.

²⁴⁷ Colson 2015, 317.

²⁴⁸ Colson 2015, 317-18.

²⁴⁹ Napoleon equally adds the importance of communication, especially relevant when crossing large rivers like the Rhine (Colson 2015, 317); according to Colson, in 1796, the Po river would have been crossed in «a dozen boats» by the advance guard, whereas the remainder would have had to wait and build a bridge. Therefore, river craft would have been used so the scouting units could advance, whereas the remainder of the army could not succeed through that method. Carl von Clausewitz has a somewhat different perspective and states that when a «battalion is ordered to drive the enemy from a hill, a bridge, etc., the true purpose is normally to occupy that point», in what he calls a «means to an end»; hills or bridges are captured to inflict more damage on the enemy (96). Instead of underlining the strategic importance of bridges as a communication point, von Clausewitz places them as a place where an army may inflict damage upon the enemy. However, this chapter of his work is related to attacks, and further along he will state that «marching», as an «integral part of combat», includes «measures taken solely for the convenience of the troops, such as building roads and bridges» (130); the ability to be connected to the communication lines, which «as a rule follow major roads» (if possible, wide roads which connect several wealthy cities and fortresses), is also considered, and rivers would affect the «selection and organization of lines of communication» both as a «means of transport» and as points of passage through bridges (346).

²⁵⁰ Clausewitz 1976, 399.

reasons to motivate one would be the «roads running down to the river, tributaries flowing into it, large towns located on its banks, and, above all, its islands»²⁵¹. This author, differently from what seems to be the case in ancient sources, seems to favour boats over bridges regarding the crossing of «major rivers»²⁵².

In a 1988 report by the US military, there are references to the difficulties an army will face during river-crossing even today²⁵³. The choice of site is pointed as crucial. During a deliberate crossing undergoing the assault stage, for instance, an army has to attempt to «cross sufficient combat power to secure the far shore of the river», not differently from what Caesar would have opted for in Gallia; the places in which the river is crossed, through either swimming or «assault boats», require «minimum exposure to enemy direct fire weapons», the possibility of concealment, banks which are «firm» and «gently sloping» (and thus allowing a «rapid entry»), and that the army crosses the river at a narrow point. When one continues to the rafting stage, the commander «reinforces assault forces with armored vehicles and antiarmor weapons», and it is important to be «positioned downstream of proposed bridge sides», to reach the shore on places close to the expected landing point, preferably connected to «well established road networks». The location ought to have «firm banks», be on a «narrow point» of the river with no «sandbars or other obstacles», and in places with a low current and enough depth. During the bridging stage (the last of a deliberate crossing), it would be necessary to have a greater «depth of water» in a narrow portion of the river, still with firm banks, road connectivity and «upstream of raft sites».

Following this report, there are observable issues regarding river crossing: if the fastest course for a ship is the horizontal line between both banks, the current may redirect it. Wind and ship propulsion can also be accountable for deviations («the faster a boat moves through water, the easier it is to control»; «when going downstream, the speed of the boat relative to the banks can give a false impression of speed through the water»). Therefore, even today, it takes thorough planning for an army to cross a river, especially when the enemy is holding the opposite bank.

²⁵¹ Clausewitz 1976, 436.

²⁵² Clausewitz 1976, 436.

²⁵³ The report divides modern river-crossing operations in three types: «hasty» (through rafting, quickly-assembled bridges, existent bridges and ferries; only possible when the river is not a «severe obstacle» nor the enemy considerably strong), «deliberate» (divided in the assault, rafting and bridging stages) and «retrograde» (defensive). See https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/tc5_210.pdf.

When attempting to understand why an ancient army would prefer bridges over boats, one may look at the works of Brian Campbell and Jonathan Roth. The former focuses on the importance of navigable rivers²⁵⁴. Bridges and ferries are important to allow for smooth communication between the two banks of a river and thus connect the roads²⁵⁵. Navigation may have its limits: upon reaching a location with its cargo, a ship cannot go further into the mainland. If the army was using carts or wagons, enabling these to be crossed directly may have proved a valuable asset, as it diminishes the possibilities of losing army supplies. As much as ship transport can increase an army's movement, it can only be done while the march follows the river, and when the army needs to remove itself from its course, bridge crossing may be preferable. Bridges may also «impede navigation» and their «supports» would increase the strength of the current, which could become a hazard or a benefit, depending on the army's intentions and situation.

Roth follows another path and does a logistical analysis of the question. As mentioned by the author, the sea and rivers were often used to carry supplies²⁵⁶; it was, as he states, a matter of celerity and cost-management. Estimates consider that in order to convey supplies to the army for six months by sea, one would have needed 200 ships of 30 tonnes each, not to mention the capacity required for the transport of soldiers, war equipment, horses and mules, all of which was subjected to attacks and meteorology²⁵⁷. Similar issues occurred in rivers, which may have been impossible to navigate due to «too much, or too little, rainfall»²⁵⁸. Nonetheless, the author states that a 9-ton ship could have carried «the same load as about 18 wagons or 72 pack animals», as well as doing so significantly faster. Land transport, if not preferable, was rather common and not disregarded, and Roth considers that through wagons and carts armies could be supplied «for well over 100 km (...) and occasionally up to 320 km»²⁵⁹. Marches on land always required infrastructures to support them, and alongside «pack animal, wagon or boat», the study speaks of «roads, bridges and canals»²⁶⁰; regarding the two latter, however, the author does not make

²⁵⁴ Of which the area with greatest potential would be the «lower river valleys» and enhanced through the number of tributaries. Campbell 2012, 222-23.

²⁵⁵ The author also underlines the importance of river-road connectivity and adds the possibility of building canals and create a connected river network» (Campbell 2012, 239).

²⁵⁶ Roth 1999, 189-90: «It was the geography of their empire that determined the Romans would move most military supplies by water».

²⁵⁷ Roth 1999, 193.

²⁵⁸ Roth 1999, 197.

²⁵⁹ Roth 1999, 200.

²⁶⁰ Roth 1999, 214.

extensive remarks, aside from the fact that they were used and built. All methods were, therefore, in use, even if the latter is usually more expensive and morose.

According to the Lieutenant Colonels Rester W. Grau and Leroy W. Dennison, there is a predictability in the flow of rivers that facilitates enemy attacks: «watercraft» will be slower upstream rather than downstream, when it follows the current, and the vessels themselves may be «restricted» to the «navigation channels» if their draft is too deep; around the river bends, channels are closer to the bend and «the opposing bank is more shallow», with the river accelerating. Hence, it is easy for an enemy to understand the navigation route of ships, therefore making them easier to attack, together with what is often the «advantage of height»²⁶¹.

- 1) Boats and rafts may be dragged by the current downstream and far from the landing site, away from a pathway which the army can easily follow (road networks) and from supply routes.
- 2) Disembarking requires specific characteristics regarding the riverbanks.
- 3) Soldiers crossing in ships are more easily exposed to enemy fire – a vessel can be more unstable and difficult to control than a bridge (especially when the current is strong and there is oaring involved), and retreating may prove impossible. Bridges allow the army to arrive exactly where it means to.
- 4) Depending on local resources, it may be faster and more resource-efficient to build a single bridge through which the entire army can cross than several ships that would have to undergo return trips to convey the entire army and supplies across the stream.
- 5) Vercingetorix destroys bridges to prevent the Roman army from reaching him; Caesar opts for reutilising the remains of a half-destroyed bridge, which would reduce the time and cost of action.
- 6) As mentioned by Brian Campbell, bridges can be built to cut river circulation and they will increase the current in certain sites. Upon strategic planning, it is possible that either army has attempted to take advantage of these characteristics, especially if transport ships were involved.
- 7) Some rivers, or at least sectors of rivers, are not navigable, either due to sandbanks, stones or strong currents.

²⁶¹ Grau et Denniston 2014: 32.

- 8) A bridge is often associated with a nearby camp or fortification, and that is an additional defensive characteristic.
- 9) The motivations behind Caesar's options may depend upon the campaign. In the case of the river Rhine, it may be a matter of insufficient capacity of his ships, as he is said to have mistrusted them; regarding the Allier, and seeing the army's route, it may have been a different issue, and one which is mentioned by Clausewitz: even if a river is wide, that does not mean it is navigable, and even if it is navigable, «river traffic upstream is extremely slow and often difficult; frequent bends may more than double the distance to be travelled»²⁶².

Clausewitz's statement leads to several inferences. Firstly, it explains why Caesar would not have been traveling with transport ships from Avaricum to Gergovia, even though they are later seen to make a reappearance upon going North the Loire and to Lutetia: the Allier river runs North, and it would have been extremely slow to drag the vessels up the river. While traveling from Noviodunum and Avaricum to Gergovia, Caesar would be going against the current, something which is reversed when returning North. In terms of the river crossing itself, and considering the difficulties presented above, Caesar may have found his army carried backwards through the force of the current, rather than forwards; yet another setback. To answer these questions with a greater degree of certainty, it would be necessary to estimate with significant certainty the precise location on which the army would have crossed each river as they²⁶³ vary in terms of width and depth, and it may be that either the depth made it impossible for rivercraft to cross and convey both army,

²⁶² Clausewitz 1976, 446. Clausewitz, however, disregards the role of river transport for armies, stating that seeing all the difficulties it may present it «plays a much smaller part in the supply of armies than textbooks would have us believe. Its effect on the course of events is therefore quite remote and hard to measure».

²⁶³ Some authors have presented their estimations on the location of Caesar's crossing of the Rhine. According to Lepage, the first bridge would have been located «between Andernach and Neuwied, downstream of Koblenz», and the second at «today's Urmitz (near Neuwied)» (Lepage 2012, 57). This perspective is shared by Yenne (2012), who also adds a note on the ideological perception: the Rhine was «the de facto boundary between Germania and Gaul» and, therefore, «the de facto boundary of the Roman power» (91-92), which means that a crossing of the Rhine would have had an impact directly related to Caesar's statements on the dignity of the Romans. This, according to Yenne, would have been a preponderant motivation for the building of the bridge: «the river at this point was wider than a man could hurl a spear, and at least twice as deep to ford even if it had not been so deep»; and if Caesar may have «built barges to transport a contingent of skirmishing cavalry» or used «rowboats to carry some infantry across», he opts for what Yenne calls a «show of force that would clearly underscore the superiority of the Romans», the building of a bridge (92). The author concludes by observing that whereas the bridge itself took 10 days, the Roman army would have returned after 18 days, and that whereas Caesar «had decided that he had "advanced far enough to serve both honor and interest"», the commander was probably avoiding a large-scale battle with a «supply line as tenuous as a bridge», thus allying his ideological interests with what Yenne calls «tactical pragmatism» (93).

materials and horses, or that the width made it unnecessary and impractical to use boats at all²⁶⁴.

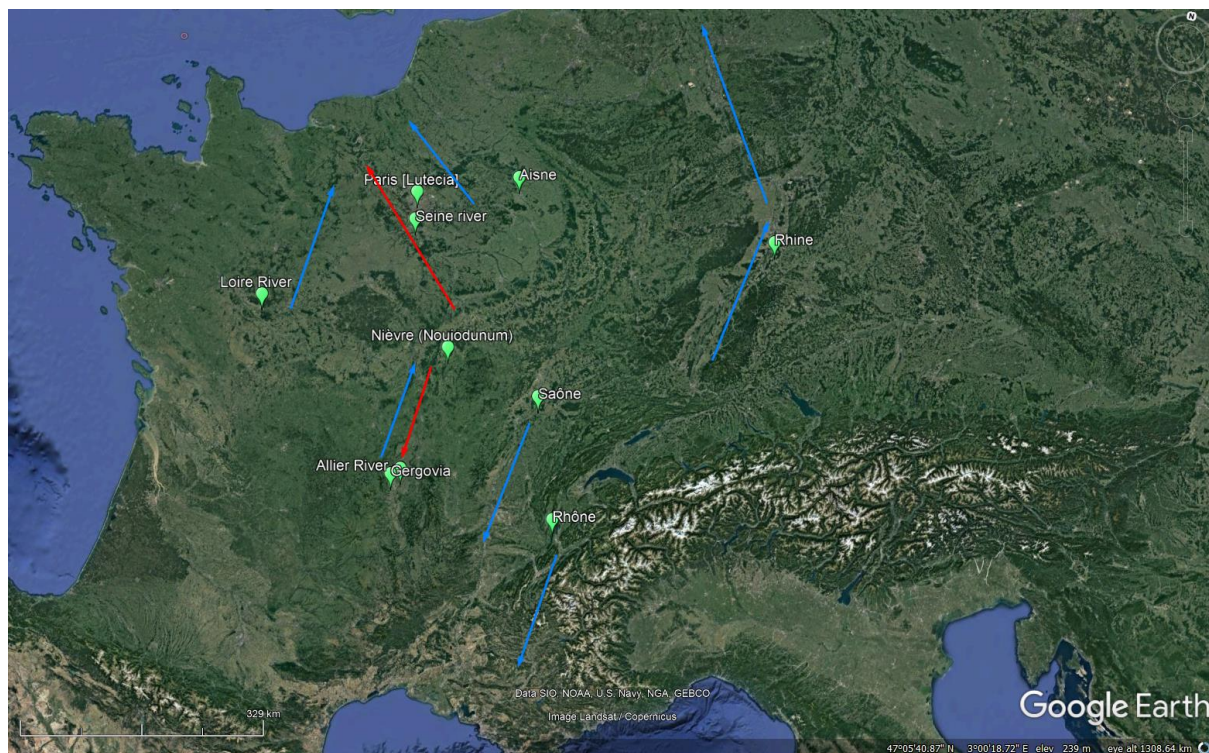


Fig. 4. A map of the direction of river flows (blue) and some approximate army movements (red).

²⁶⁴ In the case of the Rhine, there seems to be the particularity of mistrusting ship characteristics, as seen above. There are a few notes that can be made regarding a few of the rivers on the way of Caesar's march. The Rhine, which flows north, has its deposits coming from «both tectonic developments and climate-induced changes», and it carries sediments into the North Sea while it «drains most of the Northern and central Swiss Alps», thus probably creating heavy flow, especially after the ice in the mountains begins to melt (Preusser 2008: 7). The Loire equally flows Northwards, coming from the «Massif Central» towards the North Atlantic (610), and the oscillation in water levels is noticeable nowadays, going below 150 m³ s⁻¹ in the summer and above 4000 m³ s⁻¹ in winter («Typically the lowest waters were observed from mid-July to the end of October»; Garnier et al. 2018: 613). The Allier is the Loire's tributary, and can present both «severe low water levels during summer» and «catastrophic floods» during the winter and spring; like the Loire, it also flows north (Garófano Gomez et al. 2016: 188). The Seine flows northwards as well, into the Atlantic, and it presents seasonal disparities in similarity to the other rivers, connected to the «pluvio-oceanic climate» (Massei et al. 2010, 2148); however, summer drought may not be as significant, seeing as it is recorded that it has «relatively constant flow» between July and September (data from 1950-2008); even if the flow diminishes from March onwards, the decrease only lasts until July, where growth is verified. Opposite to these four rivers flowing North, the Saone-Rhone complex flows south, towards the Mediterranean; the Rhone itself is also an Alpine river, and studies point that the «Roman and Medieval periods» would have had «warmer climates» and allowed for agriculture in «higher altitudes» (Olivier et al. 2009, 203). Therefore, aside from this case, while traveling from Nouiodunum to Gergovia, an army would be against the current; whereas while travelling North, it would often be favoured by river flow.

Internal Conflicts

11. The Social Wars

The early 1st century BCE was an unstable period regarding the internal politics of Rome and its relations with the Italian Peninsula. After Liuius Drusus attempted to regulate the relations between Rome and its allies, and his subsequent murder, the Italian cities revolted against Rome. Many of these were people who lived near the coast or the river, such as some of the Peligni, Vstini, Marrucini, Frentani, Pompeiians, Apulians, just to mention some of the list given by Appian, who stated that the remaining tribes across the river Liris to the Ionian gulf would also have joined. Most of the conflicts throughout the Social War happened on land, and there is little mention of the use of rivers or seas as a means of transport (and even less as the stage of combat – no naval battles are mentioned in this specific war). Aside from a few isolated sections, there is little chance for observing Roman commanders interacting with their fleet. There is a mention to Rutilius, consul, and Gaius Marius building bridges over the river Liris to cross it – thus, not crossing it with transport ships²⁶⁵, but little else.

Later, when the Etrurians and Umbrians joined the war, the Senate would have feared to be surrounded by enemies and is thus said to have issued decrees for reinforcing defences along the seacoast between Cumae and Rome²⁶⁶. Neither of these episodes seems of particular significance to this analysis, and even the individuals who revolted along the coast of the Ionian Sea seem to have preferred the dislocation of their men by land-roads²⁶⁷. This last mention could be of consequence, and one might question why even coastal cities would have preferred not to ship their men, especially when their pathway is said to have been quite strenuous and hard to cross. It might have something to do with the place they meant to reach, which might have been further inland and justified the dislocation by land, or due to the fact that Winter was approaching, and navigation diminished along the coast. It also seems that the Romans might have feared Etruscan and

²⁶⁵ App. *B Civ.* 1.5. The Tolenus River would have been used as a natural border for «either trapping Roman garrisons or intercepting the advancing Roman commanders» (Dart 2014, 140). According to Dart, the bridges, built either over the Tolenus River or the Liris (which is its tributary), would have suited the purpose of accessing Alba Fucens, «situated on the Via Valeria (...), the main means of access to the territories of the Marsi and Paeligni. Furthermore, it was the main route between Rome and the cities of Alba Fucens and Corfinium, where the Italian war council had its seat». See Dart 2014, 141; 148.

²⁶⁶ App. *B Civ.* 1.49.

²⁶⁷ App. *B Civ.* 1.49.

Umbrian sea-bound attacks, given the Senate's decree for larger garrisons to be stationed at coastal cities. Other than this fear for Etruscan and Umbrian attacks (which might not have been necessarily naval), the Social War of the early 90s of this century seems to have been land-bound.

The Social War's main implication to the Roman navy might be more related to its relation towards external conflicts than to internal politics. As mentioned above, Mithridates' stronger actions against Rome seem to have coincided with this period of greater instability between Rome and its allies, many of which are potential providers of sea-related supplies (particularly, transport ships and sailors). The possibility of Rome attaining a significant number of ships from its allies may be related to the idea that Gaius Marius believed the Mithridatic War to be a profitable and easy enterprise, thus desiring to attain the command for himself²⁶⁸. In fact, Appian's account of the Civil Wars gives us further details regarding the Mithridatic conflicts, which the book regarding the king of Pontus did not. For instance, it is said that Sulla would have first assembled his army in Capua, and that this would have been the place from which he departed to Asia – not Capua itself, but one of the closer harbours. Another disregarded piece of information in the *Mithridatic Wars* regards the army Sulla is left with once he is declared an enemy of the Roman people and decides to return to the Italian Peninsula to fight his enemies: in spite of keeping with himself a great part of the soldiers, his officers seem to have forsaken him²⁶⁹.

During the Marian-Sullan civil war, very few naval events can be accounted for²⁷⁰. Sulla certainly travelled from East to West by ship, but it is unknown whose fleet he took, who were the sailors and who were the rowers. One of the few episodes involving a ship does not account for the army or naval battles, but, in fact, for a commander. When Marius first falls from power due to Sulla's invasion of Rome, he flees, and there seems to have

²⁶⁸ App. *B Civ.* 1.7.55. As stated by Torelli (1986, 61), after opposing Liuius Drusus' agrarian law in 91 BCE, the Etruscans would have «almost unanimously joined the faction of Marius», either due to «client-patron ties», an aristocratic opposition to Sulla's centralisation politics or «social disturbances» derived from their Roman citizenship. On the Social Wars, see Dillon et Garland 2005a, which analyses the events as well as laws from the early decades of the 1st century BCE, historical sources and coinage; see also Gabba 1994. See also Heredia Chimeno's discussion (2017) on whether the Social Wars are not also a Civil War, seeing their specific circumstances and connections between Italian and Roman individuals, as well as the change of mentality in this time frame, observing «structural similarities between the Social War and its impact, the First Civil War».

²⁶⁹ App. *B Civ.* 1.7.58.

²⁷⁰ On Sulla and Marius' careers and the events that lead to the civil war, see also Dillon et Garland 2005a and 2005b. For an account of the events and chronology of the Social Wars and Civil Wars, see, for instance, Sampson 2013.

been, at least, one assassination attempt – or, if the episode of the Gaul who attempted to kill the former consul, but did not succeed, can be considered as an elaboration of Appian’s literary style, it seems that the intention of murdering Marius could at least have been in Sulla’s projects. Sulla utilised some of his resources to find Marius, who had become one of his greatest political enemies, and thus Marius attempted to hide himself. In one of his efforts to outwit Sulla’s army or small garrison, he would have boarded a small boat («ἐς σκάφος ἀλιέως πρεσβύτου»), belonging, most likely, to a fisherman – a sail boat (*ἰστιόν*) – and travelled to an island, where he would have found a ship which belonged to his own friends. From this ship, he sailed to Africa. During this trip, he would have been joined by several of his political and military allies, of which are named Cethegus, Granius, Albiouanus, Laetorius and his own son²⁷¹.

It can be questioned whether these men travelled alone or with their armies, for either of these hypotheses stand for different possible intentions and outcomes. If they had been travelling alone, it would have been easier to conceal themselves from their enemies (in Marius’ case, Sulla’s army, and, in everyone else’s, the possible threat coming from Hiempsal of Numidia). Appian clearly mentions that they had no army, and thus could not attempt to do as Sulla and attack Rome itself. However, it is mentioned that the vessel on which Marius crossed the Mediterranean would have belonged to some of his allies or friends. Thus, one might ask, is it possible that Marius would have had greater ease in attaining the one resource that Sulla lacked (the navy, which spent most of the Mithridatic Wars under the command of Lucullus, away from Sulla)? It might not have been a meaningful resource to take back Rome itself in the immediate stance, but could signify, in later periods, a capacity for transporting the army that Sulla did lack. Regardless, if Sulla really was lacking this much in naval terms, it seems that he did, at least, three great crossings of the Mediterranean – the first aforementioned travel from Capua to Asia, his return from Asia with his army to take power and enter Rome itself, and another crossing, once more, from Capua to Asia, together with his army. He might not have had a significant number of warships – which would have been weighty against Mithridates’ large fleet of quinqueremes and triremes – but he must have had, or freighted, a number

²⁷¹ One may also consider the patronage and clientele established by the Marian brothers in the Western Mediterranean (particularly in Iberia and southern Gaul) as potential supporters of naval enterprises. See, for instance, R. Evans 2008. Sicily also seems to have been a potential centre for the Marian faction, particularly when one observes that, after «Pompeius was given the command against the fugitive Marians, who had spread out to Spain, Africa and Sicily», «The Sicilian command was Pompeius’ first task». See Southern 2007, 273.

of transport ships, and these would have been used or freighted at least three times throughout the Marian-Sullan wars. The fact is that Sulla does not seem to fear Marius during his crossing, probably because he did not, in fact, have an army, as the source mentions, but also, possibly, because he would have had the naval support of Lucullus, in case Marius managed to assemble some allies and attack him either in Asia or during his travel.

There are several factors that may be underlined in this chapter. Firstly, that Marius entered a ship to escape from Sulla, and that his intentions seem to have been to go abroad, dividing his escape in two stages: firstly, a crossing to an island; afterwards, travelling to Africa. If these events can be acknowledged as truthful, it is possible, and even likely, that Marius did not happen to stumble on his friends' vessel by mere chance, but instead that he already intended to reach them and cross to Africa when he departed. The last specified name of a location where Marius would have been is Minturnae (Minturno), which is quite close to the sea; he is said to have attempted to reach it and, subsequently crossed to the island where he found his friends. The closest islands to Minturno are the Ponzi islands (modern day Isola di Ponza, Isola Zannone and Isola Palmarola) and Ventotene. There is the possibility that Marius left for either of these, or that he did not embark a small fisherman's boat and, instead, took a transport ship to Sicily, which would fit with his further travel to Africa. The vessel that carried him to the South could not have been the small skiff, but a larger ship²⁷².

The theory that Marius could have had a strong naval support – or, in the least, the support of sea-bound peoples – is renewed in App. *B Civ.* 1.8.67. With the increasing instability within Roman politics and Cinna's advances against Sulla's faction, Marius' first action is supposed to have been his sailing to Etruria²⁷³, together with others who had exiled

²⁷² Appian refers to it as νεῶς, instead of «skaphos»: «κατήχθη δὲ ἔς τινα νῆσον ὅθεν νεῶς οἰκείων ἀνδρῶν παραπλεύσεως ἐπιτυχὼν ἐς Λιβύην ἐπέρα». App. *B Civ.* 1.7.62. As mentioned by Santangelo, there are two different accounts of this episode. Appian underlines the difficulties faced by Marius, whilst Plutarch states that the people of Minturnae would have aided Marius. Plutarch's version, according to Santangelo, may be seen in the following way: «Such a zealous intervention in his support can only be explained by the existence of a robust network of *clientelae* of Marius in the area, which not even his status of 'public enemy' could destroy». See Santangelo 2015.

²⁷³ Traditionally a naval region itself. Etruscan support to Marius throughout the Civil Wars, at least in ancient Arretium, may be supported by archaeology: «it was only at Arretium where the combination of local traditions and especially the position of the community after the Sullan victory over Marius were such as to force the local elites to adapt to the new situation in ways that made the adoption of *terra sigillata* industry a logical choice». See Kiiskinen 2013a and 2013b. According to Licinianus, Marius would have sailed from Telamon, together with Brutus and other fugitive members of the faction, coming from Hispania (Gran. Lic. 35.6). According to Lovano, coins were found in Dossenus with «types of Neptune and Victory

themselves or been exiled by Sulla and «500» of their slaves. By promising to defend their interests in Rome, he would have managed to gather the support of a great number of Etruscans, and 6000 are said to have accompanied him back to Rome. When they reach it and join Cinna's army, the camps are said to have been settled on the banks of the Tiber, and Marius' army was the one that was stationed closest to the sea. An army of such dimension must have been transported from Etruria to the outskirts of Rome, and Etruria was always a region related to the sea and sea-transport, so it is likely that, in this specific case, they had travelled in Etruscan transport-ships, and that these would have been stationed at some harbour close to Rome, so that, in case of defeat, the army could retreat in a safer, faster manner, reducing the number of casualties. Regarding this possibility, it seems of significant importance that Appian mentions Marius' capture of Ostia²⁷⁴. Even though it is stated after the narration of the placements of each camp, it is possible that this attack happened when the Marian sources first disembarked. It would mean that, regardless of Rome's ability to gather ships for its commanders, some generals would have found the means to provide themselves with a transport fleet, whose fealty would be to the general and not to the city-state.

It might also be an indicative that Marius would have attempted to exploit Sulla's disadvantage in this area: this attack happened while Sulla was in Asia once more, fighting Mithridates, and he would have had no means to return by himself, but needed to freight ships or await the return of one of his naval commanders, such as Lucullus. It is possible that Marius' strongest asset throughout the Marian-Sullan civil wars could be his mobility (and, by extent, that of his army), and that this mobility could have been afforded by a significant transport fleet, provided by Italian allies to whom Marius would have made promises of political value²⁷⁵. The source does not mention ships or a fleet throughout this stage of the confrontations, but seems to indirectly confirm its presence, not only through the attack to Ostia, but also by the confirmation of the reason why it was

(...), perhaps suggesting a hoped-for success at sea against the fleet of Marius», which means that, by this point, Marius and Cinna would have a fleet capable of facing their opponents (Lovano 2002, 42, note 56).

²⁷⁴ According to Marin, «Marius captured and sacked Ostia» – Rome's most important port. This resulted in Marius now having control of all shipping, including the important grain-supply to the city». Together with Cinna's control of some northern cities, they would have managed to gain a position which could further allow them successful exploits. Marin 2009, 49-50.

²⁷⁵ Cinna's capacity for opposing Sulla and his fleet is an object of debate: if Cinna, together with Carbo, managed to renew their consulship in 84 BCE, and if he managed to assemble a fleet and attempted to «cross the Adriatic», he was later «stabbed to death in a mutiny», which led Sulla to return to the Italian Peninsula. See Osgood 2018, 83.

carried: Marius' intention to cut the sea-supply to Rome²⁷⁶. In order to achieve this, he would have needed ships to keep the commercial vessels from entering the harbour. The camps of Cinna, Carbo and Sertorius, his allies under these circumstances, would have been close to the river Tiber, and it is said that Carbo and Sertorius would have also attempted to cut navigation, this time through the river itself, with the same purpose (in this particular circumstance, through the building of bridges). It seems that a significant number of provisions would be reaching Rome by sea and river, and experienced commanders, like Marius, would be aware of the advantages of controlling Ostia and the Tiber²⁷⁷.

In spite of his victories in the Italian Peninsula, Marius could no longer pursue his rival Sulla, for he died not long afterwards, in 86 BCE²⁷⁸. It was at this time that Cinna attempted to replace Sulla with Valerius Flaccus, and the Mithridatic Wars came to be with three different factions instead of two. Sulla's faction would have come out victorious against the King of Pontus, and he could now return to Rome not only with the prestige of his success, but also, if Appian is correct, a fleet, which would have been a part of the peace agreement with Mithridates. Cinna and Carbo (Flaccus' successor), aware that Sulla would be returning with a fleet – and, if one is to believe Appian's comments on the First Mithridatic War, one which would have consisted of large typologies of warships, such as triremes and quinqueremes – would have hastened to get ships in proper conditions. These probably came from Roman allies yet again – though their specific origins are mostly unknown, Appian mentions that they would have sent for

²⁷⁶ App. *B Civ.* 1.7.69.

²⁷⁷ This is not meant to undervalue the importance of land transport, which can be seen in this chapter: after cutting sea and river transport, which would have been, most likely, faster, Marius proceeds to attack several settlements close to Rome (namely Antium, Aricia and Lanuvium, amongst others), also to prevent them from furnishing Rome with fresh supplies. According to Appian, Marius would have been aware that all these processes were not enough to prevent Rome from getting provisions, which would have made him take the army against Rome right afterwards.

²⁷⁸ It might be questioned whether Marius and his supporters would not have attempted to prevent Sulla's rise to supremacy by doing anything within their power to prevent him from having a fleet. It could be an explanation for Sulla's early lack of means to fight the king of Pontus, and why the Mithridatic Wars have very few accounts of naval battles. Sulla might have been aware that he could hardly expect to face Mithridates in the open sea, given some sort of technological or numeric inferiority of his fleet, but it cannot be completely dismissed that this lack of means had some sort of intervention on the side of his political adversaries. If it is true that Marius wished the command of the Mithridatic Wars for himself, and given these latest comments regarding Marius' less obvious, but still significant relation with the Italian Allies and their ships, one can question if, in case Marius had managed to attain the command of the Mithridatic Wars, he intended to take these to battle against Mithridates, to rely on Rome's Eastern allies and provinces (as the commanders of the First Mithridatic War effectively did), or to attempt land interventions. Appian's description of this conflict seems to indicate that the siege of Piraeus was one of the most problematic moments for Sulla, who had a greater ease to take Athens than the harbour.

the ships in Sicily to return to the Italian Peninsula, to aid with keeping the coast safe from Sulla's attacks. The nature of these ships is not mentioned, but it is possible that, whether warships or not, they were of a significant size, given that they were expected to counter Sulla's fleet. On the other hand, as previously seen during the Mithridatic Wars, it is possible to defeat larger warships with the aid of small vessels, and the Rhodians were successful using this method against the king of Pontus; this adds to the uncertainty as to which ships would have been guarding the shore. The one point that seems clearer regarding ship typologies is that the two consuls would have needed to quickly dispatch their armies to Liburnia, and this dislocation would have been done by shipboard, which probably indicates transport ships²⁷⁹.

As for Sulla, his naval capacity had now risen from almost inexistent in the outbreak of the First Mithridatic War, to very significant numbers²⁸⁰. His land-army, both cavalry and infantry, would amount to a great quantity: Appian mentions 40 000 individuals and, even if this is an exaggeration and the number could be cut in half, it is still a fairly large army, which needed to be transported from East to West. These men would have been transported in 1600 ships. It might, perhaps, be wrong to suppose that all of the vessels involved in taking Sulla's army to the Italian Peninsula came from his peace agreement with Mithridates; instead, it is likely that some allied cities of the East provided him with some. This approach seems particularly valid if it is true that Sulla left from Piraeus, because some of the Athenians who belonged to higher society ranks are said to have sided with Sulla; and even if these would not be ship owners, Sulla's newly acquired treasury (for Mithridates agreed to pay the costs of war) could have allowed him to hire Greek freight ships. Leaving the Piraeus, he would have gone to Patrae. It is from here that he is said to have left with 1600 ships, a number that might correspond not exclusively

²⁷⁹ App. *B Civ* 1.9.77. This voyage seems to have been partially unsuccessful, given that only a part of the army managed to safely reach Liburna, whilst the others were caught under a storm.

²⁸⁰ His delegation of office seems to have changed following the civil wars. As soon as the Italian Peninsula is firmly under his control, Sulla begins «hunting down the enemy leaders who had escaped» to some of the provinces; the individual put in charge of this task would have been Pompeius, instead of the more natural choices of Quintus Metellus and Crassus. This could mean that either Sulla acknowledged Pompeius' military virtues to be highly superior, or that family alliances would now be interfering with the distribution of naval ranks. See Leach [1979] 2002, 28. Pompeius' early career was believed to have been strongly shaped (and to have benefited from) Sulla's influence; the fact that he was assigned a naval office by Sulla might lead to rethinking the traditional relation of the Late Roman Republic with the navy. See Fields 2010, 104.

to vessels acquired from peace treaties, but also to the combined presence of allied or freighted ships²⁸¹.

Throughout the following years of political instability and civil wars, little is mentioned regarding the usage of the navy; it is only said that Norbanus would have fled to Rhodes as a «private individual», which probably means he would have used his personal funds to buy his place on a ship. This cannot be accounted for as a commander's action, despite the terminology of Norbanus boarding a ship as a «private» establishing somewhat of an opposition between different ways to travel, which can probably be subdivided in command missions and personal appointments. It is also said that Metellus would have sailed near the region of Ravenna to take hold of the territory around Uritanus, which was a centre of cereal production²⁸². It is likely that other dislocations also happened by sea or river, even though they aren't specifically mentioned; whatever happened to the Roman fleet which was guarding the coast, or Sulla's fleet, is unspecified, but it is possible, aside from regular guard duties against pirate attacks, that these ships would not have been kept stationary, but instead used for transport purposes. The same seems to have happened in the years that followed Sulla's death, all throughout the revolt led by Spartacus²⁸³.

Even though this work analyses internal and external wars separately, their events and outcomes are closely related. Sulla's interaction with Mithridates depends on his status in Rome, and his decision to take Rome by force is partially made possible by Mithridates agreeing peace-terms with him and providing him with new resources that made this possible. Marius is absent from foreign wars in this period, but his travels to and from the Italian Peninsula, together with his allies, also have a relation with the navy, as does his attack to Ostia. A great portion of the first half of the 1st century BCE is spent amongst internal and civil wars and, despite their significant land-component, which is especially relevant throughout the Marian-Sullan civil wars, where the navy seems to be a

²⁸¹ Pompeius would have joined Sulla in the Italian Peninsula not long afterwards, and soon become a favourite with the commander. Given that Pompeius would come to be known in sources as a man of great prowess in naval matters, it is relevant to note the connection between these two individuals, one whose mid to late career would have been marked by his acquiring a large fleet, and the other, a favourite with the former, only starting his military career, who would later become a well-known naval commander. See App. *B Civ.* 1.9.80. Even though it is not our purpose to make a detailed analysis of Sulla's influence upon Pompeius' career, ancient sources and modern authors agree that Pompeius' inclusion in Sulla's familiar circles, together with Sulla prompting his career from an early age, would have been of significant importance in his advances. See Seager [1979] 2002a.

²⁸² App. *B Civ.* 1.10.89.

²⁸³ Eutr. 6.7. It might be mentioned, however, that when defeated and pursued by Crassus, Spartacus would have attempted to carry his army to the sea, to cross over to Sicily. See App. *B Civ.* 1.14.118.

notoriously significant, albeit scarcely mentioned, resource. The events following the death of Sulla, the end of the Sertorian Wars and the slave uprising lead by Spartacus will change Rome's political and military standings, whilst bringing three new commanders to the centre of events. These will be the previously mentioned Pompeius, whose early career was already seen throughout the Third Mithridatic War and his campaign against pirates in the Mediterranean; Crassus, whose early death limits the possibilities of study, but was, nonetheless, a member of the First Triumvirate; and Julius Caesar. This study will now proceed onto analysing their actions as commanders.

12. Gnaeus Pompeius vs Julius Caesar

Following the series of events that ultimately culminate in a civil war, whose two main commanders would be Pompeius (fighting on Rome's orders) and Julius Caesar (fighting on his own account), the latter of which is made to return from his expeditions in the North to fight his enemies at Rome²⁸⁴. This early stage of the war will be constituted by increasing movement from several armies, to and from the Italian Peninsula, from several parts of the European Continent. In Julius Caesar's case, it will be a matter of reaching the Italian Peninsula and settling his army in advantageous positions, from which he could attempt to counter Pompeius; whilst in Pompeius' situation it was a matter of gathering an army and carrying the men to the Italian Peninsula. His army seems to have been partly scattered, for, at least, part of it was stationed in Hispania, and he still had to account for his eastern allies²⁸⁵.

²⁸⁴ According to Goldsworthy, Caesar would have had ten legions (V to XIV); his legions were constituted by «seasoned veterans, utterly devoted to Caesar», as well as «Gallic and German cavalry». Pompeius, on the other hand, would have seven legions in «his Spanish provinces», which Goldsworthy classifies as unexperienced, as well as the XV which had «questionable» loyalty. Fields (2010b, 144-152) also underlines their «questionable» loyalty, stating that «the pretext of a Parthian war would have served to deprive Caesar from two legions»; the author gives an account of the immediate events that lead to the civil war between Caesar and Pompeius and also observes the matter of crossing the Rubicon (and whether Caesar had a valid *casus belli*), «an otherwise insignificant muddy stream that separated Gallia Cisalpina (Caesar's province) from Italy proper», dividing the area where he «held *imperium pro consule*» and that in which he was a «*privatus*». On the formation and collapse of the First Triumvirate see, for instance, Shotter 1994a, who distinguishes its initially more private nature from the one of the Second Triumvirate, more imbibed in the government.

²⁸⁵ At this point, the traditional structure of the Roman army had already been significantly altered. Not only were the soldiers more closely related to their commanders than the Roman state («En effet, si ces soldats font preuve d'une abnégation civique extrême, celle-ci n'est consacrée qu'à un homme, César, et non à la *Res publica*»), but, throughout the political instability, the armies themselves became more unpredictable, with an increasing number of «desertion collective et individuelle» (Gueye 2015: 117; 115).

As mentioned above, Julius Caesar's dislocation through Gallia would have been made along fluvial courses, probably recurring to the aid of transport-ships to carry heavier loads. According to Appian, it seems that one of the most feared attributes of Julius Caesar as a general was not so much his capacity to prepare for war by assembling large armies and resources, but the skill to quickly dislocate his armies and take an aggressive stance (in this case, by taking hold of the best positions in the Italian Peninsula before Pompeius). This celerity of Julius Caesar might probably be attributed not only to his army's physical preparation for marching, but also to the use of other means to transport men and supplies, such as rivers and the seashore. Whenever a natural barrier might have prevented him from travelling faster, he may have preferred aquatic transport, which seems to have been adamant in this early period of the civil war, especially because his enemies had the advantage of proximity²⁸⁶. One can also add that, according to Appian, Caesar's first action would have been to take Ariminum and garrison some of his troops there: Ariminum, modern-day Rimini, is a city located by the sea²⁸⁷.

Pompeius, on the other hand, would have gone to Capua, like Sulla did upon his departures from the Italian Peninsula during the Mithridatic Wars. This, however, followed prior courses of action: he did not take leave from Capua, but went first to Luceria and afterwards to Brundisium; only then did he cross the sea to Epirus, where he would have gathered a significant number of supporters amongst the local rulers and cities²⁸⁸. Pompeius' army was divided between Hispania and the Italian Peninsula, and the latter portion would have been subsequently moved to Epirus, to join forces with his allies. It seems that Pompeius would have been able to attack Julius Caesar's army from both banks of the peninsula, either by crossing the Ionian Sea with the oriental army, or the Tyrrhenian with the western. It also means that he had a number of ships at his disposal, either inherited by Sulla's successes in the Mithridatic wars, borrowed from his

²⁸⁶ It might also be added, though on a more literary note, that one of the most well-known episodes regarding the life of Caesar is the crossing of the Rubicon River, at which moment he is said to have pronounced the renowned sentence «*alea iacta est*». There is a metaphorical image associated with the boundaries of rivers and river crossings. See App. *B Civ.* 2.5.34-35.

²⁸⁷ Ariminum would be a relevant strategic point from a military point of view – not only is it a coastal city, but it is also connected to two of the main roads in Ancient Rome, the *Via Aemilia* and the *Via Flaminia* (see Linderski 2015, 285; see also Billows ([2009] 2012c, 205: «He had secured the key cities of Ariminum and Arretium by sending detachments of soldiers ahead to occupy those cities before news spread that war had broken out, and he marched with great rapidity to join his advanced detachment in Ariminum»). Peer notes that Caesar's intervention in the Italian Peninsula following such events would have been the object of a chronological manipulation, undervaluing his actual movement and actions in the Italian Peninsula and placing a more significant stance in Ariminum, whilst not mentioning that he had «occupied several towns» (as stated by Cic. *Att.* 7.14.1, and mentioned by Peer 2015, 63-64).

²⁸⁸ App. *B Civ.* 2.6.38.

allies, or even freighted, and that these would swiftly convey his men. If there is some truth in Appian's saying that Julius Caesar would have been feared by the swiftness with which he moved his armies, it might be questioned how long it took Pompeius to assemble his forces in the Italian Peninsula.

Like Julius Caesar, Pompeius would also land his army in coastal cities. He first joined the consuls in Dyrrachium²⁸⁹ and then moved to Brundisium²⁹⁰, where he had ordered the assembling of the army. Julius Caesar's first attack against Pompeius seems to have been at this point, whilst he was still awaiting the arrival of some of the ships which were to convey the warriors. It seems that Julius Caesar was attempting to prevent Pompeius' gathering of his full strength, and thus decided for an early attack. This confrontation happens at a coastal city, but whether it implies Julius Caesar's dislocation by ship can be questioned, because Pompeius is said to not only have defended the city successfully, but also departed once more to Epirus, this time with a great part of his army²⁹¹. If Caesar had travelled by ship, it is likely that there would have been some sort of skirmish during Pompeius' departure, but nothing of the sort is mentioned.

Knowing himself unable to follow Pompeius due to his scarcity of ships and given that Pompeius could have the Italian Peninsula surrounded from both sides (with the aid of his allies from the East and Hispania), Julius Caesar would have returned to Rome (Dio Cass. 41.15). A second moment in this war is marked by Julius Caesar's attempt to control supplies – the already well-known action of most commanders throughout the wars – and to engage in fast movements towards Pompeius. One mention that might be of some significance is that he would have sent his commander, Quintus Valerius, to carry a

²⁸⁹ It is not the purpose of this chapter to analyse typologies of ships, which will be left for a later moment in this investigation. However, as an introductory note, it is relevant to mention that Dyrrachium would have been taken by an Illyrian tribe called the Liburnians, who, according to the source, made a living out of piracy, using fast ships in these enterprises. These ships, as mentioned by Appian, are the reason behind the name of the «*liburnae*»: given their considerable speed, it would have become a Roman habit to call «*liburna*», or «*liburnicoe*», to any fast ship. See App. *B Civ.* 2.6.39.

²⁹⁰ Dio Cass. 41.11. See also Lovano 2015: «Caesar would not have known what Cicero knew, according to his letters from the time, which was that Pompey was always prepared to evacuate»; whereas Caesar attempted to blockade Pompeius in Brundisium and prevent him from reaching Greece, this attempt failed and the latter would have been able to retreat without leaving «vessels large enough to carry troops across the Adriatic in pursuit of his»; therefore, although Brundisium was now controlled by Caesar, it did not allow him to put an end to the war (109).

²⁹¹ Cassius mentions that the insufficient number of ships in Pompeius' faction would have resulted in two travels being made to and from Macedonia, the first with the consuls and the second with Pompeius and the army. All that would be left for Caesar in Brundisium from the fleet would be two ships, which he would have managed to capture. Dio Cass. 41.12.

garrison to Sardinia and control the production of grain²⁹². The methods used in this are not clearly specified, but, given that Sardinia is an island, either Valerius was able to control all the available harbours and prevent the movements of supply ships, or one could presume there would be a support fleet, either controlling the strait, the main trade routes to the Italian Peninsula, or the entrance to, at least, some of the harbours.

Following his attempt to control Sardinia, it also seems that Julius Caesar deemed his naval resources as insufficient, for one of his following actions is said to have been the construction of two new fleets²⁹³, one of which would be stationed at the Ionian Sea, and the other at the Tyrrhenian. These would have been constructed with Roman funds, which Julius Caesar would have taken from the treasury – even though this is not clearly stated by the source, it can be interpreted from Appian's chapter, given that Julius Caesar ordered the building of the fleets right after his taking the deposit from the treasury. This is one of the few specific mentions to the means used by a commander to finance a fleet and is followed by the explicit use of the term *ναύαρχος* to refer to the individuals left in charge of each of these units, namely Hortensius and Dolabella. They would have been in charge even before the fleets' construction was finished, which might mean that these men, or their subordinates, might have been left behind to superintend the construction. The «navarkos» will be accompanied by the use of «στρατηγοίς» to refer to Pompeius' subordinates Petreius and Afranius.

One of the events unmentioned by Julius Caesar, but mentioned by Cassius, is Brutus' victory against the Massaliots²⁹⁴. It seems that Brutus would have a significant naval force with him. Cassius considers this victory of extreme importance in granting Julius Caesar

²⁹² Dio Cass. 41.18 also mentions Caesar's attempts to control Sardinia and Sicily, as sources of supplies. His next step would have been to attack Hispania, one of Pompeius' allies; while doing so, at least two river crossings by bridge are mentioned. One is that of Gaius Fabius, with the bridge collapsing whilst the men were crossing it and being ambushed – perhaps, although this is unmentioned, a part of the ambush itself. The other was of Caesar, crossing the same river. See Dio Cass. 41.20.

²⁹³ «*νεῶν στόλους δύο*» – App. *B Civ.* 2.6.41.

²⁹⁴ According to Meijer, who considers Pompeius' delayed actions as one of the causes for his defeat («If Pompeius had acted immediately and combined his seven legions in Spain with the rest of his army on the Balkan, the situation might have developed in a completely different way»), Caesar would have needed Massilia for «corn and other supplies» to be «shipped from Gaul to Caesar's army in Spain». Brutus would have set up a base on an islet close to the shore and Caesar would have «ordered ships to be built (...)». In Arles (Arelate) twelve triremes were built within 30 days, a force inferior in number to the 17 galleys and many fast light ships of the Massaliotes». Once again there seems to have been a battle of technique and strategy: the Massaliotes attack with the «traditional» naval combat style of ship vs ship, whilst Brutus' fleet uses boarding techniques. Following this victory, the «food supplies to [Caesar's] army in Spain were no longer at risk». See Meijer [1986] 2014, 197-99.

the possibility to continue the war²⁹⁵. This seems to point two things: first, that the privatisation of the navy happened on deeper levels than those regarding its immediate, nominal first commander, given that Julius Caesar is said to be lacking in naval resources, whilst Brutus seems to have them. Second, that there seems to be some inconsistency regarding Brutus' fleet. One might question why it wasn't used against Pompeius, or to carry allies to the East, especially given that Julius Caesar is said to control Sardinia and Sicily. It is possible that war at sea, especially in the coastal regions of Hispania and Gallia, was being significant enough to engage the necessity of a working fleet on Julius Caesar's party, in order to repel attacks from the Pompeian faction; it might also mean that Brutus, as a naval commander, had some degree of consequence in deciding the destiny of the fleet and, either by fearing to be outnumbered or blockaded and out of supplies, opted for not going further into the Eastern fraction of the Mediterranean. It may also be that Brutus and Caesar's fleets allied would have still been insufficient, either in numbers or technology, to grant victories against the Pompeians. In fact, the issue of the Pompeian ships on the Western part of the Mediterranean might be more significant than it seems, and Julius Caesar's control of Sicily and Sardinia might not have meant the control of the passageway between both quadrants of the sea, given that Pompeius was able to send reinforcements to the Massaliots – which were, however, defeated yet again²⁹⁶. From them, Julius Caesar would have acquired a new fleet with which to face his enemies.

Julius Caesar's characteristic naval investment as a commander is once again seen during Curio's time in Africa, campaigning on his behalf against Juba and the Pompeian Forces under the command of Attius Varus. Curio, sailing from Sicily to Africa under Julius Caesar's orders with two hosts, would have been accompanied by twelve long ships and several transport ships, not commanded by himself but by a *navarkos*, Flamma (thus Curio was in charge of the army and crossing with the fleet, but not of the naval operations)²⁹⁷. It seems that the number of war ships is not very significant – at least in comparison to the large fleets held by Mithridates, which were subsequently captured by Sulla – and it might be questioned what these twelve warships were meant for. During this period, piracy is not supposed to have been a significant issue, given this happened

²⁹⁵ Dio Cass. 41.21.

²⁹⁶ Dio Cass. 41.25.

²⁹⁷ App. *B Civ.* 2.7.44: «Κουρίων δ' ὑπὲρ Καίσαρος αὐτοῖς ἐκ Σικελίας ἐπέπλει δύο τέλεσι στρατοῦ καὶ ναυσὶ δυνώδεκα μακράς καὶ ὀλκάσι πολλαῖς», explaining how Curio departed with two legions and twelve warships from Sicily, as well as some transports.

following Pompeius' campaigns, unless new pirate communities had established themselves meanwhile. Can it be supposed that Curio was intending to fight a naval battle, if attacked by Pompeius or his allies? Or are these twelve long ships only meant for guarding the transport ships against minor skirmishes and attacks? It might also be questioned what the use of these ships would have been afterwards, given that Curio's campaign is said to have been mainly land-based.

During this campaign, the admiral deserts the army. The chapter regarding Flamma and his «flight» from Africa might be subjected to closer examination. According to Appian, Flamma would have departed without taking the land forces (γῆ) aboard. This might only mean he took the crew rather than the land forces (rowers, steersmen, etc.), but it may also be interpreted as there being a part of the army – not solely a crew – under Flamma's command, thus giving him a dual role as admiral and land commander. There is another point that might be questioned. Appian states that, following this circumstance, Pollio would have gone to anchored freight ships and engaged them to carry the army. If, as Appian says, Curio sailed to Africa with transports, it means that Flamma would have taken not only the warships but the transports as well; but it may also imply that they were freight ships, and hence their absence and a justification for Caesar's subsequent naval investment, so as not to become dependent on it. It also seems that Flamma took most of the equipment with him, seeing as most of the men in the land-army would have been transported in very small boats, which became crowded: the ships were probably anchored in circumstances that required the use of skiffs to board, and Flamma did not leave them behind.

Whether Julius Caesar's efforts in naval construction were fruitful may be answered with Appian's *B. Civ.* 2.8.49: Pompeius' response throughout this period would have been to further his fleet's numbers as well, for which he would have had to gather resources, even though it is not mentioned how he proceeded to do so²⁹⁸. It seems that Pompeius, despite his allies and fleet, finds it necessary to accompany Julius Caesar's progresses in this field, and that may be motivated by his attempts to prevent Julius Caesar from crossing to the East, given that Pompeius' fleet would be attempting to protect the Ionian Sea from the enemy crossing, capturing forty of his ships in the process. The matters of numbers

²⁹⁸ According to Cassius Dio, Pompeius' reasons for leaving the Italian Peninsula and travelling east would have been the fact that no one would follow him due to their lack of ships, and that he had several allies in the East (Dio Cass. 41.10).

are less clear. Appian says that Pompeius would have six-hundred long ships (*«νῆες δὲ μακραί»*), and one hundred of such ships would have Roman crews and had a very good quality; plus plenty of transport ships, for which he utilizes two different terms: *«πολὺ δὲ ὀλκάδων καὶ σκευοφόρων ἄλλο πλῆθος»* (*ὀλκάδες* and *σκευοφόροι*). It is not likely that this large fleet was built in a small period of time; thus, how many warships did Pompeius have before he set out to build more? Could it be presumed that only the one-hundred ships manned by Romans truly belonged to Pompeius, and that the others were allied fleets²⁹⁹? It can also be added that, if Julius Caesar's fleet wasn't a cause for concern, Pompeius would most likely not have felt the urge to build more ships; however, can it be considered that Julius Caesar owned six-hundred warships, especially when looking at the African enterprise, where only twelve were present? Either the number of ships in Pompeius' fleet is highly exaggerated by Appian, or Julius Caesar had a far larger fleet than it can initially be supposed, possibly focused on transports rather than warships³⁰⁰. One can also account for some sort of naval hierarchy within Pompeius' fleet, despite the unspecified terminology: it is mentioned that several «navarkos» were present, and that Marcus Bibulus would have been the leader of the subordinate «navarkos», even though he does not receive a particular nomenclature as a commander-in-chief.

It would have seemed that the following moment of war would have brought a significant decrease in naval activities, with the approach of winter. Pompeius himself seems to have believed that the adverse meteorological conditions would have impeded Julius Caesar from crossing to the East, and thus kept his «navarkos» and his fleet mostly on patrol missions. However, according to Appian, Caesar would have preferred, once again, to take advantage of celerity of movement, and attempted navigation in spite of the season³⁰¹. Given that Pompeius would be stationed in the East, he and his allies could have continued to gather the resources to bar Caesar's advance. As soon as the sea presented itself navigable, Caesar relied on transport ships³⁰² to take his army further. He

²⁹⁹ It will be stated by Appian that Pompeius would have had allies from many peoples in the East, Greeks and barbarian tribes, and those who inhabited the Euxine Sea; these would have provided him with men, weapons, supplies, amongst other war necessities (App. *B Civ.* 2.9.51).

³⁰⁰ It might also be wondered whether the translation of *«νῆες δὲ μακραί»* might not be exactly equivalent to a warship, but to some sort of vessel which, even though equipped for naval battles, would have had its main function in carrying garrisons.

³⁰¹ According to Beresford, who based himself on Tammuz, Winter navigation would not have been impossible, although limited to «open-water routes» and less frequent; merchant vessels, for instance, would probably make «regular» voyages. See Tammuz 2005; Beresford 2013a; 2013b.

³⁰² As the warships were serving guard duties in Sardinia and Sicily, creating an effective barrier for the Pompeian fleet.

first sent his fleet against Pompeius' supply ships, which Lucretius and Minucius, Pompeius' commanders, would have preferred to sink rather than to allow them to become Caesar's. However, one might ask how Caesar managed to cross his army through a sea which Pompeius, with a far greater number of ships, would have had a greater ease to control; how the army managed to attack Pompeius' cargo vessels; and how the garrisons could have dislocated themselves quickly and with little trouble during winter months. It seems that Julius Caesar's satisfaction in App *B. Civ* 2.8.55 might be exaggerated: either Pompeius' control of the sea wasn't as significant as it seems, or Caesar's naval capacity is purposely being underwhelmed by this source.

The last stage of the civil war between Julius Caesar and Pompeius will, once again, be one of fighting for supplies³⁰³. Both Caesar's and Pompeius' attempts to take cities or control the sea are mostly related to either reaching the enemy's main source of supplies or preventing him from reaching their own. Pompeius' would have been in Dyrrachium³⁰⁴ – it can probably not be assumed that he would have kept a single base, but it seems as if this would have been one of the largest. Caesar once more orders his army to cross the sea during seemingly less navigable periods (at Winter), to prevent Pompeius from increasing the number of patrols during the Spring and Summer. However, one might question whether Pompeius was not aware of Caesar's intentions – Caesar had already crossed a garrison to Oricum³⁰⁵, and Pompeius had sent back a fleet to retrieve the city.

³⁰³ If both Caesar and Pompeius would have gained practical knowledge of supply management whilst at war, it may be added that Pompeius, who became «commissioner of the grain supply» in 57 BCE, would have acquired inner knowledge regarding the workings and redistribution of grain within Roman territories. See Temelini 2006. As for Caesar, according to Aly, his «role in the grain distribution was also significant. Fewer policies and rules changed during his reign relative to the somewhat obsessive grain legislation reforms of the early first century BC. However, he did create *aediles cereales*, officials that dealt with Roman grain supply issues, including distributions, the market, and trade». This was, however, following his defeat of Pompeius (Aly 2017: 22), so one may question if it had any practical effect during this civil war. See also Tucker 2017, 32-38. According to Erkdamp, «an army of 40,000 men would need an equal number of mules to haul all the food and fodder it consumed in 30 days. (...) We can distinguish three phases in the transportation of supplies. First, provisions were brought to supply bases, which tended to be located near rivers or on the coast, because large volumes of supplies could only be transported over long distances by ship or boat. Second, a shuttle system regularly transported the supplies to the army, or the army would replenish its stocks at the supply base. (...) The third element in the supply system was the army train itself, which carried supplies for at most 15 days». See Erkdamp 2011, 103-5.

³⁰⁴ Archaeological survey in Dyrrachium shows that «Artefacts from the Archaic, Classical and Hellenistic periods are most prevalent [...]. Material from the Roman period is noticeably underrepresented», as is the «Late Hellenistic» (Davis et al 2003: 68). «The history of Durrës in the last three centuries B.C. is complicated and a review of the scanty information preserved in ancient texts does not explain why later Hellenistic and Roman remains are so rare in most of the area that we investigated» (Ibid. 70-71). The survey of 2003 in Dyrrachium, however, revealed mostly ceramic findings, instead of battle-related artefacts.

³⁰⁵ The attack to Oricum possibly marks the beginning of the last stage in the Caesarian-Pompeian conflict. As mentioned by Colegrove, immediately before the taking of the city, «Pompeius, (...) surprised at the

It might be another suggestion of Pompeius' naval capacity not being as decidedly superior as it first seemed. As for Caesar, he would have sent for a ship and a steersman (*«οἱ κελήτιον ὅζῳ καὶ κυβερνήτην»*) in order to cross to Brundisium and bring the troops himself, sailing through the river – it is one of the first clear mentions of river navigation, recurring to both oarsmen, rowing, and sails. In a later moment, a naval battle was almost ensured between Caesar and Pompeius' fleets, for Pompeius' warships found Caesar's (under the command of Antonius) crossing the sea, but it seems as if a change of wind might have prevented it (which would account for Caesar having lighter, faster ships, instead of larger warships as triremes, as mentioned by Appian). At this point, Pompeius would have more ships controlling the crossing, for Caesar is said to have struggled with the matter of supplies.

In Cassius' version, Caesar would be in Brundisium awaiting the spring, and only attacked when half the winter was past. Still lacking in ships, he would have attempted to elude Marcus Bibulus, Pompeius' commander at the crossing, by sending part of his army to Epirus (to the Ceraunian Headlands); when already there, he would have sent the ships back to retrieve the others. Bibulus would have realised that the second voyage was happening and attacked, but Caesar would have managed to arrive in Epirus safely with part of his army (Dio Cass. 41.44)³⁰⁶. As for Antonius' soldiers, they would have only arrived later in the war: the death of Bibulus and his subsequent replacement with Libo, likely a less experienced man, allowed Antonius to join Caesar. Chapter 2.10.66 seems to point out that, during the following months, Pompeius would have remained at an advantage and received a fair amount of supplies by land and sea³⁰⁷, unlike Caesar, and the source states that Pompeius' initial plan would have been to win the war through starving the enemy, and that only the urging of others would have made him decide to pursue battle. Nonetheless, and judging by our previous analysis of the relative strength of each, it is likely that neither Caesar's situation regarding supplies was as desperate as

unexpected news, (...) determined to go to Apollonia by speedy marches, to prevent Caesar from becoming master of all the maritime states». After taking Oricum, Caesar marches to Apollonia, thus leaving Dyrrachium. Pompeius would have attempted to reach this last city, which Caesar answered by encamping close to river Apsus, and wait for the other legions. Calenus was waiting in Brundisium with the fleet, under Caesar's orders, whilst the remainder of the coastal area was being controlled by Bibulus (thus, the Pompeian faction). Bibulus «debarred Caesar of the liberty of the sea and harbors», which brought difficulties in supplying the army. See Colegrove 2007, 228-32.

³⁰⁶ At this stage, Caesar seems to be in haste to reach Pompeius and put an end to the war. The episode in 41.46, whether real or fictional, seems to point a desire for celerity, by an attempt to cross the sea through the storms and in Winter.

³⁰⁷ Albeit struggling with some dislocations: Dio Cass. 41.48 mentions the breakage of a bridge during a march.

it seemed, nor Pompeius was as capable of fully controlling the sea route. Even after Caesar's attempts at Dyrrachium and the Battle of Pharsalus, the outcome seems to have been more well-balanced than the source accounts for, given that Pompeius still had warships and naval forces in Corcyra and Africa³⁰⁸. It is likely that the war only came to a definite end due to the murder of Pompeius in Egypt, and that, had it not been for these circumstances, Pompeius could have made a new attempt against Caesar's army. He still had his eastern allies to rely upon, and not all of his fleet was lost³⁰⁹.

Pompeius' death does not put an end to Caesar's opposition. His father-in-law, Lucius Scipio, took charge of his fleet. At least three hundred triremes are said to have remained in Corcyra. New armies are seemingly assembled, and once again the source will attempt to underline Caesar's want of large war-ships (which would largely be held by Pompeius' son), which would have forced him to sail mostly with smaller typologies of vessels. The episode in which Caesar meets Cassius' 70 triremes and the latter surrenders is arguable³¹⁰, because it attributes the surrender to Cassius' awe of Caesar, whom he supposed to have come purposely on his direction; it is more likely that Caesar had a large army being transported on fast vessels, which could overcome the slower, larger triremes of the enemy fleet. According to Cassius Dio, at the late stage of the war, Pompeius would have had at least five hundred fast ships, spread across the Mediterranean; this means that even after his demise, his supporters may have had some manoeuvrability. Following the

³⁰⁸ The seeming proof would be that even after the victory at Pharsalia Caesar would have crossed with Pompeian fleets across the Mediterranean, commanded by Lucius Cassius (Dio Cass. 42.6); however, at this point, he would have been able to overcome them.

³⁰⁹ See Amela Valverde's article (2002) regarding Pompeius' network of clients: during his early career, Pompeius would have achieved a wide area of influence from the centre to the east of the Mediterranean, approving the *Lex Pompeia* of Transpadanis in 89 BCE and thus transforming his allies «en "ficticias" colonias Latinas», therefore bringing new clients to his *gens*. His client network, both inherited and constructed, would have been one of Caesar's main objectives, first across Gaul, then in Hispania; the author underlines that although a person could be client to several, this would generate issues in case of conflict, as was the case of Massalia (74). The loss of influence and client networks may reveal itself of particular importance upon observing Pompeius' ultimate demise: as stated by Batstone et Damon (2006, 27), Pompeius first goes to Greece and then to Egypt, «where he hopes to find a friendly reception owing to the assistance he once gave the present ruler's father»; however, according to his analysis, his defeat would have «destroyed Pompey's credit with his former friends throughout the empire», thus leading to his assassination. There is also historiographic questioning regarding Pompeius' strategy during this stage of the civil war: as stated by Welch (2012b), «naval strategies lend themselves to long-term planning and are ill-suited to spur-of-the-moment decisions», and Pompeius, after his successes against piracy and his «*provincia* over the grain supply», would have given him significant advantage; only in 45 BCE, following the Iberian campaign, would Caesar have had «outright naval advantage», and this chapter states that «the few authors who have examined affairs on sea from 49 until 45 cannot understand why Pompeius, experienced in naval campaigns, would gather such a huge force and not use it in an effective way», opening the space for «Caesar's improvised sea-tactics», which were unusual and perhaps more successful for that reason (48-49).

³¹⁰ Dio also mentions that Cassius would have surrendered without a fight. See Dio Cass. 42.6.

war, Pompeius' eldest son, Gnaeus, would have taken an Egyptian fleet against Epirus and attempted to capture Oricum, whilst Marcus Acilius would have been blockading the entrance to the harbour through boats filled with stones and towers, an incursion of moderate success³¹¹. Something which is unmentioned in the *Gallic Wars*, but might have been of significance, is Caesar's orders to attack the Piraeus, which was taken by Calenus³¹². Meanwhile, Cato would be roaming the Mediterranean, first seizing Patrae, then going to Cyrene, and last going to Africa. At this point in the war, however, the Pompeian faction and fleet would have lost strength, which resulted in several of them turning to Caesar. The fact that Calenus had captured the Piraeus on Caesar's orders prior to that³¹³, with the quick follow of the capture of Patrae, might have contributed to assuring the Caesarian faction a basepoint in the Eastern Mediterranean, thus depriving its enemies of a major base³¹⁴.

When Caesar arrives in Egypt (and even prior to that), he seems to be benefiting from a larger fleet, and from the diminishing of the enemy's sea control, by Cato's abandoning of the Dyrrachium blockade³¹⁵. However, Cassius mentions that, during Caesar's stay in Alexandria, the royal palace would have been attacked by the people from land and sea, and that there would not be an adequate number of Roman military men to defend it³¹⁶; this seems to mean that a significant portion of the fleet would not be in Egypt with Caesar at the time of these events (either due to being employed in patrolling the seas or commanded by Caesar's legates in other missions), or that the fleet attained by Caesar himself would not be very significant, being redistributed amongst other commanders³¹⁷.

At some point, perceiving enemy movements, he would have also fortified the royal palace and its accesses both from land and sea³¹⁸. This, together with the summoning of

³¹¹ Another less successful attack was made against Brundisium. Dio Cass. 42.12.

³¹² Dio Cass. 42.14.

³¹³ Calenus had been sent by Caesar to Greece, in theory to broaden «his base of operations» by taking the Peloponnese. Calenus would have taken «Delphi and the cities of Thebes and Orchomenus in Boeotia without a fight and successfully stormed several others»; «He also occupied the Piraeus, which was no longer fortified. He was unable to take Athens, however, defended for Pompeius». See Habicht 1999, 351.

³¹⁴ Dio Cass. 42.14. Together with simultaneous revolts in Hispania. Dio Cass. 42.15.

³¹⁵ Dio Cass. 42.10.

³¹⁶ Dio Cass. 42.35.

³¹⁷ The fact that Caesar provided Arsinoë and Ptolemy the Younger with the domain of Cyprus raises the possibility of it being related to his lacking naval means to defend the island (Dio Cass. 42.35).

³¹⁸ Dio Cass. 42.37. According to McKenzie 2007: «It is possible that the residential part of the palace was on the promontory el-Silsila (akra Lochias). (...) El-Silsila would have been supplied with water by the channel under street RI [27]. The enemy deliberately pumped sea water into Caesar's water supply. (...) From his cornered position, cut off from his troops and fresh water, Julius Caesar set fire to the attacking ships and those in the dockyards (*naualia*)».

men and fleet, would, according to Cassius, have granted Caesar the control of the sea, but made him unable to control the harbour and the land. It seems that his major problem in Egypt is not one of lack of ships, but the inability to control the land, which would have led him to build fortifications. During the conflict between Ptolemy and Cleopatra, Caesar is said by Cassius Dio to have been successful in an unspecified sea-fight, which led to blockades in Alexandria and to Caesar sinking Egyptian freight ships in order to put an end to it and allow for supplies to reach the city. Caesar now had a larger control of the sea and was thus able to perform successful sea operations³¹⁹. The faction of Arsinoë would have made attempts against the Roman fleet³²⁰, endeavouring to destroy some of their supply ships and enter the blockade of Alexandria's harbour, but it came to no avail, given that Caesar would have entered the harbour of Pharos, burned Egyptian ships and taken the place³²¹. It seems that the Roman fleet would be more significant in Alexandria than the land army, for Caesar, who usually preferred taking bridges, now opted for travelling by ship; the Egyptian people, however, took to these bridges and attacked them – one might question why the bridges were not destroyed by the Romans once in Pharos; perhaps due to lack of time, due to the battle with Arsinoë's faction.

The struggle for the Nile will continue with the intervention of other individuals. Mithridates of Pergamum would have attempted to sail into the Nile, successfully avoiding a blockade and a subsequent attack from the sea and the river and capturing Pelusium with the aid of both infantry and fleet³²². The last moment of the war is Mithridates' invasion of Egypt: the Egyptians would have attempted to attack him, and Caesar would have prepared a stratagem to trick his enemies into thinking he was going to sail away from them, allegedly by lighting all the fires, and putting them off again at

³¹⁹ See Dio Cass. 42.38.

³²⁰ According to Cassius, her commander, Ganymedes, would have put Achillas, a Ptolemaic commander, to death, accusing him of having the intention to betray the fleet. This would have allowed Arsinoë to gather a significant fleet, despite probably constituted by smaller ships, given that many of them came from the Nile and the lakes. This fleet is the one that would have been carried out to attack Caesar's. Dio Cass. 42.40.

³²¹ Dio Cass. 42.40. It is mentioned by Cassius that Caesar would have attempted a stratagem against the opposing Egyptian faction, by lightening several illuminations inside the ships, pretending to be going away, and then putting off the lights and returning (Dio Cass. 42.43).

³²² The same Mithridates seems to have been involved in Caesar's network from, at least, the early years of Caesar's Asian campaigns. «Moreover, Mithridates was not simply a famous provincial but for Caesar to leave him to organize an army must indicate that he had considerable expertise in this area as well». See R. Evans 2013, 177. See also Bunson's entry on Mithridates (281), which states that following the campaigns in Asia and the Battle of Zela he would have received part of Galatia and Pontus. He was defeated by Asander of Bosphorus later in life.

some point, whilst turning the vessels around, at which moment he would have attacked³²³. Two topics can be noted from the Egyptian war:

- 1) That Caesar had both sea and river vessels at his disposal or ships able to sail across both. One might question whether these were the Mediterranean ships taken from Pompeius, or freight ships/ships provided by Cleopatra's faction³²⁴.
- 2) There seems to be a mention of nocturnal navigation and trickery. Whilst this would have been harder to fulfil at sea, with the unsteady currents and waves, there is the possibility of this happening in the lake or river surrounding Alexandria.
- 3) He had the aid of seemingly foreign commanders, as is the case of Mithridates the Pergamenian.

Scipio and Pompeius' faction is unsuccessful, in spite of their attempt to regroup in Sicily and Sardinia, both men and fleet³²⁵; it seems that Caesar's increased mobility, gained through the control of fleets circulating within the Mediterranean Sea, would have allowed him to quickly move supplies and men across the Mediterranean basin³²⁶. However, in the aftermath of these events, Julius Caesar will be assassinated, an event which will become the onset of the following triumvirate and the next civil war.

13. The rise and fall of the Second Triumvirate

Octavianus' first action following the news of Julius Caesar's death would have been to remove himself from Apollonia and cross the Ionian Sea. The source states that he would have gone to Lupiae instead of the more usual Brundisium (a frequent place as a destination for naval journeys)³²⁷. After receiving Julius Caesar's will, it seems that Octavianus felt secured enough of his position to travel to Brundisium at last and attempt

³²³ On Caesar's presence in Egypt see, for instance, Freeman [1996] 2014; Burstein [2004] 2007.

³²⁴ Based on Caesar's account, Barnes states that «Caesar himself says (...) that he burned all the vessels in the harbour which had come to support Pompeius plus 22 warships which had usually been on guard in Alexandria. He said that he did this because he could not protect so wide an area as the harbour with his small number of troops» Thus, it is likely that most of the fleet available belonged not to Caesar, but to Cleopatra and Mithridates. See Barnes [2000] 2004.

³²⁵ Dio Cass. 42.56.

³²⁶ This can be seen in books 42 and 43 of Cassius Dio. Given that the subject of those books isn't specifically naval command, with only the use of ships as transports being mentioned, we opted for not analysing such episodes in detail, given they were not in accordance with the general subject. It is worthy of mention, however, that one of Pompeius' bases would have been the Balearic Islands (Dio Cass. 43.29).

³²⁷ On the formation and decline of the Second Triumvirate see, for instance, Weigel 1992.

to gather the army and assure its loyalty. Not only does Octavianus seem to easily assure himself an army, but also supplies and other means. It appears that he would have had enough ships available to convey his army from Brundisium to Tarracina, even though this is not explicitly mentioned. Following early litigations, most of the people involved with Caesar (either for or against him) begin new movements. Antonius goes to Macedonia; Brutus, Cassius and Trebonius are gathering resources and fortifying the province of Asia³²⁸. The latter is eventually killed under the orders of Dolabella. Afterwards, Antonius will attempt to bring the army stationed in Macedonia to the Italian Peninsula, while his brother, Gaius Antonius, will cross with another army, once more, to Brundisium³²⁹. However, there is no mention of any battles happening during this period, which seems intermediate and mostly preparatory for most commanders involved: it will be during this time that the relationship between Octavianus and Marcus Antonius will change from its early stages of conflict, to an alliance, to civil war.

When disagreements come between Antonius and Octavianus, new movements can be observed. The former goes to Brundisium, and the latter travels to Campania (Calatia and Casilinum) to collect an army for himself. This moment approximately coincides with the outbreak of the Parthian conflict, and it seems that some of the individuals who were to participate in this conflict would have been recalled by Antonius to fight in the civil war. These men would have been transported to Ariminum following the seacoast, and it is likely that this action was proceeded by ships – or, in the least, to have had transport ships carrying the supplies accompanying the army's daily march. It seems that Octavianus' chief advantage in war would have been a fair amount of currency, a great portion of it likely inherited from Julius Caesar, which would have allowed him not only the possibility to hire transport ships or purchase supplies, but also to engage several mercenary men to his service (*App B Civ.* 3.7.48, for instance).

Specific naval references will only reappear in chapter 3.8.63 of Appian, after nearly three full books regarding the political balances and imbalances within Rome, and the individual struggles between the leading political and military figures in the aftermath of

³²⁸ In the immediate aftermath of Caesar's murder, more precisely in 42 BC (the consulship of Marcus Lepidus and Lucius Munatius Plancus), the situation would be such as «the triumvirs held Spain, Gaul and Italy, [whilst] Marcus Brutus and Cassius dominated the eastern Mediterranean and thus the richest provinces of the Roman world, while Sextus Pompeius, who discovered that his name was on the list of the proscribed, had sailed with his fleet to Sicily, which he effectively controlled». See Richardson 2012a, 39.

³²⁹ On the specific details of Octavianus' prospects upon landing in Brundisium, his early arrival in Lupiae and his course of action immediately before and after this voyage, see Richardson 2012a.

Julius Caesar's death. Following Antonius being declared an enemy of Rome by the Senate, Marcus Brutus received the government of Macedonia and Illyria, which granted him a significant army. Brutus himself would also have assembled long-ships and transport ships («ναῦς εἶχε μακράς τε καὶ ὀλκάδας»). Meanwhile, Cassius became governor of Syria and was assigned to wage war against Dolabella³³⁰. Every commander throughout the provinces and the Ionian Sea was officially under the orders of Cassius and Brutus.

Another occurrence happens following Antonius' abandonment of the siege of Mutina³³¹, where Decimus Brutus would have remained. No matter what Antonius' true reasons for abandoning the siege were (most likely, the fact that Octavianus' army would have been harder to face, given that Antonius had just been defeated; Antonius could have been attempting to protect his own legion from further losses), Octavianus' legion stands close to Mutina, and it seems that Decimus Brutus would have destroyed the bridge over the nearby river to prevent him from crossing it with the army. Following Decimus' informing of Octavianus that he was not to have command of the province of Gallia, and that Decimus himself would be in charge of Antonius, Octavianus turns back.

Dislocations to and from the provinces happen several times throughout this period, but, as frequent movements of this sort have been mentioned previously, and as there is no significant naval action or mention of the use of ships to convey the movement of armies, they shall not be mentioned in their specificities. It is worth mentioning that, during a later moment, throughout which Octavianus was at odds with the Senate and attempting to become a candidate to the consulship, there were preparations for upcoming conflicts that include ships and naval action, firstly with the arrival of two legions from Africa, and secondly with the preparation of ships and skiffs in the harbour so that a retreat – or a flight – could be easily executed in case the Senate's attempt to counter Octavianus failed.

During one of the periods of alliance between Antonius and Octavianus, whilst several political purges are happening in Rome, numerous of the condemned men attempt to

³³⁰ Who attained a large fleet from Asia, according to Cassius (Dio Cass. 46.30); he was then able to cross to Arados but was subsequently caught and defeated by Cassius.

³³¹ On the siege of Mutina see, for instance, Fields 2018, who states that Antonius would have attempted to avoid a large-scale battle (56); see also Richardson 2012a. See also Alston 2015. Another point which can be mentioned is made by Kearsley (2013) regarding the «oath of allegiance» of 32 BCE: in Antonius' case (44 BCE), he had «both legionary and veteran units (App. *B Civ.* 3.46), whereas in Octavianus, over a decade later, he had «an oath of allegiance sworn *en masse* at all locations simultaneously», thus achieving the support of the «veterans», many of which had been part of Julius Caesar's armies.

escape. Their routes seem to have been mainly either to Cassius or Brutus, who were abroad, or to Sextus Pompeius, who was in Sicily. Sextus still had under his possession ships of several kinds, including skiffs, transport ships and long warships, which would have been used to convey some of those attempting to flee from the Italian Peninsula. Amongst these men seem to have been capable commanders, from whom Sextus would have drawn new naval leaders for this fleet – it thus seems that he managed to keep the fleet and, at least, a fair number of rowers, steersmen and, in general, of the crew to man the vessels, but that he would have been left with few men capable of leading military actions from within the ships³³². Some of these political enemies of Antonius and Octavianus would have later attempted a reconciliation, and these too would have received naval offices, such as Messala, who became a *ναύαρχος*³³³ under Octavianus and fought Antonius at the Battle of Actium. The same would have happened with Bibulus, who abandoned his allegiance to Marcus Brutus and subsequently served under Antonius. Messala would have later become a consul, which shows (like Lucullus had in previous periods) that despite having had a naval charge, this was not seen as hampering his political career by matters of worth. There is also mention of Rebilus being taken to Sicily on a freighted ship, taken in by the *ναύκληρος* – both the owner and likely commander of the ship.

The final confrontations between the factions will regain further naval investment from the commanders. Unlike the period immediately following the murder of Julius Caesar, in which there are fewer opportunities to observe the interactions between commanders and their fleet (as observed, this is a moment for dislocations and, after the reconciliation of Antonius and Octavianus, of flights in attempts to escape the political purges), commanders will once again be observed preparing for the upcoming wars, and an increased naval concern will be included. Whilst Cassius and Brutus were managing their resources in their assigned provinces, Dolabella was assembling a navy. In this case, the ships are specifically said to be hired, and not provided by allied forces free of charge³³⁴ (they were also hired by means of another man, Lucius Figulus). Whilst Dolabella was assembling tribute from the cities of Ionia, it is unclear whether Figulus was only in charge of travelling between cities and ordering the formation of a fleet or had invested some of his own means to do so. As for the fleet itself, it is assembled from within

³³² App *B Civ.* 4.6.36.

³³³ «*ναυαρχήσαντα*» – App *B Civ.* 4.6.38.

³³⁴ «*καὶ ναυτικὸν ἀγείρων ἐπὶ μισθῷ*» – App. *B Civ.* 4.8.60.

Rhodians, Lycians, Pamphylians and Cilicians – either former allies in past wars, as is the case of the Rhodians, or former enemies at sea, as the Cilician piratical communities. One of the main tasks of this new fleet would be to assure Dolabella's army of supplies after they went to Laodicea.

Cassius would also have attempted to gather ships, this time from Phoenicia, Lycia and Rhodes, and all cities except Sidon would have refused him, which is of particular relevance in the case of Rhodes – either they had temporarily exhausted their naval building capacity whilst creating a fleet for Dolabella, or the Rhodians were supporting Dolabella's faction; in fact, they would have excused themselves with an alleged neutrality, saying that they did not mean to support either side during civil wars, and that they had provided the ships to Dolabella as escorts³³⁵, not to be used at war. A naval engagement happened between Cassius and Dolabella, but it seems to have been of small dimension or little consequence, given that it is neither narrated to detail nor the losses are significant on either side – even Cassius, who was at a seeming disadvantage, is said to have lost only five ships with their crews (excluding the sunken vessels). Cassius is more successful in Egypt, with Serapio, one of Cleopatra's subordinates, sending him a large number of ships – apparently against the will of the queen, who was supporting Dolabella, sending him the legions that were left behind in Egypt and preparing a fleet for him as well³³⁶. After two more attempts, Dolabella is defeated at sea and Cassius is able to take Laodicea³³⁷.

One might question why Cassius took the option of attacking Dolabella openly at sea – and why Dolabella gave him battle – instead of attempting to merely attack supply lines. Whether he first attempted to do so or not is unclear. It seems as if Cassius is bound for a fast course of action, attempting to quickly manage the enemy before he has time to gather a fair share of supplies and build new entrenchments. If one is to observe chapter 63 of Appian, it might seem that the confrontation between both men is mostly a skirmish, not a large-scale battle: after his victory, it is possible that Cassius had access to both his own fleet and Dolabella's, and yet, when he hears of Octavianus and Antonius crossing the Ionian sea with a large fleet provided by Cleopatra, he gives up his intents of crossing to Egypt – thus, Cassius and Dolabella's fleets combined are inferior to the one that

³³⁵ «γαῦς προπομπούς» – *App. B Civ.* 4.8.61.

³³⁶ Cassius also mentions Cleopatra sending ships and currency to Dolabella. See *Dio Cass.* 47.30.

³³⁷ According to Dio Cassius, Lucius Statius Murcus would have assembled the fleet, attacked the ships stationed in Laodicea, conquered the city and the harbour and blockaded Dolabella. *Dio Cass.* 47.30.

Cleopatra is able to provide³³⁸. The concern of Cassius' faction with their fleet's inferiority seems to prevail when the former reunites with Brutus, given that their joined actions are intended to subvert Rhodes and Lycia, specifically because they were on friendly terms with their opponents and could provide them with ships³³⁹. But Cassius himself is said to have had a well-prepared fleet and crew as he sailed towards Rhodes. The Rhodians put thirty-three ships at sea, according to Appian, as prevention against the foreign invasion³⁴⁰.

The battle that follows, allegedly close to Myndus, is one of the most detailed naval battle descriptions in Appian regarding the 1st century BCE. There is greater detail regarding formations, ship sizes and command, even though it still is insufficient for deeper analysis. It seems that the Rhodians had the advantage of larger ships, whilst Cassius had to rely on a heavier fleet. However, Cassius had the advantage of numbers. The Rhodians attempted to sail by the Roman ships and attack their rear-guard, but their attempts at ramming had little success against the sturdy ships of Cassius' fleet, whilst these seem to have attacked the Rhodian vessels in a similar fashion (through ramming, which is relatively unusual within the Roman naval history). Cassius captured three Rhodian ships with crews and sunk two others through the use of rams. Both fleets retreat with need for repairs³⁴¹. It might also be mentioned that Cassius, despite being the commander, was not an active element in battle – he is said to have observed from a mountain, which means that he must have had a second-in-command leading the fleet in his name. This man, however, is unknown or unmentioned by the source. It is also relevant that he is said to have taken eighty ships to a Rhodian fort (Loryma) following this conflict – if eighty ships were present at Myndus, can the Rhodian number of thirty-three be accounted for? A siege of Rhodes follows, minor naval skirmishes happen, and the city is surrounded by the fleet and the land-army. Cassius is said to have captured the city without battle, and

³³⁸ App. *B Civ.* 4.8.63.

³³⁹ As per Dio, the Rhodians provide the ships to their faction; the ease of attaining supplies and their numbers would have made them decide to hold the battle. See Dio Cass. 47.38.

³⁴⁰ According to Cassius, the Rhodians would not have felt the need to wait for Cassius and, confident in the strength of their fleet, would have attempted a display of strength; this would subsequently have been appropriated by Cassius (Dio Cass. 47.33).

³⁴¹ Cassius must indeed have had a larger fleet than the Rhodians. Otherwise, it is unlikely that he would have been able to encircle the swift, lighter vessels of his enemy, which could then have easily retreated in case of threat. Discussion of ship weight and length will be left for a latter chapter; however, it might be questioned how different the builds and dimensions of the two fleets must have been, that allowed the Roman fleet to be rammed without sinking due to their sturdiness, but did not, on the other hand, permit the Romans to sink a large number of enemy ships by ramming – perhaps due to their speed.

this is likely due to his control of supply lines, at a time when Rhodes would have been scarcely provided with the means to endure the siege.

As for Brutus, his battles seem to have been mostly land-bound during this period. However, he managed to form an alliance with Lycia, and thus assemble new means to fill the treasury and to gather a fleet. He is also said to have possessed some ships of his own, which would have joined the Lycian fleet and sailed for Abydus, where they would await Cassius. Meanwhile, Cleopatra's fleet was apparently damaged by a storm, thus allowing for Murcus to sail to Brundisium and preventing the travelling of his enemies to the East. A naval battle happens between Antonius and Murcus, with the former being ill-equipped – he had an inferior number of warships and attempted to suppress this difficulty with towers (πύργοι) mounted on small vessels, probably skiffs or rafts (σχεδία). Octavianus himself was also fighting naval battles with Sextus Pompeius to retrieve Sicily, and Antonius sent for his help³⁴².

Sextus Pompeius, younger son of Pompeius Magnus, spent the years following his father's demise in activities of pillage with a fleet until the death of Julius Cesar. As mentioned by Lange:

«According to Welch the triumvir Antonius and the so-called Republican Sextus Pompeius formed some form of alliance even though they were on opposing sides of the war (Welch 2012: 234; *contra* Gowing 1992: 86). As the rift between Octavian and Antonius deepened – which was resolved at Brundisium, where Sextus Pompeius was made an official enemy – there was an added problem of Sextus Pompeius' blockade of Italy, which was felt in Rome (Dio Cass. 48.31.5). (...) The triumvirs had no choice but to accommodate Sextus Pompeius and in connection with the agreement at Misenum in 39, Sextus Pompeius was granted the provinces of Sicily, Sardinia and Achaea for a five-year term. In return he had to cease raiding mainland Italy and allow the grain supply to Rome to recommence».³⁴³

Following this event, he was appointed to the same functions as his father, being the first in command of the sea («θαλάσσης ἄρχειν»), which allowed him to increase his fleet. Partly thanks to this, he managed to take possession of Sicily, defend the island and take the refugees, amongst which, as seen above, were several men who had naval knowledge.

³⁴² App. *B Civ.* 4.10.82.

³⁴³ Lange 2016, 118-19. This view has been argued. In 1983, Shelley Stone published an article regarding the archaeological evidence of Sextus Pompeius' domination of Sicily, stating that sources imply his «popularity» (aside from certain cities, such as Messana), which was possibly inherited from his father's and increased by the prosperity of the island during this period, unlike what is described in historical sources (10-12). Stone also underlines the roles played by Agrippa and Lepidus in the defeat of Sextus Pompeius (13); archaeology attests «destruction and abandonment during the second half of the first century B.C.» See also Rogers 2008.

Thus, Octavianus sent a fleet, commanded by Saluidienus, in order to put an end to the situation, and a naval battle followed, close to Scyllaeum. Saluidienus was dealing with larger, sturdier ships, whilst Pompeius had the advantage of swift, lighter ship-types with well-prepared crews. The currents nearby would have been troublesome to the larger ships and crew of Saluidienus, which were unable to maintain their position. However, it seems that neither of the sides has a particular advantage, given that both are said to have been affected and with ships in need for repairs (in Saluidienus' case, in Balarus)³⁴⁴.

Meanwhile, Cleopatra's fleet continued its way to Octavianus and Antonius. Cassius stationed a part of his fleet in the Peloponnesus (sixty cataphract ships – *κατάφρακτος/κατάφρακτοι*), led by Murcus³⁴⁵. After the engagements at Scyllaeum, Octavianus answers Antonius' call for help and reaches Brundisium. This seems to have sufficed their purpose of crossing to the East. Within the fleet were both transport ships and warships, with the latter being constituted mainly of triremes, which worked as an escort to the round ships that were carrying the soldiers and supplies. The whole fleet carrying the army seems to have successfully crossed the strait. Later, the combined efforts of both Murcus and Domitius Ahenobarbus, with an extra fifty ships (making for a total of 130), attempt to attack some of the transport ships which stood behind, with a certain degree of success. It seems, thus, that while travelling in formation from West to East, the first ships to sail in Antonius and Octavianus' fleet were the transports carrying men; these were the most valuable element and were thus protected by triremes. Behind them (at a certain distance, if one is to believe that Ahenobarbus was not immediately by Murcus' side and had to take his time to make the journey) were the supply ships. It is not mentioned whether these were equally escorted by warships; perhaps the faction did not, at the time, have enough warships to protect both groups, and decided they would rather protect the men and attempt to get supplies on the spot if they were to lose the supply transports; however, one might wonder why they travelled at such a distance from the main formation. Perhaps it took longer for the provisions to be completely assembled, and the commanders took their departure earlier with that knowledge, or perhaps they

³⁴⁴ It seems that archaeological records point to a period of prosperity during the years of Sextus Pompeius' presence in Sicily, followed by a period of urban decline and destruction after Octavianus' intervention. See Stone 1983. According to Appian's further mention, Pompeius, Murcus and Ahenobarbus combined would have had a total of 260 ships. App. *B Civ.* 4.16.117.

³⁴⁵ It is likely that Murcus, being dispatched to Peloponnesus right after taking Rhodes, could have been the commander in the early battle against Rhodian ships. App. *B Civ.* 4.9.74.

intended to prevent aid from arriving to Murcus (as it did, in fact), who would have attempted to keep them from crossing over with the army³⁴⁶.

Ahead of these two formation lines were the fleets of Decidius and Norbanus. They had been sent by the Caesarian faction beforehand, and captured the lands of the Corpileans and Sapaeans, which would have allowed them to control the main land route (and, according to Appian, the only route) of travel from Asia to Europe. Throughout the speeches made by the Pompeian faction before the battle of the Philippi, Appian introduces us to a point of situation: the Pompeians considered themselves as having more ships, more cavalry, more auxiliaries (the Medes and Parthians), and the aid of Pompeius in Sicily, Murcus and Ahenobarbus in the Ionian Sea. They would also have the advantages of provisions – the Caesarian faction would only get them from Macedonia, whilst they could easily control the sea and receive supplies by sea or river from several points or cut out the enemy's allies from sending them any.

It seems that the events leading up to the battle of Philippi are confusing regarding the numbers, allies and fleets of each commander³⁴⁷. If the Pompeians are to be believed, they would have been at a great advantage regarding the fleet, but if that was so, why were they unable to prevent their enemies from travelling East? And if they had such ease to cut off their supplies, why would they have further engaged in battle, risking their fleet and men, instead of weakening the enemy through their lack of provisions? In the moments leading to the battle, not only the mainland is controlled by Cassius and Brutus from a hill (Mount Serrium), but they also send Tillius Cimber with the fleet and some soldiers (amongst which archers) to control the area nearby, scout places for future camps and, it seems, to frighten Norbanus, so that he would not attempt to approach Brutus and Cassius. It might be added, though, that the two commanders decide to take their army to Philippi by land, and struggle with the lack of supplies (especially water) along the way. One might question that option, given that they allegedly had a very large fleet nearby, including some warships, which would be stationed at Neapolis following their arrival in Philippi.

³⁴⁶ App. *B Civ.* 4.11.86.

³⁴⁷ Even though it is not our purpose to analyse this specific battle in detail, there is a report by UNESCO containing detailed information on the «city [and] battlefield, [which have not] been subjected to later intervention, since no later settlements grew up at this location». See «Archaeological Site of Philippi» 2015, 156.

Following a first engagement on land, the final battle is fought in the Ionian Sea. The source says that two legions were being taken to Octavianus on transport ships, together with other specialized troops travelling on triremes. These were met with 130 warships led by Murcus and Ahenobarbus. The meteorological situation did not help most of Octavianus' fleet, led by Domitius Calvinus: the wind was not blowing, and the transports were on a calm sea, which allowed their enemies to attack them by ramming. The triremes protecting Calvinus' transport ships were in too small a number to counter their enemies, even though there was an attempt to maintain the formation by using ropes to tie the ships together. Apparently, Murcus would have answered with a charge of burning arrows and the ships had to separate. One might question, however, why Murcus would allow for flammable materials to be lit inside his own ships, since there was the danger that his fleet would also suffer severely if it caught fire. Some of the soldiers in Calvinus' fleet attempt to board the enemy ships – a more usual Roman approach; even though Appian mentions this would have happened due to despair, it is likely that it was only usual orders of an attack formation. The image presented by Appian of half-burnt ships floating seems to imply that Murcus was carrying a significant amount of flammable combustible within his fleet³⁴⁸.

After the demise of Brutus and Cassius, the naval commanders, or *navarkos*, left behind will assemble themselves and attempt to go to Sicily to join Sextus, prior to his death. The fleets mentioned by the source are that of Cassius Parmesius, Clodius and Turulius. Regarding Parmesius, Appian mentions that, after learning about the death of Cassius, he would have burnt all ships except thirty and the sacred ship. Why he should have decided to burn the ships, considering the material resources needed to build them, is unclear, and one of the valid explanations is that he might not have had enough men to serve as his crew, and thus preferred to destroy the vessels instead of allowing his enemies to attain them; however, this might seem insufficient and the episode is still unclear; perhaps Cassius Parmesius only had thirty ships to begin with. The notion of Parmesius having a smaller fleet seems to coincide with the number of ships kept by Clodius – thirteen. Even the large fleet attributed to Turulius seems vague, given that the number of ships is unspecified. Regardless, it is likely that these individuals indeed struggled to fully man the ships, given that they had to recruit crews (including rowers) amidst the locals, including slaves and prisoners, which might not have had appropriate training for their

³⁴⁸ App. *B Civ.* 4.15.116.

functions. As for the naval command functions, these would have been fulfilled by several Romans who escaped from Thasos, including those accompanying Cicero (son of the elder Cicero, who had, by then, been murdered) and Lepidus. This assembly of men, together with Murcus and Ahenobarbus, is the one said to have sailed West³⁴⁹, and was still troublesome to Octavianus, given that they were able to cut off supply lines from Sicily to the Italian Peninsula – and intended to increase their efficiency, judging from Ahenobarbus and Murcus collecting a new fleet³⁵⁰.

Sextus Pompeius managed to grow in power by engaging in constant piracy³⁵¹, through which he assembled a significant number of ships and men³⁵² which, added to Murcus' eighty ships, seems substantial³⁵³. Appian goes as far as to question why did Pompeius not invade the Italian Peninsula, blaming it on his incompetence as a commander³⁵⁴. As for the Ionian Sea, it was still being crossed by Ahenobarbus with about seventy ships³⁵⁵.

³⁴⁹ App. *B Civ.* 5.1.2.

³⁵⁰ App. *B Civ.* 5.2.15; the issue of Pompeius' faction cutting food supplies reappears in the following chapter, App. *B Civ.* 5.3.18.

³⁵¹ Sextus' career began, however, not with pirate ships, but with actual Roman ones: at some point, he was appointed *ναύαρχος*, and though Octavianus had removed him from his office – which shows that, by this time, a consul would have had similar powers to Pompeius, that is, to appoint and fire naval officers – he kept the fleet. It seems that he would have had some resources, which enabled him to build triremes; to these, he would add the support of pirate communities, probably some of which had already been diplomatically engaged with his father. With these resources, he began pillaging the coasts of the Italian Peninsula and seized some Sicilian cities, amongst which Mylae and Tyndaris. It was at this point that he began the blockade, followed by the attack to Syracuse and the increasing numbers in his fleet, both with Syracusan ships and those sent to him from Africa by Quintus Cornificius. See Dio Cass. 48.17.

³⁵² According to Welch, «The soldiers who turned against Caesar's memory cannot be called 'Pompeian'. Nor can Marcus Brutus. Students of the period after November 43 should divest themselves of the unhelpful term 'Pompeian' and then attempt to identify a broad constituency more accurately as 'anti-Triumviral'». The term Pompeian will be used throughout this work to ease the understanding of the matter, given that it is directed towards naval issues and not politics, but Welch's note seemed worthy of inclusion. The author also argues whether his actions can be considered as piracy or not, together with those of his father; she considers that «Sextus Pompeius was no more a pirate than Antonius was the *latro* or gladiator of Cicero's expansive rhetoric in the *Philippics*». In practice, both factions would probably be engaging in what may be called piracy, naval incursions against each other; the notion of Sextus Pompeius and Murcus as being «piratical» is, according to the author, a matter of viewpoint within the sources (see Welch 2012a; 2012b); this does not, however, eliminate the possibility of Sextus Pompeius having associations with pirate communities outside the Roman sphere, and, as stated by de Souza, «It is also suggested by Maróti that two of Sextus Pompeius' most important admirals were ex-pirates. Menekrates and Menodoros (called Menas by Dio) are names which could have a Cilician origin (...). What is more significant about the pair is their skill in naval warfare (e.g. Dio 48.46), which they are unlikely to have acquired as pirates. They were both admirals and it was as admirals that they were important to Sextus Pompeius and the Republicans». See Souza [1999] 2002, 192.

³⁵³ This number would have kept growing through the building of new ships and the inclusion of Statius' fleet. See Dio Cass. 48.19. On Sextus, Octavianus and their conflict, see also Goldsworthy [2014] 2016, 166-78.

³⁵⁴ App. *B Civ.* 5.3.25.

³⁵⁵ According to Cassius, the fact that Sextus Pompeius controlled the sea around Sicily and Ahenobarbus the Ionian Gulf would have been hazardous to Octavianus' politics in Rome, for they would have added to the famine already felt within the city-state. See Dio Cass. 48.7.

It seems that the sea dislocations were out of Octavianus' control, and that his attempts to counter this (for instance, the triremes sailing around Brundisium) were feeble against the strength of his enemies. The famine felt within the Italian Peninsula would have propelled Octavianus to equip a fleet and send it to Rhegium, commanded by Saluidienus Rufus, and was successful in expelling Sextus and preventing further Italian incursions, locking him in Sicily. Whilst that happened, he would have ordered several new ships, different from the Roman ones and likely similar to those used in Britannia; these, however, he would not use to cross the strait. Octavianus' party would still be suffering from numeric inferiority regarding the fleet³⁵⁶, and he, like his adoptive father, would have preferred to rely on his infantry, which he unsuccessfully attempted to cross to Sicily.

The Perusine wars will not be accounted for in this study, given their brevity and the lack of information regarding naval command. Their immediate aftermath is more profitable regarding these subjects. Octavianus' opponents left by sea to several locations, amongst which Brundisium, Ravenna and Tarentum; others joined Murcus and Ahenobarbus, and others still joined Antonius. Five warships were in Brundisium, waiting for Fulvia, Antonius' wife, who was seemingly taken by an escort. Antonius' party went through several dislocations throughout this period, and Antonius himself went to Cyprus, Rhodes and Athens, where he found his wife. Appian mentions that his mother, Julia, would have been sent from Sicily with several warships and an escort³⁵⁷. When tensions between the members of the second Triumvirate once more begin to escalate, it seems that a similar situation to that of the first Triumvirate will ensure: the Julian faction will, once more, have a strong land-army but be lacking in ships, and the opposing faction, now an alliance between the Pompeians and the Antonins, had a large fleet of at least 500 vessels³⁵⁸. They also had the means for ordering the construction of more – Antonius is said to have ordered the building of 200 ships in the Asian provinces and departed from Corcyra to the Ionian Sea. By this period, he also has the advantage of an alliance with Ahenobarbus, the commander of a large fleet. They sailed together to Brundisium and besieged it (surrounding the harbour), together with several attempted sieges at the Italian Peninsula's coastal cities. By the combined actions of Antonius' army and Pompeius'

³⁵⁶ Dio Cass. 48.18.

³⁵⁷ App. *B Civ.* 5.6.52.

³⁵⁸ App. *B Civ.* 5.6.53.

fleet, commanded by Menodorus, they attacked Sardinia and managed to take control of it.

One of Antonius' stratagems for achieving more soldiers may be analysed in further detail. During the siege of Brundisium, he summons his army from Macedonia. Throughout the night, he would have sent warships and round ships carrying non-military individuals, whilst in the morning they would sail with armed soldiers, coming through as if they had arrived from Macedonia. The intention of this stratagem is questionable, but it may be related to an attempt to make Octavianus believe his fleet and army were superior in numbers. This seems, however, to involve some sort of switch during the night, or the arming of non-military people; it could also mean to make Octavianus believe that the greater portion of Antonius' fleet had arrived already, whilst they were still on their way from Macedonia. Appian's description (5.6.58) is unclear and the motivations and intentions are difficult to ascertain.

In the war between Octavianus and Antonius, and according to Cocceius' speech written by Appian, the Italian cities are said to have been without means to repel naval attacks from the Pompeian-Antonin faction³⁵⁹. However, if their fleet was so large, why did they not attack whilst they had this advantage, before Octavianus could have time to fortify these cities? One of three possibilities present themselves: either Octavianus' fleet was not as insignificant as the sources make it seem, or the Pompeian-Antonin fleet was significantly smaller than it is famed for; it is also possible that the latter did not have enough men to garrison these cities after they were taken. One can also wonder why there are not many mentions of supply routes and supply lines being cut, which probably meant that Octavianus managed to have supplies delivered to the cities, either by merchant vessels escorted by some of his warships (which he seems to have had, in spite of them being in small numbers, if one is to regard, for instance, the triremes present in Brundisium) or by land routes. Even after the renewed agreement between Octavianus and Antonius, Pompeius is still in control of the sea and preventing oriental trade-ships from reaching the Italian Peninsula by setting his fleet near Sicily.

³⁵⁹ Regarding the political interaction between Octavianus and Antonius, see Southern (2009a and 2009b), who observes their early relations, the evolution towards the Treaty of Brundisium in 40 BCE, the exchange of armies and fleets and the final years and preparations which ultimately culminate in the battle of Actium. On the last civil war between Octavianus and Antonius, see also Goldworthy [2014] 2016, 180-203.

The issues with Pompeius will continue after the renewed peace between Antonius and Octavianus. Throughout the negotiations between both, he is said to have made demonstrations of strength by using very large ships (ἐξήρης, a «six»). This is considered by Appian to have been the «commander's ship», and the usage of vessels this large is not mentioned for either of the naval conflicts studied heretofore. Throughout both encounters between the three individuals, ships are said to have always been present as a safety measure. Despite the seeming discrepancy between the idea suggested by sources and the actual number of ships, it does seem that Pompeius did have a larger fleet than his enemies, that this fleet might have included some very large vessels – whether these were practical in battle or not, will be left for a later chapter – and that these fleets would have been useful to Antonius and Octavianus, given that Pompeius would have received the command of the largest insular territories – Sicily, Sardinia and Corsica. It would also have served the purpose of providing the people of Rome with the cereals previously taken from them by means of this same fleet.

The peace between Octavianus and Pompeius will not last long. Soon, Pompeius will begin building new ships, and once more attacking vessels and coastal areas, preventing Rome from receiving its supplies. Appian says that Octavianus would have caught some pirates, and these would have made him acquainted with Pompeius' course of action, which might mean that he had some patrol ships at sea³⁶⁰. A more serious evidence might be the summoning of his warships stationed in Ravenna to Brundisium and Puteoli, with the intention of sailing across the strait into Sicily and wage war against Pompeius; however, as Antonius did not agree with this course of action, Octavianus instead attempted to fortify the coastal cities of the Italian Peninsula. According to Appian, he would have reassembled the fleet under the command of Calvisius as a *navarkos* and (a new instance in the source) would have put one of Antonius' former slaves, whom he turned to a free citizen, under Calvisius, as a commander³⁶¹. The terminology used by Appian referring to this man, named Menodorus, is that of «ὕποστρατηγέω», indicating a subordinate commander, and his functions are not clearly defined; one only knows that he was under the *navarkos* in hierarchy, but would have had a charge of sufficient importance to be mentioned. The other portion of his newly built fleet would have been

³⁶⁰ App. *B Civ.* 5.9.77.

³⁶¹ App. *B Civ.* 5.3.80.

brought by Cornificius to Tarentum, and at least one of the ships destroyed by poor meteorological conditions.

The fleets prepared against Pompeius sail simultaneously from several points in the Italian Peninsula – Octavianus departs from Tarentum, Caluisius sails from Etruria with Sabinus and Menodorus (with Sabinus probably being an *hypostratego* as well). Pompeius awaits Octavianus in Messana, whilst his commander, Menecrates, awaits Caluisius and Menodorus, observing their movements³⁶². Caluisius would have travelled with a formation shaped like a «crescent», close to the shore, and this would have prevented Menecrates from a naval combat at sea and obliged him to attempt to drive the enemy vessels closer to land and attack from there, thus cornering the enemy ships³⁶³. During the battle that followed, which was divided in several wings, there seem to have been collisions between ships on the right wing, whether by mismanagement or on purpose, which led to their partial destruction. It is likely that grappling hooks were also used, given that the ships of enemy commanders are said to have been close together and could not move; boarding bridges are specified. It seems like this combat is a mixture between traditional Roman fighting – with boarding, the use of infantry and archery (with the throwing of several projectiles) and the Greek/Phoenician method of ramming – even though rams are not mentioned, it is possible that the collisions would be caused by attempts to ram the enemy ships. Meanwhile, in the left wing, there was an attempt made by Caluisius to isolate some of the enemy ships, which seems to have been unsuccessful due to the intervention of Demochares. This individual is also referred to as a freedman and a *ὑποστράτηγος*.

Perhaps more important than the outcome of the battle, which seems to have been more negatively eventful to Octavianus' faction and positive to Pompeius', is the first specific approach to a social group within a specific function. Both sides have a second in command, a *hypostratego*, who comes from a slavery background. This is unmentioned in previous confrontations, and it seems that at least one of these former slaves had

³⁶² The source mentions, once again, that they would have been observed during their night-time movements in the open sea. This instance is not as relevant as others, for there is no naval engagement; however, it is worth mentioning, and one might question the capacity for both travelling by ship at night and following the movements of a fleet in the absence of daylight. See *App. B Civ.* 5.9.81.

³⁶³ One might wonder why there was no attempt to attack the enemy ships closer to the shore – perhaps out of fear of the ships being impeded from movement, either due to the conditions of the sea-banks or to their superior dimension. The source seems to contradict itself, given that an actual naval battle will follow.

enough naval combat knowledge to defeat a man who was higher in hierarchy, a *navarkos*.

As for Octavianus, he is said to have refused to attack Pompeius' fleet of forty ships, regardless of having a larger fleet himself, given that he was either fearful of fighting between the straits, or waiting for reinforcements – which might once more indicate a naval inferiority on Octavianus' side, given that it is not likely that he would have refused to do so if he could ascertain a victory, especially given the events that follow: Pompeius' attack to Octavianus' fleet and his refusal to fight back without the rest of the navy. Once again, the Julian fleet will attempt to defend itself by sailing close to the shore and is unsuccessful against Demochares' attacks³⁶⁴. Some of his commanders (among which Cornificius) keep going against the enemy, however, capturing, at least, the large «six», and attacking another vessel. This, together with Calvisius' arrival, would have caused the enemy's retreat. Octavianus' fleet suffered a great deal from this incursion – some ships are said to have been burnt (the matter of burning ships has been discussed above; whether burnt or not, it seems that some vessels were destroyed), and most of those that were not destroyed needed repairs. He would have also lost some of his crew, which meant that the ships were difficult to manage, some of them crashing against the strait's rocks. Adverse meteorological conditions would also have caused damage to the fleet and the equipment³⁶⁵.

Once again, it is unclear why Pompeius does not attack the remnants of Octavianus' fleet, nor does he attempt to attack the coastal cities, which Octavianus would have intended to defend. If the latter did not fear this sort of attacks, he would not have taken the option to fortify them; however, it seems difficult to explain why Pompeius would have, once again, decided to hold, especially with Octavianus' fleet in such a poor condition, or practically inexistent, according to the source³⁶⁶. One of Appian's explanations is that he thought the disaster that befell the enemy fleet was enough; it is likely that the defeat, followed by the storm at the strait of Messina, rendered Octavianus' fleet incapable of fighting; but the fact that Pompeius does not follow with attacks might mean that he wasn't at such a great advantage. He might have had enough ships, for instance, but

³⁶⁴ App. *B Civ.* 5.9.85.

³⁶⁵ This chapter mentions two elements of the crew: the regular element (*ιδιώτης*) and the steersman (*κυβερνήτης*).

³⁶⁶ It might be added that Sicily seems to have been prosper during the government of Sextus; coinage, particularly with naval motives, was issued frequently. See, for instance, J. Evans 2018.

lacked the infrastructures, or the materials for building siege engines which allowed him to attack the coastal settlements.

The first campaign in Sicily seems to not have been very successful. Octavianus immediately begins building new ships, and Pompeius' main course of action is to send Menodorus to spy on the shipyards. The latter, meanwhile, would have been resenting his stagnant military career – he would not have been promoted, and only kept the seven ships he brought with him, which seems to confirm that the units under the second-in-command did not make for a very large number – unless Menodorus can be accounted as an exception. His raids on the shipyards seem to have caused a certain deal of destruction – this, however, might be argued against, depending on the number of guardships that would be on the docks. This is unspecified; nonetheless, if Octavianus had left a significant number of guardships, it might be questioned whether Menodorus could have done substantial damage with only seven ships, regardless of their size and his skill³⁶⁷.

This latter period of war is possibly a turn-point in Octavianus' naval strategy. It is the first time that liburnes are specifically mentioned and, following Menodorus' skirmishes at the shipyards, Octavianus is said to have dismissed the *τριήραρχοι*, or captains of his triremes, to choose their own course of action³⁶⁸. The second incursion to Sicily consists of a highly bustling sequence. Octavianus departed to Vibo; Messala joined Lepidus and they stationed in Tauromenium; others were sent to Stylis and to the straits; Taurus sailed to Scylacium, opposite of Tauromenium. The enemy fleet was in Messana, and Sicily's main coastal cities were guarded, but it seems that Octavianus would make a bigger effort on mobility and preventing enemy movements. More legions would have been transported from Africa in transport ships, but with little success, given that Papias, a commander under Pompeius, would have intercepted them and destroyed most of the fleet. This might mean that Pompeius took a greater stance to keep watch on the southern and eastern sea, which might have proved a bigger threat: if Octavianus and his allies managed to sail south, they could have trapped him and his army in Sicily, whilst this way they only had control of the northern portions of the Mediterranean – the Tyrrhenian and the straits.

³⁶⁷ App. *B Civ.* 5.11.101.

³⁶⁸ Menodorus would have also been taken back into Octavianus' army, under the orders of Messala, who would be commanding in Agrippa's place.

Octavianus' mobility missions will continue, firstly throughout the Aeolian islands (where he would have decided to take Tauromenium, given that he believed the enemy legions to be far from that point), and secondly to the island of Hiera (this time, under the command of Agrippa). Agrippa intended to face Papias, but the fleet had been joined by that of Apollophanes; thus, he sent for Octavianus. His formation prior to the battle consists of placing the large, heavy ships in the centre, whilst keeping the rest of his fleet on the outer rim. Both fleets are said to have had at least two towers. Pompeius' fleet was well-prepared for naval combat, including the destruction of oars and ramming of ships, whilst Octavianus' fleet tried to counter this by taking advantage of their size and throwing projectiles and grappling hooks³⁶⁹. This does not mean that Agrippa was unable to use naval combat tactics and succeed: he seemingly damaged Papias' ship by similar techniques, destroying the keel and allowing water to sink it. Regardless of speed and size, Pompeius' fleet was unable to grant victory at Mylae against Agrippa and, seeing that reinforcements were coming, retreated to the shoals, where the large enemy ships could not follow them. This might be seen on the superior number of sunken Pompeian ships – thirty – when compared to the five lost by Agrippa. Whilst Octavianus was striving for mobility, it seems that Pompeius was now attempting to increase his ships' height.

Cassius Dio's account of this event is very close to that of Appian, albeit less detailed. Octavianus' attempts to counter Sextus' actions in Sicily are seen several times during the war (see, for instance, Books 47 and 48 of Cassius Dio). One of these attempts would have led to an engagement between Octavianus' fleet and Sextus', the latter commanded by Apollophanes (*«αὐτὰς τὸ ναυτικόν, Ἀπολλοφάνει προστάζας»*). Apollophanes would have found Octavianus and Sabinus while sailing. The Caesarian fleet would have held their ships in a tight formation, anchored close to each other; these ships would have been carrying heavy infantry, and the prows would be facing the enemy, so that the weakest points of the ships would not be exposed. This means that Octavianus would be undertaking the already well-known Roman tactics of employing infantry – in this case, heavy infantry – as the main resource in a sea battle. However, Apollophanes would have had two advantages: a greater number of smaller ships, which could constantly take away the wounded and bring reinforcements from other ships, probably left further back and protected by his formation; and several projectile devices, some of which including fire

³⁶⁹ The *corvus* is also mentioned, *κόραξ*; the treatment of this device will be left to a subsequent chapter.

(«*πυρφόροις βέλεσι*»)³⁷⁰. This would have forced Octavianus' fleet to release their anchors and sail away; during this retreat, part of the fleet would have been destroyed by a storm, and the source mentions that although Sabinus had a very experienced commander (Menas), most of the men in charge were relatively inexperienced in navigation, which would have been one of the causes for the great losses during the poor weather conditions³⁷¹. As for Sextus, he would have continued increasing his fleet and crews, by assembling teams of rowers from slave groups and subsequently training them³⁷².

Octavianus seems to have heavily relied on his allies at this moment. Some of them would have granted him ships, and Antonius joined him with three hundred. The expenses with the fleet were one of the reasons of Antonius' complaint to Octavianus, together with his need to return to Parthia for his campaign. The expedition to Sicily is repeatedly delayed until the following year, with an exchange of resources taking place amongst both men: Antonius would provide Octavianus with ships (one hundred and twenty, sent to Tarentum) whilst Octavianus would give him twenty thousand legionaries³⁷³. It is said by Appian that Octavia, sister to Octavianus, would have presented him with ten ships of a different typology. The name of this ship would be *φάσηλος*, *phaselus*, and it would be a combination between a long-ship and a transport-ship³⁷⁴.

This event was followed by Menodorus' desertion – the slave turned into a second-in-command by Octavianus. When leaving, he took seven ships to Sextus Pompeius. One might wonder if this would be close to the usual amount of ships commanded by an individual in Menodorus' position. The fact is that he does not seem to be a great loss as

³⁷⁰ Throughout this chapter, several circumstances have mentioned the usage of fire within ships. This possibility will be further analysed in the following chapter; for now, regarding this context, one may ascertain that, whether fire, stone or other material, it seems that Apollophanes was using projectiles against Octavianus' fleet; that his ships, being swifter and smaller, would have the advantage of speed, so they could dodge enemy projectiles whilst throwing their own; and that a war-engine of some sort was likely being used to propel these missiles, given the superior height of the enemy ships. See Dio Cass. 48.47. It is also worthy of mention that, according to the same source, a flagship of a fleet would usually carry a light during night navigation, in order to serve as guide to the other ships. Dio Cass. 49.17.

³⁷¹ This might counter the statement which says that Apollophanes seemed to have faster ships than Octavianus. If Octavianus' fleet was able to escape, perhaps his ships were faster than Apollophanes'; however, they may have been aided by the wind and by surprising the enemy whilst taking another course of action. It seems that Apollophanes, for instance, wouldn't be circling Octavianus' fleet even at this moment in battle, probably to protect the ships that stayed behind to provide him fresh warriors. Dio Cass. 48.47.

³⁷² Dio Cass. 48.49.

³⁷³ Also seen in Dio Cass. 48.54.

³⁷⁴ App. *B Civ.* 5.10.95: «*ἐπιμήκτοις ἔκ τε φορτίδων νεῶν καὶ μακρῶν*».

a commander, given that he is promptly replaced by Agrippa, and the expedition to Sicily happens as soon as the fleet is ready. There would be three flotillas sailing against Pompeius, in an attempt to attack the three sides of the island: Lepidus sailed from Africa with 1000 round ships and seventy war ships, Taurus departed from Tarentum with 102 ships (it seems that there were more, at least 130, but they could not be manned because some of the oarsmen had died) and Octavianus left from Puteoli, sailing on the flagship (*ναυαρχίς*). Some ships went ahead on scouting missions, and a fourth group would come behind Octavianus' as guards. Some of the round cargo ships on Lepidus' fleet were destroyed by a storm, but he managed to attack and take some coastal cities in Sicily; some of the guard ships commanded by Appius also were destroyed due to similar reasons, and Octavianus' as well (with the particular mention of a «six»). In total, Octavianus lost six of the largest ships, twenty-six of the lightest, and some of the *λιβυρνίδες*, or «liburnes». Accordingly, these losses could not easily be replaced in a short period of time, so some of the crews were sent to man the ships left behind in Taurus.

Several reconnaissance missions would have been carried by both sides prior to the final combat, both by Agrippa and Demochares; it seems that Agrippa would be commanding heavier ships, different from those being used by Octavianus Caesar³⁷⁵. Cassius says that Demochares would have more ships (and easier to manoeuvre), whilst Octavianus would have higher vessels (to which the turrets added height); the warriors on each side, referred to as *ἐπιβάτης/ἐπιβάτης*³⁷⁶, are said to be of similar strength and readiness, except that Sextus' were mostly deserters and would have had greater reason to fear a negative outcome. The numbers mentioned for the final engagement of this war are of three hundred ships on each side, including towers and engines³⁷⁷. On Agrippa's side, the source specifically mentions the use of the harpago, a sort of grappling hook projected by some type of catapult. The battle itself was a mingle of ship-on-ship combat and projectile action, with a heavy reliance on the harpago from Agrippa: it would have prevented the enemy ships from escaping their range and countered the enemy's lightness and swiftness³⁷⁸. During the second stage of the battle, the traditional Roman style of engaging

³⁷⁵ Dio Cass. 49.2-3.

³⁷⁶ Dio Cass. 49.3.2.

³⁷⁷ The use of turrets, engines, projectiles and hooks is also stated by Cassius in Dio Cass. 49.3. These would have made it difficult for Sextus' fleet to attack enemy ships, something that would have been done by dashing the ships against the enemy and damaging the prow and stern. The greatest disadvantage for Agrippa would have been the fact that the enemy could easily furnish other ships whenever one of theirs was sinking, thus saving a substantial amount of the crew.

³⁷⁸ App. *B Civ.* 5.12.119.

in infantry battles was used; confusion ensued by the fact that there was a common language spoken amidst both fleets and that they easily understood each other's intentions and codewords. Octavianus lost three ships, Pompeius lost twenty-eight, and many others were destroyed afterwards. Many of Pompeius' forces seem to have deserted, and Octavianus was able to take Messana.

According to Dio, Octavianus would have departed from Baiae with Lepidus, taking his own ships and expecting Antonius'; the said ships would have a greater height and strong timber, in order to be able to carry many warriors and turrets, but also to withstand the violent impacts of collision during battle³⁷⁹. Once again, some ships are destroyed by a storm, and the enemy, commanded by Menas (Menodorus), who had by then deserted, attacked the fleet. It seems that Menas would have changed sides yet again, so that this specific occasion would not have been troublesome to Octavianus in the long run. Pompeius will subsequently divide his forces. He leaves some behind at Mylae to counter those of Agrippa³⁸⁰, and takes the rest to Tauromenium, to prevent Octavianus' attack. Octavianus would have sailed in a liburna, whilst his right wing was left to Titinius and the left to Carcius. The aftermath is indecisive, and Octavianus remains amongst his lighter, smaller ships, until he is taken ashore in skiffs.

Up to Agrippa's taking Tyndaris³⁸¹, naval actions will mostly consist of infantry dislocations; afterwards, Octavianus' efforts mostly focus on Tyndaris. Most of Sicily was being closely watched by their enemies, and it seems that the coastal cities had projectile engines ready to fire against the ships in case any of them approached, which might explain, on one hand, why Octavianus struggled to reach Sicily and take the larger cities and, on the other, why Pompeius usually opted for staying back instead of attacking: given that his resources and support were not enough to keep conquests in the Italian Peninsula, and given that the coastal cities in Sicily were well-prepared to repel these attacks, defence might have seemed a safer option. Only when Octavianus achieves to place steady garrisons in Sicily will he be able to become more successful and capture

³⁷⁹ «ὑπέσχητο δ' οὖν αὐτῷ βοηθήσειν μέγιστον δὲ τῷ τε ὕψει τῶν σκαφῶν καὶ τῇ παχύτητι τῶν ξύλων ἐθάρσει ὑπερπαχῇ τε γὰρ καὶ ὑπερμεγέθει κατεσκευάσθη ὥστε ἐπιβάτας τε πλείστον ὅσους ἄγειν 'καὶ γὰρ πύργους ἔφερον (...)» Dio Cass. 49.1.2, regarding the size, height and sturdiness of the vessels, the numbers of crew and the towers.

³⁸⁰ Who, meanwhile, would have been charged with training a new crew and building and fitting a fleet, all around the coast of the Italian Peninsula? Most of these ships would have been stored within man-built channels along the Lucrine lake, to prevent coastal attacks from Sextus. Dio Cass. 48.49-51.

³⁸¹ Dio Cass. 49.7.

several of the cities which provided supplies to his enemies. When the supply lines had finally been cut, Pompeius was forced to engage in a large battle. It might be doubted whether he sent word to Octavianus, asking him to decide the conflict at sea; it is more likely that, being out of any further options, Pompeius decided to engage in battle or to attempt to cut through the enemy lines to re-establish supply lines. It seems even more liable of doubt that Octavianus would have accepted to engage in such a battle doubting his own fleet's capacity for victory. The battle begins with a sound of a trumpet, when all ships joined battle near land, forming a single line and taking place in shallow waters, thus being focused mostly on infantry (Dio Cass. 49.9-10.).

Octavianus ends the war with six-hundred warships and several transport ships³⁸². The latter are said to have been hired and, subsequently, sent back to their owners, given that he had no need for the same sort of mobility as before, against Pompeius, and also had a large number of warships in his possession, which he could use to transport troops. Pompeius attempted to join Antonius with the ships he had left (according to Appian, at least seventeen escaped, being destroyed during the last battle). He attempted a failed attack on Cyzicus and engaged in several land conflicts against Furnius. The latter received several ships from Sicily (seventy, according to Appian), from Octavianus' fleet (the one lent by Antonius); Titius also came with 120 ships from Syria. Pompeius is said to have burned his own ships and armed his oarsmen, attempting to fight on land; but even his closest allies are said to have deserted to Antonius. Not long afterwards, he is captured, and the former «master of the Western sea» will no longer be a threat to Antonius and Octavianus.

This will lead to those known as the final wars of the Roman Republic, between Marcus Antonius and Octavianus. But before these events take place, both these men will continue their military careers into other wars. Antonius goes to Parthia; regarding this expedition, there is very little information that is worthy of including in this chapter. As for Octavianus, he goes to Pannonia. Here, he would have advanced to Siscia; the inhabitants would have felt secure due to two navigable rivers, the Colops and the Sauus. Octavianus would have used small vessels – provided by his allies – and attacked the city;

³⁸² Unmentioned by Appian is a naval battle between Menecrates and Caluisius Sabinus, which was lost by the Caesarian faction, despite the death of Menecrates. According to Cassius, Sextus would have felt this loss severely, which seems to point that the loss of a commander might have been as hazardous to a fleet as the loss of ships or sailors (Dio Cass. 48.46). Also according to Diodorus, Octavianus would have returned to Antonius a number of ships equal to the ones he borrowed (Dio Cass. 49.14).

we have notice of several unspecified naval battles occurring in the river Colops. Whether these can be called actual naval battles is arguable, and would depend on the river's width, depth and flow³⁸³. Menas, the man who had fluctuated between the two factions, a freedman of Sextus Pompeius, would have been killed in one of these battles, which means that sea commanders would also be employed in river battles when necessary³⁸⁴.

Following the definite defeat of Pompeius and his allies, the last stage of civil wars within the Roman Republic will begin, with the war between Octavianus and Marcus Antonius³⁸⁵. This war will lead to Actium, the last significant naval battle within the Roman Mediterranean, which will subsequently allow some years of relative peace, especially when compared to the period of the civil wars and the advent of Cilician piracy. Prior to the war, and according to Cassius Dio, both factions would have made great preparations, and it seems that Octavianus would control the Italian Peninsula, Gallia, Hispania, Illyricum, a substantial part of Africa and the islands within the Mediterranean, including the two largest, Sicily and Sardinia; as for Antonius, he would have had the eastern side of the Mediterranean to support him, thus part of Asia, Egypt, Cyrene, Thrace, the Greeks, Macedonia and several islands and islets (although unmentioned, it is possible that Cyprus was also his ally³⁸⁶).

The fleets would have been set in motion, particularly to attend to reconnaissance missions³⁸⁷; it seems that Antonius' fleet would not have been very cohesive and well-prepared, due to the different origins of the sailors (and, probably, of the oarsmen) and their lack of practice together³⁸⁸. Agrippa, sent by Antonius, was stationed in Methone and doing several incursions to transport ships in the East, which is said to have upset Antonius, probably due to Agrippa's taking supplies from his army. The Caesarian faction

³⁸³ Dio Cass. 49.37.

³⁸⁴ After this point, Cassius says that Octavianus would be planning a third incursion in Britannia, which would have been prevented by uprisings in Dalmatia. Dio Cass. 49.38.

³⁸⁵ Between the death of Sextus Pompeius in 35 BCE and the battle of Actium in 33 BCE, Octavianus would have been engaged in conflicts with the Illyrians, in what Gruen ([1996] 2004) calls an attempt to «enhance his military reputation» and achieve «badges of courage» (172). The results are described as «modest». Kos (2012) speaks of the naval intervention during this conflict, stating that both seas and rivers would have been engaged in transporting the armies (94), observing the several locations which Octavianus may have used as a military base, and observing that by attaining the Liburnian ships the commander would have granted himself a valuable asset in the future war with Antonius (97). There is also an observation of possible river battles in Segesta (Sisak), which, however, are unmentioned by Appian and only «briefly» by Cassius Dio (quoting, for instance, App. *Ill.* 22.65 and Dio Cass. 49.37).

³⁸⁶ Dio Cass. 50.6.

³⁸⁷ As seen in Dio Cass. 50.9, when the fleet of Octavianus sends forth several ships close to Corcyra in order to detect Antonius and his movements, which drives him to return to the Peloponnesus.

³⁸⁸ Dio Cass. 50.11.

would have the advantage of supplies coming from Sicily, Sardinia, Galia and Hispania, whilst the Antonin faction was being blockaded in the eastern Mediterranean and had to rely, mostly, on Egypt. It seems that Octavianus would have been aware of his advantage in pushing Antonius further, and thus decided to attack him in the East. He departs from Brundisium with his fleet, taking senators, equites and soldiers alike (possibly, the former serving as commanders; these would have to provide for their own supplies), crossing into the Ionian Gulf and sailing towards Actium, where Antonius' fleet would be stationed. It seems that the decision to go to Actium and attack the fleet might have been of some significance and deliberate: Octavianus did not attack Antonius or the place where he was stationed, and did not intend for a land battle, but instead preferred to cut his enemy's possibility of movement³⁸⁹.

Octavianus' first step is to take Corcyra with the fleet and station it there, while disembarking the cavalry at the Ceraunian mountains. Then, as no battle would follow, he took Nicopolis, from where he was able to see most of the sea, the islands and the harbours – thus, a watch station. He would have fortified the watch station and the harbour of Comarus, thus being able to watch all movements from Antonius' fleet in Actium and blockading it. Antonius' army would have fortified their surroundings with turrets and stationed several ships along the strait close to the Ambracian Gulf³⁹⁰. As soon as Antonius joins his fleet, Octavianus doesn't seem as keen to give battle, and attempts to split Antonius' resources before attacking: he endeavoured to attract some of Antonius' land army to the hinterland, so that Agrippa could make a quick attack against some elements of Antonius' fleet. He would have succeeded in capturing the settlements of Leucas, Patrae and Corinth, as well as attaining more ships from Leucas³⁹¹. There will be another skirmish between Agrippa, Tarius and Sosius, with no avail to the Antonin faction.

Prior to the actual Battle of Actium, it seems that Antonius and Cleopatra would be concerned with the lack of supplies and would be envisioning a retreat³⁹². During

³⁸⁹ Dio Cass. 50.11-12.

³⁹⁰ Dio Cass. 50.12.

³⁹¹ Dio Cass. 50.13.

³⁹² J. Richardson 2012a, 71: «Early in the year Agrippa (...) crossed from Italy to interrupt Antonius' supply route and succeeded in taking one of his bases at Methone (...), from which he was able to prevent merchant ships bringing provisions to Antonius' armies. (...) Agrippa meanwhile captured the island of Leucas just to south, which gave the Caesarian fleet a far safer anchorage, and followed this up with a lightning attack on Patrae, which he took. Antonius was now effectively blockaded and cut off from his supply routes, and was forced to withdraw back across the strait to his previous camp». See Richardson 2012a. According to

Antonius' speech to the army, Cassius mentions that Antonius would have larger, bulkier, lengthier vessels with higher prows and a great number of oars; according to him, this would prevent Octavianus' fleet from successfully ramming or throwing projectiles at them. Accordingly, his own ships would carry many archers and slingers, together with turrets, which would give them even further height³⁹³. The situation of Antonius' fleet seems to have been of great instability, considering that he would have asked his trusted men to board the ships and prevent eventual mutinies³⁹⁴. Octavianus would have intended to attack the rear of the enemy fleet only, but Agrippa would have insisted on a different course of action, also due to the fact that Antonius' fleet would have been damaged by a storm, and due to them travelling with sails and not oars, which would give them increased speed.

As mentioned by Powell:

Scholars still debate whether Antonius intended all along to break through Agrippa's blockade taking the treasure with him and fight another day, or that he intended to fight and win there, but sensing defeat, he leapt aboard the Egyptian queen's fast flagship and escaped. At that moment Agrippa's leadership was crucial. He did not chase after them as many lesser generals would have, but stuck to the agreed battle plan and remained to achieve the strategic imperative, which was to reduce and destroy his opponents' ability to fight and rag out the war. His decision to use smaller, lighter vessels enabled him to take advantage of the confusion on his opponent's side by driving his ships at speed deep within their lines³⁹⁵.

The Battle of Actium will be a divisive matter within families³⁹⁶. It is said by Appian that two men from the family Metellus, father and son, would have fought in opposite sides

Burstein, «Antonius (...) repeated Pompeius' mistake of 48 B.C.E. by choosing to fight a defensive campaign in Greece instead of carrying the war to Octavian in Italy», and «by late summer 31 B.C.E., Antonius' naval forces were blockaded in the bay of Actium in western Greece». See Burstein [2004] 2007, 30-31.

³⁹³ Dio Cass. 50.18.

³⁹⁴ Dio Cass. 50.23.

³⁹⁵ Powell 2015, 204.

³⁹⁶ On traditional and recent views, see Lange 2011, who discusses the differences of interpretation and the perspective of a retreat proposed by Dio (50.14, 30.3-4). Lange considers that «the simplest resolution of the source problem is to accept the (probably) Livian figures and suppose that in the battle Antonius had 170 warships (with or without the 60 Egyptian vessels) and Octavian around 250», which presents Octavianus with a majority, albeit not significantly large (615). See also Southern 2009b, who observes that winning the battle of Actium was not the equivalent to winning the war, and that the aftermath closely mirrors that of the conflict between Julius Caesar and Pompeius, with Antonius retreating to Egypt. However, she states that «reconstitution of a defeated fleet and army required energy», and that Antonius had lost his determination and seemed to believe the war was lost, attempting to aid his friends and dealing with the issues of deserters (150). Antonius and Cleopatra would have lost the loyalty of the legions stationed in Cyrenaica (151) and in spite of Cleopatra's arrival in Alexandria as victorious, Southern says that «it was clear now that he [Antonius] had made his worst error in leaving the western half of the Roman world to Octavian» (151). There were issues in Samos (veteran uprisings) and with Lepidus, and only later was Octavianus able to consolidate his victory over Antonius.

(Antonius and Octavianus, respectively³⁹⁷). Antonius didn't seem to want to give battle; Octavianus, at first, set out a single line of ships in formation, with the smaller ships to provide him with information regarding the fight, or to carry men to and from the centre of it (for he, too, would be carrying infantry men, archers and projectiles); he then advanced against Antonius with a crescent formation, attempting to close him within by attacking his flanks first. Thus, the battle began. Octavianus had the advantage in the respect of swiftness of ships and their outer protection; they could thus easily ram or back away from conflict if necessary. This succession of small, fast attacks not only caused significant damage, but also prevented the enemy archers from shooting their projectiles properly. Cassius compares the fight to a confrontation between cavalry and heavy infantry: the cavalry (Caesarian fleet) would make fast, swift attacks against the infantry (Antonin), wearing out their equipment and men. The narration which tells that Cleopatra would have fled from Actium due to anxiety caused by the indecision is not likely to be so, for three main reasons:

- 1) The Antonin fleet would already be retreating. Octavianus had been blockading them and preventing them from receiving supplies and wearing out smaller portions of the fleet with swift attacks made by Agrippa; thus, by the time the great confrontation comes, the Antonin fleet and men are possibly in smaller numbers and wearied out.
- 2) The Antonin fleet also seems to have had some issues. Several men are said to have deserted Antonius, for different reasons; this might mean that he lost several commanders (this is found throughout book 50 of Dio Cassius). He would have also felt the need to protect his ships from potential mutinies, which means that his crews were dissatisfied and potentially demoralized. They were also very heterogeneous and had not practiced together often prior to Actium.
- 3) The Antonin fleet was at a disadvantage regarding the size of its ships. Even though they were larger and sturdier, this fact alone doesn't assure victory in naval battles, as seen in several situations throughout this chapter; at most, it might even be hazardous. Agrippa's swift attacks would be wearing out the enemy fleet, which, relying mostly on their infantry and projectiles, were thus unable to take advantage of their greatest asset: the archers were unable to act

³⁹⁷ App *B Civ.* 4.6.42.

(due to the speed with which the enemy ships attacked and retreated out of their range, and due to the constant ramming, which would have made it difficult to aim), and the infantry was deemed useless, because there was no boarding situation until later in the battle; at this point, Octavianus will also have the advantage of the smaller ships carrying reinforcements to the larger ships³⁹⁸.

- 4) Given that Antonius and Cleopatra were already intending to retreat, it is possible that Actium followed this pattern: it begins as a retreat (they were sailing, not using the oars, thus prepared for long travels and not for fighting), evolves into an unwanted naval battle to the Antonin faction, and ends as a way to cover the already-intended retreat. The disadvantage at which the Antonin fleet seems to have been might be reinforced by Agrippa's plan of attacking the whole of it at once, instead of only the rear-guard, as Octavianus had intended.
- 5) Agrippa's battle tactics (and thus the impediment of Antonius' retreat) had some contribution from Octavianus' decision to use flammable projectiles against the enemy ships during the last stage of the battle, which already involved some boarding of enemy ships (see, for instance, the use of grappling hooks in Dio Cass. 50.34; however, attempting to set ships on fire whilst boarding seems counterproductive for Octavianus and Agrippa). It is possible that Octavianus' effort in preventing Antonius' retreat would be an attempt to keep him from reorganising: by destroying a significant part of his fleet – even if at the sacrifice of some of his own ships and men, as might have happened during the turmoil – Octavianus would destroy a significant part of Antonius' movement capacity (which was already hampered by Agrippa's incursions)³⁹⁹. It is also possible that Antonius' infantry would be equipped in a way that would benefit them against the enemy, and that the throwing of flammable

³⁹⁸ Dio Cass. 50.33.

³⁹⁹ There is a recent study in this regard which uses scientific methods to demonstrate the reasoning behind the difficulties Antonius' fleet may have faced during the battle of Actium. It concludes by stating that ramming would have been difficult or impossible due to «wave resistance», which was «increased up to ten times compared to the Octavian fleet». The authors call this a «physical echeneis», in a reference to ancient sources, such as Pliny the Elder and Ovid, who state that this small fish would have been difficult the movements of Antonius' fleet; it seems that the larger vessels would therefore have faced issues to dislocate themselves in the water. This may be allied to the «dead-water phenomenon», with «two water layers of different densities». This study will present future results regarding ancient naval battles, regarding ship movement and resistance. See Fourdrinoy et al. 2019.

projectiles would have been Octavianus' way of preventing actual infantry confrontation.

In a way, it seems that two different systems would be at stake: Antonius would have adopted and developed the Roman traditional fighting system – to use the ships as floating platforms, which are now fortified – whilst Agrippa would have engaged in an actual sea-fight, adapting from his smaller, swifter typology of ships. From this moment onwards, Octavianus was able to capture enemy settlements and harbours in the East⁴⁰⁰. Antonius and Cleopatra would have yet attempted to reorganise, making plans for an incursion to Hispania and to stir a rebellion there, but their potential allies began declining them help. The province of Syria destroyed several ships that could travel to the Red Sea, by orders of Quintus Didius. Antonius lost some of his ships in a manoeuvre from Gallus, whilst Octavianus conquered Pelusium⁴⁰¹.

Following Octavianus' and Agrippa's victory in Actium, there will be no mentions of large-scale naval interventions. The interior sea – our Mediterranean – was relatively pacified, given that Rome already dominated the coastal areas around its basin, and the civil wars were through. The few mentions one can find regarding seas or rivers after the battle are usually those of voyages made by Octavianus or his commanders. One can observe, for instance, that of Drusus: during upheavals in Gallia, he would have repelled the Germanic tribes (which, once again, crossed the Rhine), marched along the river to the territory of the Sigambri, and sailed down the Rhine to the ocean. He would then have crossed a lake and entered the land of the Chauci, where his ships would have struggled against oceanic navigation⁴⁰². During the next year, he would have crossed the Rhine himself and attacked several tribes, and would have intended to cross the Visurgis, but became out of supplies; however, he would still achieve to attack several tribes along the Rhine and fortify locations there as well⁴⁰³. Tiberius would also have crossed the Rhine, following the death of Drusus⁴⁰⁴; at this point, crossing the Rhine seems to have become

⁴⁰⁰ Dio Cass. 51.1.

⁴⁰¹ The history of Cleopatra and Antonius' suicide does not partake in our investigation. According to Dio, it seems that, even as this would be about to happen, Antonius would still be intending to fight at sea or go to Hispania, but that Cleopatra would have prevented him. It seems likely that their position at sea would have been hard to manage at this point, with the loss of a significant amount of their fleet, the desertion of former allies and the constant capacity for supplies from all the Mediterranean which Octavianus had engaged; whatever political machinations were involved between Cleopatra and Octavianus is a topic for a different investigation. See Fourdrinoy et al. 2019.

⁴⁰² Dio Cass. 53.32.

⁴⁰³ Dio Cass. 54.33. Later, he would have tried and failed to cross the Albis river. Dio Cass. 55.1.

⁴⁰⁴ Dio Cass. 55.6.

a more regular affair than it would have been when Caesar did so, and the river was mostly used to transport soldiers and supplies in pacification campaigns throughout Gallia and Germania. In fact, the Germanic uprisings would have led to the concentration of Roman soldiers along the Rhine⁴⁰⁵, which would by then have become heavily fortified. Octavianus would have also opened a canal by the river Po, that would have a mouth to a safe harbour for at least two hundred and fifty ships, according to Dio⁴⁰⁶. He would also have taken measures to prevent some exiles from owning ships: they could not freely cross the sea, nor possess more than one transport ship and two warships (with oars; Dio Cass. 56.27).

Some final considerations on the matter of command:

- 1) Roman commanders are nearly always present during naval combat, but they do not always take command functions. It is often the case that they will be by-standers, whether more participant or less, with different degrees of relying upon allies. When a Roman is in command during the 1st century BCE, it is often the case that it will be a legate rather than a consul, at least during the first half of the century; this preference will slowly shift towards the middle, where one can find Pompeius and his son as strong figures at sea. During the last civil war, however, the leading figure in naval combats will not be the centre of the faction, Octavianus, but his second-in-command Agrippa; the same cannot be said for Antonius, who seems a more active intervenient⁴⁰⁷.
- 2) The fighting techniques chosen by Roman commanders at sea are varied and translate an inheritance originated from multiple peoples. We can observe circumstances of the traditional Roman approach of the 3rd century BCE (ships as floating platforms, meant for boarding), the Phoenician/Greek approach (actual ship-on-ship combat) and a combination of both.

⁴⁰⁵ Dio Cass. 56.18.

⁴⁰⁶ Dio Cass. 55.33.

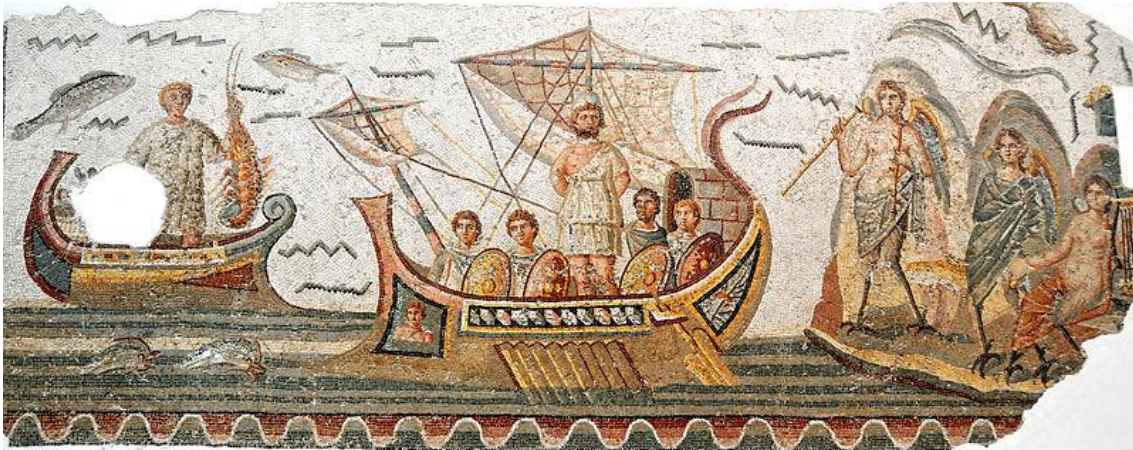
⁴⁰⁷ Octavianus' role as commander has been analysed by some authors. Everitt mentions several occasions in which he would have «missed the chance» to participate in battle and relates it to a «delicate health» (43), with «frequent bouts of ill health» (153) by opposition to Antonius, «strong and gloriously fit». He would have been absent from the Battle of the Philippi (91). The author states that Octavianus often became ill during «crisis», especially if it was military-related (213). This is also observed by L. Powell (2008, 105-107), who looks into the several sources for this matter: the memories of Octavianus, in which his absence from the Philippi result from a «(prophetic)» dream; Plutarch «(in the *Brutus* 41.5, and in the *Antony* 22.1 f.)» also mentions the dream, but by one of Octavianus' friends, as well as Appian and Pliny the Elder, who respectively speak of a dream and a potential sickness. See also Charlesworth 1933, on the propaganda both against Marcus Antonius and Octavianus.

- 3) The evolution of Rome's naval command seems to closely follow that of the army during the 1st century BCE. As the soldiers become increasingly bound to the figure of the commander rather than that of the city-state, the same seems to happen in the navy, something which can be observed in the language used by the sources themselves. One can observe the preferences, or, perhaps, the conditioning of each commander towards certain types of ships; the winning faction of the last civil war opts for swiftness and lightness against sturdiness and strength.
- 4) The main element of Rome's wars at sea is not naval combat, but logistics. One can observe the commanders fighting to control certain harbours and supply routes in order to blockade the enemy faction. This is already noticeable in the beginning of the century but grows into further notoriety as Rome's enemies in the Mediterranean slowly disappear and the war for the control of the sea is fought between the Romans themselves.
- 5) The most noticeable element of the qualities which made a Roman commander at sea was their flexibility. They were quick to summon allies, adapt the landmarks, follow river courses and build or destroy bridges. The example of Julius Caesar, who went as far as to attempt the construction of new ship types during his campaigns in the Atlantic, is perhaps one of the most elucidative of this matter for the 1st century BCE.

II

SHIPS

II. VELAE ET REMI



Ulysses and the Sirens. 3rd century CE, Dougga. Currently at the Bardo Museum⁴⁰⁸.

1. Approaching Roman ships in the 21st century

There are four immediate approaches when investigating ancient Roman ships, each with their own particularities, benefits and issues. Archaeology is the one which can provide a more immediate result, since it is the only field that can show material evidence of vessels from the past. Only through archaeology may one confirm matters such as ship design and materials, and only experimental archaeology, whether with physical or digital models, would permit further understanding regarding the truth of their effective reactions during transport and combat situations⁴⁰⁹. However, to study ancient ship-types through archaeology alone presents a series of complications. The number of shipwrecks is not substantial enough, nor are those that do exist usually well-preserved to an extent which will allow for determinant conclusions. In addition, an ancient shipwreck, even when under the best of circumstances, cannot fully determine how the ship would react during an event which presented physical stress to the vessel, nor can it confirm or deny the usage of machinery and engines. Even in the best of conditions, one will struggle to find archaeological data for the specific time period under analysis through this project: under the guidance of the Black Sea M.A.P., the Maritime Archaeology Project, sixty ships have

⁴⁰⁸ Image from Wikimedia Commons.

⁴⁰⁹ Studies in naval archaeology can be traced far back – as an example, one can look at Augustin Jal, who in 1840 observed ancient ship types in several locations, from Egypt to the Normans, and included several illustrations to exemplify them.

been found thus far, and their time-span goes as far as the 5th – 4th century BCE, but the project in itself, having started in 2015, is still too recent for much information to be retrieved and has the added difficulty of working with vessels sunk to a depth of 94 metres⁴¹⁰. Navis I, on the other hand, has a significant number of Roman ships, but few have been dated to the 1st century BCE-1st century CE, with a predominance of vessels from the 2nd century CE onwards⁴¹¹.

These factors being considered, other methods are necessary to reach more conclusions and, together with the archaeological contributes, permit the construction of further knowledge. The investigator may turn to iconography and observe the ancient representations. There is a substantial number of Roman mosaics and frescos with maritime motives, amongst which both transport and warships are represented. However, these may often create more doubts than they solve – the ancient notions of perspective and the techniques in use may distort modern interpretation⁴¹². Although it is impossible to prove that a ship exactly like the one represented in the image above was not in use during the late imperial period, it is verifiable, through archaeological data, that even the smaller transports would not usually have such short masts, which probably indicates that this was an artistic interpretation rather than an accurate depiction.

Considering the difficulties with material evidence, multidisciplinary approaches require the access to historical and epigraphical sources. These present a significant setback: detailed descriptions of ships, including their materials and apparel, are scarce; when they do exist, one will often find that they are vague. The sources may tell us that a ship carried one or two towers but will not usually elucidate as to the design of the said towers, how they were placed inside the ship, their construction methods and materials. What may have been obvious to a Roman who lived in the 1st century BCE eludes modern

⁴¹⁰ <http://cma.soton.ac.uk/research/black-sea-map/2500-years-sea-faring-history-revealed-deep-black-sea/>

⁴¹¹ Since this is currently the most complete asset available, however, we have opted for focusing on Navis I as the core of our interpretation.

⁴¹² Studies on the Roman perspective in paintings and mosaics are still being developed. For many years, research would focus on the comparison between the painting styles in the Early Modern Age (thus, linear perspective) and try to apply it to the Roman techniques (see, for instance, Kleiner [2007] 2018, 72). However, the most recent studies point towards a different understanding of perspective in Roman art, not relying on the idea of «one-point perspective», but instead on «non-scientific types of architectural perspective – convergence and parallel», which are mostly focused on the «visual experience of perspectival convergence» (Stinson 2011: 403; 405). As mentioned in Stinson's article and in reference to Panofsky's work, the ancient «scaenographia» and its lack of a «unified vanishing point» (Panofsky 1991, 38) would lead to the «artists' inability to portray the foreshortening of objects in a constant state of distortion» (Stinson 2011: 406). Therefore, the difficulty to translate visual perspective into a one-dimensional surface creates difficulties both to ancient painters and modern interpretations of their works.

researchers: if an ancient source mentions a bireme, we have no possibility to directly envision it, nor do we know whether the term is describing one specific typology with several designs or a single ship design which prevailed across the Mediterranean. Epigraphy is even more vague, in the sense that it lacks even these few detailed descriptions, but it may give us additional data regarding matters such as ship origins and purchases.

Our proposal for this chapter is an attempt to combine all four approaches, as far as possible, to try and draw a general picture of what might have been the general typologies of ships navigating the seas, rivers and lakes during the time period in question, together with the engines which may have been used during battle. As mentioned in the Introduction, there is a significant absence of archaeological material regarding the 1st century BCE in specificity; however, we will follow an approach which includes craft from former and subsequent periods, seeing as they are currently the closest approach in chronological terms. Although this study is observing the navy from a point of view which is especially military-bound, the following subchapters will include both warships and transports, used in rivers and at sea, seeing as the Roman navy, as verified in Chapter I, often has a strong transport component and is engaged in the dislocation of soldiers and supplies. The Roman fleet is a diverse entity and commanders often had to adapt to circumstances; therefore, to understand its composition and use, we will opt for including different typologies.

2. Archaeological Evidence

Brian Campbell's list of vessels (2012, 229-32) «suitable for use on rivers», which are difficult to ascertain to archaeological findings:

-
- *Caudicaria* / *codicaria* (barge; towing mast, sometimes with a sail)
 - *Lenunculus* (small boat / skiff used to «carry unloaded goods from large ships to a warehouse, or upstream»)
 - *Linter* («small, light boat, which could be propelled by oars or sail», used on the Tiber and Gaul)
 - *Ratiaria* («very small boat»)
 - *Ratis* («general term for craft»)
 - *Scapha* («skiff or light boat (...) for moving cargoes upstream or operate in harbours»)
 - *Slatta* (small riverboat)
 - *Cumba*, *lembus*, *placida* («difficult to define but were probably propelled by oars»)
 - *Actuarius* («merchant vessel using oars, though usually equipped with one sail»)
 - *Lusoria* (firstly for «river houseboats used for pleasure»; then for working boats and light galleys on the Rhine and Danube)
 - *Kontoton* («a kind of punt»)
 - *Polykupon* («many oared», used for «transporting grain, army supplies and personnel»)
 - *Platypegion* («probably a barge»)
 - *Halias* («oared costal craft» used as a «dispatch boat» on the Nile)
 - *Ploion zeugmatikon* («catamaran or several small boats used together»)
- ➔ «But river navigation was more often accomplished by oars, and a long-established method of rowing in Gaul and Germany used push oars, which were tied to the sides of craft (...). By turning the oar blade in the stroke, it was possible for the rower to also steer the boat».
-

Even though this work's main focus is the 1st century BCE, the lack of shipwrecks which may be specifically ascertained to this period creates great difficulties upon the task. Most of the shipwrecks found so far, particularly those with a relatively good state of preservation, are dated from, at least, the 1st century CE – thus, about two hundred years following the proposed time frame. However, it seems pertinent to include these vessels regardless, considering that they are the closest approximation one may find to study these matters from an archaeological point of view and the possible continuity in shipbuilding techniques, which does not present drastic changes in the Roman reality of the centuries in cause. When one is analysing Roman shipwrecks for this period, there are invaluable online resources which can provide substantial aid with the task, and such is the case of the mentioned database NAVIS I, which attempts to list Ancient shipwrecks in several European locations, from the earliest Bronze age until the Late Medieval.

Whether investigation is being conducted from an archaeological viewpoint or based mostly on historical records, one of the main features regarding ship analysis is that of classification. The systems for categorising ancient ships have evolved with new archaeological findings, although they began divided between two essential parameters: «source and type of buoyancy» and «principal raw material used». This is a structure that

Sean McGrail calls a «binomial scheme», which derived into, or was accompanied by, «regional type-names used outside their region of origin», or «terms which imply a certain shape». Researchers have found a series of inconveniences which are listed by the author, amongst them the similitudes between building concepts amongst different typologies, or the dissimilitude between ships which have essentially the same materials and buoyancy method but a significantly different method of construction. This has led to the evolution of classification systems and one can observe that nowadays, despite detailed analysis of the immediate characteristics of a ship (hull, planks, mast, keel, size, weight, etc.), the classification itself will mostly be based upon the construction characteristics. As stated by McGrail:

«How a boat is conceived as a three-dimensional object, and how the builder translates the idea into artefact (the 'design' of the boat) are both probably culturally determined; as is also the choice of manufacturing techniques used to convert raw materials into boatbuilding elements. These attributes are thus fundamental to an archaeological or ethnographic enquiry and furthermore may be culturally diagnosed» – McGrail [1987] 2014, 5.

Regarding Ancient ship-types, as will be observed below, there are three main construction methods, depending on their focus: the shell construction, skeleton construction and bottom-based. However, this specific subdivision is still argued nowadays, and some authors believe that the terminology «bottom-based construction» is not necessary, with these ships promptly distributed amongst the other two categories⁴¹³. These will have several variants and one can consider certain vessels as hybrid, if the traditional categories are to be observed, but they are the essential core of the period in cause. Whereas the shell construction technique gives the hull as being a passive reinforcement, with the frame «not necessarily connected to the keel», the skeleton construction involves what is considered as an active hull, «giving the hull its shape and its primary strength»⁴¹⁴. Although Basch considers a «common factor» amidst both, which is that the «framework» consolidates the planking, the guideline is that the «passive» framework is merely a «reinforcement», whilst the «active» framework is «a guide and a reinforcement»⁴¹⁵.

Following this theory, it results that the «active» frames offer a «strong» resistance and force the planks to be «massive»; whilst in the «passive» framework, the planks are «relatively thin» and, unlike «active» frames, do not need to be fixed to a keel or its

⁴¹³ See, for instance, McGrail 1995, 269.

⁴¹⁴ Pomey, Kahanov et Rieth 2012: 235; based on Basch 1972.

⁴¹⁵ Basch 1972: 16-18.

replacement. The «shell» technique is widespread, examples of it being found «from Scandinavia to the Solomon Islands», whilst the «skeleton» technique is, so far, exclusively European, while the transition itself seems to have «lasted c. 1000 years, mainly during the first millennium AD». If that is so, the ships belonging to the main period which we analyse would still be prototypes of the subsequent shapes. Amongst the several reasons pointed for it are «social and economic stresses», the «invasions of the western Mediterranean», «environmental conditions» and «climate change».

Some are more common in the Mediterranean, whilst others prevail in the Atlantic, especially the North; if one can argue that Rome is more deeply connected to the Mediterranean, especially during the early onset of its History, it must be taken into consideration, throughout the building of this study, that the 1st century BCE is a moment of expansion for Rome outside of its traditional boundaries. The city-state will encounter several ship-types which are not traditionally used amongst the Mediterranean, as attested by both archaeological and historiographical sources. Therefore, in spite of this thesis' focus being Roman ships, several ship-types will be included that are not endogenous to Rome, the Mediterranean and the area nearing the Italian Peninsula, as these are the different vessels which the Roman armies would have encountered during their expeditions, for instance, to Northern and Central Europe, and that may have later influenced the Roman approach to ship-building.

Atlantic Tides

«It would not be surprising if, by the Roman occupation, Mediterranean shipbuilders or at least their skills reached the military zones, as had happened with lots of other conveniences and knowledge, e.g. pottery production, Latin language, etc. If so, we simply may continue to distinguish Romano-Celtic and non-Romano-Celtic relics uncritically with the risk to be misled. As long as we are dealing with Roman ship finds, the simple separation in classical Roman and provincial Gallo-Roman tradition seems to be satisfying. However (...): what do we know about the origin of Romano-Celtic shipbuilding, the definition of which so nicely matches archaeological and historical sources as well from the latter descriptions of Celtic ships and building procedures given by Caesar and Strabo?» (Bockius 2011, 50-52).

The question posed by Bockius is still far from being entirely solved. He mentions B  at Arnold's 1992 study, in which the author underlines the «continuity of dugout tradition (...), details as moss caulking and correlated constructional procedures»⁴¹⁶; but how to justify the «technical influences from the Mediterranean» if these had «become obsolete and were out of fashion within contemporary Mediterranean shipbuilding since hundreds of years?» What, in short, makes a Romano-Celtic boat⁴¹⁷? If the specific evolution of Romano-Celtic building is still difficult to grasp, as verified by the remainder of Bockius' article in 2011, the latter is equally complicated⁴¹⁸.

Starting with findings in Northern Europe and following the traditional terminology, one will find several vessels that can be referred to as Romano-Celtic, in which archaeologists such as Peter Marsden have «recognised clear differences between these flat floored round bottomed, heavily built vessels of oak and the vessels of the same period then known from the Mediterranean, and the Roman period vessel found earlier at County Hall London». However, defining the nature of a Romano-Celtic vessel is difficult. The remains of these ships are often poorly preserved, demanding from researchers a great deal of mental reconstruction of which the exactitude cannot easily be verified; and there seems to be a bibliographic dissent in which, although nearly all studies reach the same conclusions and interpretation of material matters, the way in which these are exposed and taken into relevance greatly varies. We have, for instance, Hocker, who considers that amongst the vessels in these regions, whether inland or river-bound, one will find a

⁴¹⁶ Casson considers that «perhaps the bark canoe came first – indeed, it may even be the earliest form of boat devised (...). The dugout itself requires little more: a stone cutting-tool (or even just a hard shell) or the controlled use of fire, and infinite patience»; [1971] 1995, 7-8.

⁴¹⁷ Pomey (2011) has a very recent, succinct and accurate description of the evolution of the «Romano-Celtic» terminology, from its beginning in 1966 with Marsden and *Blackfriars 1*, to McGrail's attempt to define it in 1995, and the new discoveries of barges in France during the late 1980s and early 1990s.

⁴¹⁸ Bockius mentions several elements, amongst which the mast and the patterns of floor timbers. However, due to ship deterioration and the lack of ship elements for all case studies, we will focus on the element which seems most likely to be ascertained in nearly all: the construction type.

predominance of bottom-built craft⁴¹⁹; and yet, as mentioned above, some disregard this terminology in favour of a redistribution amongst shell/skeleton types. Whilst Marsden acknowledges that the vessels were also «different from those of the clinker building tradition to the north and east»⁴²⁰, Beresford, in a less usual approach, describes them as ships which, «instead of the closely spaced mortice-and-tenons that were used to connect the hull planking of the Graeco-Roman shell-first-vessels, Romano-Celtic ships appear to have been built clinker fashion, and derived part of their strength and rigidity from large internal timbers»⁴²¹. Bockius underlines the «lack of edge-joint planking» which «set a special accuracy standard for the construction methods»⁴²², whilst Béat Arnold ascribes as the main characteristics of the Romano-Celtic boats the «discarding of direct bindings of planks», where the «lashing or sewing was not replaced by other types of fastenings such as the mortise-tenon-peg system or by riveting»⁴²³.

As mentioned by Hocker, «the boat finds of northwestern Roman Europe have often been grouped together largely because they lack the distinctive diagnostic characteristics of either Mediterranean mortise-and-tenon construction or Scandinavian clinker construction», with a sense that «somehow these vessels belong together, but defining a clear relationship has been problematic»⁴²⁴. And yet, as mentioned, Beresford classifies them as belonging to the clinker tradition, and Marsden, even though pending towards a

⁴¹⁹ Hocker 2004.

⁴²⁰ There are some theories in comparatist History which approach the ancient «Celtic» types to the Atlantic vessels built in Portugal, the examples being the «saveiro or xavega» and the «meia lua», considering the similarities in design and, apparently, in the construction method, which consists in bending pine planks with the aid of water and fire, the creation of a central «line of blocks» to «support the centre bottom plank with the rocker (longitudinal curve of keel)», and the adjustment of planks through moulds, treenails and caulk with hemp. By comparison, the saveiro «does not have a mast, but the far more numerous moliceiro» does. Johnstone, one of the authors to point these comparisons, reminds that «one has (...) to be very cautious when using a modern craft, however primitive and unusual, as a source of comparison with ancient vessels», despite the possibility of connecting North and South Atlantic ship-types. See Johnstone [1980] 2004, 93.

⁴²¹ Beresford 2013, 117. Terminology such as «mortise-and-tenon joints» is relatively recent; as drawn out by Marsden, «nautical terminology is endemic to the description of ships, but its use can become a minor epidemic in a publication, to the extent that discussion is rendered unintelligible to most readers (...). But this aim is complicated slightly by archaeologists who have developed a preference for certain international terms, and by the creation of new descriptive terms to replace existing obscure terminology»; Marsden's example is the usage of «mortice-and-tenon joint» rather than «draw-tongued joint», which would be the «correct English term». Marsden points Thockmorton 1987, 92-3 as an example, but this can be seen in several authors throughout this chapter. As a way to simplify the understanding and considering how the main purpose of this chapter is to analyse ship characteristics rather than concepts, we will utilise those most widely found amongst the scientific community. See Marsden 1994a, 13.

⁴²² Bockius 2009, 73-74.

⁴²³ Arnold 1999: 34.

⁴²⁴ Hocker 2004, 70.

carvel-construction for a ship known as the Brugge finding, does not completely dismiss the possibility of it having «an outer skin of reverse clinker planking»⁴²⁵.

There is also scarce agreement regarding their subdivision. Whilst Goodburn classifies them as essentially subdivided in three types (the «Blackfriars type with deeper rounder hulls», the «Zwammerdam type with shallow punt like hulls, with completely flat bottoms», and «New Guys house type of narrow shallow, round hulled river craft»)⁴²⁶, Arnold classifies them in «two sub-groups», «the first found chiefly on inland waters and the second currently consisting mainly of four seagoing vessels from either side of the Channel»⁴²⁷. Therefore, there are opposing views on whether these vessels are skeleton or bottom-built, have carvel or clinker planking, and the one agreements seem to be that all vessels except a few exceptions, such as «County Hall», «Vechten»⁴²⁸ and the one found in Lyon-Tolozan⁴²⁹, lack the Mediterranean mortise-and-tenon, but have introduced some innovations considered as Mediterranean: the «large-size nails, often turned or hooked», attaching the frame to the hull, considering the absence of «examples of Iron Age boats assembled by nailing», especially when considering the Dover and North Ferriby findings⁴³⁰, although, according to Hocker, «independent invention cannot be ruled out»⁴³¹.

The originality of Romano-Celtic vessels in their context, namely through the coexistence of Mediterranean and Atlantic techniques, is connected to their seeming innovations of several kinds. One can take as example, as mentioned by McGrail, the fact that Blackfriars 1 is, to this day, the earliest ship with the «frame-first» technique found in the north Atlantic ocean; and whilst it is dated to the 2nd century CE, the earliest frame-first vessel in the Mediterranean belongs to the 6th century CE – thus, four centuries between the shared knowledge. «Roman tools and techniques», such as «sawn planking», were also used, although other techniques and nail typology may have been a northern specificity: «it is possible that the hooked iron nails used to fasten planking to framing in Romano-Celtic vessels were an «indigenous northern European technique». The author believes

⁴²⁵ Marsden 1976: 28; 40.

⁴²⁶ Goodburn 1998, 171.

⁴²⁷ Arnold 1999, 33.

⁴²⁸ Hocker 2004, 70.

⁴²⁹ Arnold 1999, 34.

⁴³⁰ Arnold 1999, 34 and 40: «The planks were lashed (or sewn) together and this gave the hull a structural coherence that recalls a clinker or mortise-and-tenon-and-peg construction».

⁴³¹ Hocker 2004, 71.

that it is very likely that «hide boats were built centuries (possibly millenia) before plank boats», which means that, as stated by McGrail, those in charge of building the Romano-Celtic vessels would have reutilised and adapted former techniques, but now to a new material and building style⁴³².

An objective approach amongst these studies is that of McGrail and Nayling (2004, 209), which subdivide them into boats from «inland waters» and «estuaries and channel»; different ship-types result from different needs, both physical and economical. As mentioned by E. Elliot, who calculated this data based on Diocletian (301 n. Chr.), river transport would have been 4.9 times more expensive than maritime, and land transport 28 to 56 times as much, whereas the «*nautae*», known by the rivers they sail upon, would have been distinguished from the «*naucularii marini*», sea sailors⁴³³. Whether this cost relationship and distinction would have been noticeable in the terms of the amount of vessels at work at any given time is difficult to ascertain, as archaeological evidence can only make for so much of the interpretation: the number of preserved vessels is related to matters such as the chemical characteristics of each location, and not exclusively to the number of vessels built⁴³⁴.

The main question regarding this ship-type seems to lie in one matter: were the Romano-Celtic vessels built through Roman methods and engineering and adapted to local techniques, or was it the opposite, with them being «products of an indigenous, bottom-based tradition of shipbuilding»⁴³⁵, in essence «native types enlarged to meet Roman needs»? It is premature to answer, seeing the current state of investigation, but we intend to provide updated insight which may, in future, aid in reaching a solution.

⁴³² McGrail 2015, 131.

⁴³³ A. Elliot 2018: 4-5.

⁴³⁴ Hocker 2004, 71-72; De Boe 2000: 76-77.

⁴³⁵ «All share a bottom made up of relatively straight, heavy planks that is easily distinguished from the sides, either by form or construction». Hocker 2004, 71.

1. Belgium

Navis I registers three shipwrecks in modern-day Belgium, one numbered as ship 17, or the Brugge ship, and the Pommeroeul ships 1 and 2 (numbered 18 and 19, respectively, in Navis I). The construction technique used on the latter is still argued amongst scholars. Together with the Celtic ships found in Blackfriars (England), they seem to belong to a group mostly intended for river or inland use. This theory is derived from external factors of resistance: as mentioned by McGrail, if «all fore and aft members of a boat contribute to longitudinal strength (...) and so do the transverse members», and if «in a round-hulled boat the keel is the main centre line strength member but the central bottom plank or strake of a flat-bottomed boat is sometimes of significantly greater scantlings (...) and is analogous to a keel», it seems that «boats without keels, thicker central planks, hogging trusses or other elements giving longitudinal strength are unlikely to have been sea boats, although they may have been used in coastal waters restricted to fair weather conditions». By this, it is not intended to say that these ship-types were always devoid of a keel, only that the absence of a keel would most likely determine that these would be river or coastal ships⁴³⁶.



Fig. 5. Brugge ship, described as «inboard view of the mast-step frame». In

https://www2.rgzm.de/scripts/dbWeb/dbwebc.dll/SingleString_Full_Image?linkxresults/obj/Part_Stringsearch/col/NR/dat/1087



Fig. 6. Described as «unidentified oak object from the boat». In

https://www2.rgzm.de/scripts/dbWeb/dbwebc.dll/SingleString_Full_Image?linkxresults/obj/Part_Stringsearch/col/NR/dat/1080

⁴³⁶ McGrail 2001, 111.

Brugges wreck

These shipwrecks are relatively old findings, thus creating difficulties in the analysis through 21st century techniques. The first vessel was discovered in the late 19th century and is in a poor state of conservation, and the Pommeroeul ships in 1975. In the case of Ship 17, found in the Bruges-Zeebrugge canal, identified as a possible cargo vessel from the 2nd or 3rd century CE, Navis I and Peter Marsden⁴³⁷ point the key data as the following:

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1899	2 nd / 3 rd c. CE (N1)	Between 4 (N1) and 6 m	About 1.70 m (N1)	7 to 15 m	Oak (N1)	Sails (N1)
<i>Construction features</i>	This ship seems to have had a «flat bottom with shallow draught», with the «planks (...) fastened by wooden pegs, some of which were completely impregnated with pyrites and hardened to look like iron». The mast was probably 7-8 m long, with two slots which «perhaps held pulley wheels, and presumably had been carved to contain the halyards or ropes for lifting the yard». «At the junction of the loom and the blade is a rounded rebate in the side of the oar, this probably being a deliberate shaping perhaps to hold a rope which lashed the oar to the side of the boat. On the blade are two curved incisions, the age and purpose of which are unknown». The floor timber is of oak, but there are nails driven up the centre of a circular treenail, identified as birch. The end «was pointed» and the post «curved upwards from the flat bottom».					

As stated above, Peter Marsden's article on the ship states that the typology is similar to that of a shipwreck found in London known as the Blackfriars ship, and that they «represent a local tradition of Celtic shipbuilding, perhaps located west of the Rhine, which was different from the non-Celtic clinker tradition of Scandinavia and the carvel tradition of the classical Mediterranean cultures»⁴³⁸. This specific case suggests the possibility of the ship possibly being «carvel-built» but presenting a skeleton-type construction, which will not become the norm in the Mediterranean until, at least, the late 3rd century CE⁴³⁹. The author adds that the ship is considered to belong to a «group of Celtic shipbuilding traditions (...) in central and north-west Europe, showing some considerable variations in ship form, though there were technical similarities (...)». Although the ship is «Celtic» in its type, it was found next to a Roman villa, which seems to indicate established Roman influence upon the region and would justify the combination of techniques⁴⁴⁰.

When looked upon with more detail, one may observe what Marsden considered as a «Celtic shipbuilding tradition» different from the «early Mediterranean or Scandinavian ships», considering details such as the insertion method of the nails – «driven through

⁴³⁷ Marsden 1976: 23-24.

⁴³⁸ Marsden 1976: 23.

⁴³⁹ Johnstone [1980] 2004, 90. Adams 2013, 67-68; Bang et Ikeguchi 2017; see Pomey, Kahanov et Rieth 2012 for a detailed description of the evolution between the mortise-and-tenon processes and the later skeleton construction.

⁴⁴⁰ Marsden 1976: 24.

wood pegs already inserted into the floor timbers», the «unusual shaping of the floor-timber containing the mast-step» or the «massive size of the timber elements»⁴⁴¹. The Bruges ship allows for a comparison between the Northern Atlantic ship types and those in the Mediterranean, considering its particularities: as mentioned by Marsden, «the characteristic feature of this [the Mediterranean] tradition, the carvel planking held edge-ways by mortise-and-tenon joints, has occurred in all Greek and Roman ships so far found in the Mediterranean basin, dating from as early as the 4th century BC⁴⁴²». The constant use of «locked mortise and tenon» joints in the Roman era can be seen throughout the European continent, and vessels can be found throughout the North and Centre of Europe following this construction method. One can look at, for instance, the two Zwammerdam ships, and the two others found in Oberstimm, Central Germany. The problematic surrounding Ship 17, therefore, relies on the fact that it shares the planking technique utilised in the Mediterranean – namely a carvel technique – and combined it with a skeleton method to assemble the structure, rather than a shell-first approach which was more common amongst Roman vessels of this time-frame.

Pommeroeul

Another group of widely documented studies regard the Pommeroeul ships. Bromwich classifies the two different ship typologies found in Pommeroeul as canoes and barges – the two «canoes» he considers as having been 11.5-12 metres long, and the barge as 18-20 metres⁴⁴³. These shipwrecks have taken a long period to be reassembled: «L'ensemble des opérations de fouille, traitement et remontage des barques de Pommeroeul s'est étalé sur une période de près de vingt ans»⁴⁴⁴. They were found in modern-day Belgium, and the characteristics are as follows⁴⁴⁵:

⁴⁴¹ Marsden 1976: 24.

⁴⁴² Marsden 1976: 51. The techniques utilised to build Mediterranean and Romano-Celtic vessels were different. According to Marsden, «Shell-building» was a technique which «required the hull to be built firstly of planks to which the ribs were added as strengthening pieces, depending upon the planks being attached to each other, in the case of the carvel built Mediterranean ships by mortise-and-tenon joints, and in the clinker boats by sewing or by iron rivets which held the overlapping planks together».

⁴⁴³ Bromwich 2003, 258-59.

⁴⁴⁴ Tervfe 1998, 84.

⁴⁴⁵ Following the data presented in Navis I.

II. VELAE ET REMI

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1975	1 st / 2 nd c. CE (N1)	?	0.50 m (N1)	12 m (N1)	Oak (N1)	Sailed / towed (N1)
<i>Construction features</i>	Pommeroeul 1: Bottom construction, carvel, iron nails (N1)					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1975	1 st / 2 nd c. CE (N1)	3 m (N1)	0.67 m (N1)	20 m (N1)	?	Paddled / Oared
<i>Construction features</i>	Dugout ⁴⁴⁶ . Inland operation (N1)					

Terminology applied to them by bibliography considers them as a pirogue and a barge⁴⁴⁷, and they seem to be of a different kind from Brugge, particularly Pommeroeul 2, which is thought to be a dugout. As verified through the images below, whilst 1 is a barge with a larger width and a more significant number of horizontal beams, the latter is a pirogue with relatively scarce horizontal support. If Pommeroeul 1 seems to share some similarities with the Romano-Celtic vessels, especially through what is believed to be the sharing of the carvel construction method with the Bruges vessel, one may add that it is not classified by NAVIS I as a skeleton-first construction, rather a bottom first, as also found in Druten 1. The dugout pirogue, an elongated boat with usage which is believed to be mainland, cannot be included amongst the vessels traditionally considered as Romano-Celtic.

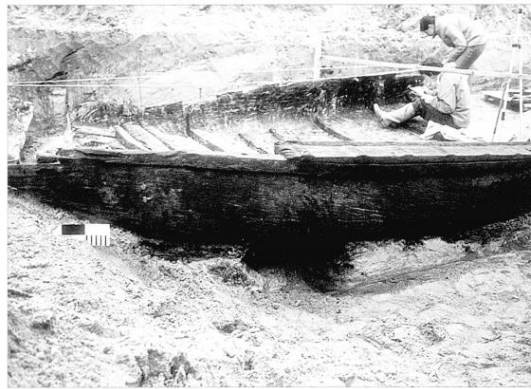


Fig. 7. As found in Tervfe 1998, 79, the «Excavation of the barge» in Pommeroeul.

⁴⁴⁶ During Octavianus' campaigns in Pannonia, he is also said to have found a different ship type, one that, in description, seems similar to some of the boats shown in the archaeological section above: they are described as *Μονόζυλα*, made of a single trunk of a tree, thus possibly referring to carved ships (Dio Cass. 49.37.5). These are said to have engaged in conflict – therefore, carved ships would also been used for activities of war, when necessary.

⁴⁴⁷ Tervfe 1998, 79.

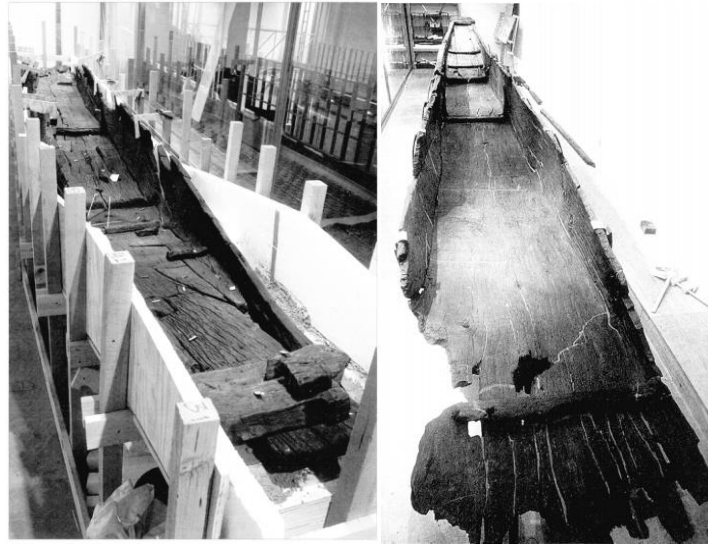


Fig. 8 and Fig. 9. The pirogue, as seen in Tervfe 1998, 82; 85.

2. France

As it spans such a wide geographical area, touching both the Mediterranean basin, the Northern Atlantic and several of the most navigable European rivers, and considering the several centuries of Roman occupation, France reveals itself prolific in archaeological findings of diverse ship-types, all from river-barges to long-course maritime vessels such as *Plage d'Arles 5*, found at a depth of 350 metres and probably on course from Narbonne to Rome, and the *SM14*, at 116 metres⁴⁴⁸ When analysing the shipwrecks found in France, one will find more evidence of the difference between those considered as Romano-Celtic and the Mediterranean types, but there are also evidences of some Romano-Celtic or Gallo-Roman vessels. Amongst the several findings we can observe both river and coastal craft; in what regards the latter crafting method, there are several examples uncovered amidst the river Saône, which is mentioned several times in ancient sources⁴⁴⁹.

⁴⁴⁸ Long 2009, 214. Other maritime vessels have been found at less significant depth, such as the *Saintes-Marie-de-la-Mer 6* (14.5 m, 1st c. BCE), *8* (14 m, 1st c. CE), *9* (12-13 m; Claudian vessel, potentially connected to the army), *10* (12.5 m; 1st c. CE ship, c. 10 tons cargo) and *24* (10-11 m; 1st c. CE fluvio-maritime ship). These wrecks are mostly being studied due to their cargo, however, and not ship characteristics (see, for instance, Baron et al. 2011).

⁴⁴⁹ The river Saone being mentioned repeatedly during accounts of the Gallic Wars. See Chapter I, Caesar's campaigns in Gaul.

Chalon-sur-Saône

Archaeological surveys have revealed what are yet again considered as Gallo-Roman river ship-types: in 1996, during the investigation of a Roman bridge at Chalon-sur-Saône, two Roman ships were found, with the following characteristics⁴⁵⁰:

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1996		1.62 m	72 cm	15.50 m	Oak (monoxyle and curves); fir (gunwhale and farb)	
<i>Construction features</i>	Pirogue. «de type monoxyle (...), base monoxyle en chêne caractérisée par un fond plat et des flancs ouverts à 45°-55°»; «présence d'une emplanture de mât»; «Les courbes sont fixées par des clous enfoncés presque exclusivement de l'intérieur du bateau vers l'extérieur et dont la tête atteint un diamètre de 3 cm». «La présence de pièces assemblées à la base monoxyle de la pirogue s'accompagnait nécessairement du colmatage des joints de manière à rendre le bateau parfaitement étanche. Le matériau utilisé ici est du tissu poisé». Maximum capacity: 5.09 t.					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1996		2.10 m	Known – 10 cm	8.70 m (estimated max. 13.80 to 18 m)	Oak	
<i>Construction features</i>	Barge – «La jonction entre les bordages de fond Pl. 2 et Pl. 3, au niveau de l'axe central du bateau, se termine par un écart en sifflet courbe que vient recouvrir la courbe C16». «Dans les zones comprises entre C1-C5 et C19-C26, neuf clés insérées dans des mortaises aménagées dans les cans respectifs des bordages ont été repérées». «Le système utilisé pour étancher le bateau correspond à un lutage à base de tissu poissé. Dans un cas seulement, un brin apparemment en fibres végétales a été observé en plus du tissu». «Le tissu utilisé pour le bourrelet d'étanchéité a été torsadé avant son application».					

As mentioned in a 2009 study, to observe these ships necessarily implies the joint investigation of the bridges to which they are associated⁴⁵¹. The 3rd century reconstruction is believed to have been preceded by a 1st century CE structure, something attested by the ceramic findings⁴⁵². Thus, dating the ships was something pointed towards the ending of the 1st century BCE – the time when the first bridge would have been built – and the early 3rd century – the moment of the second bridge's construction. Through more detailed analysis of the ceramics found amongst the shipwrecks and a comparison with those found in Saint-Jean-des-Vignes, an estimate chronology of between 50-70 CE was estimated⁴⁵³. Another point is that the «presence conjointe d'une pirogue et d'un chaland n'est pas un cas unique» and can be associated with the formerly seen shipwrecks of

⁴⁵⁰ Data from Lonchambon et al. 2009; the vessels being similar to those found in Belgium, the authors of the study call them «gallo-romaines» considering the fact that they were found in France and share the «particularité (...) de ne relever d'une tradition de construction navale ni scandinave ni méditerranéenne» (88).

⁴⁵¹ Lonchambon et al. 2009.

⁴⁵² «Les pieux constituant la pile centrale de ce pont, retrouvés en 2000 sous la pile en pierre du III^e siècle, ont été à l'origine de la formation d'un important affouillement au fond duquel se sont échoués quelques rares éléments céramiques attribuables à la fin du règne d'Auguste ou au début du règne de Tibère». Lonchambon et al. 2009: 60.

⁴⁵³ Lonchambon et al. 2009: 64-65.

Pommeroeul and Zwammerdam; which probably indicates that, during engineering operations, these two ship types would be working together⁴⁵⁴.

The pirogues and barges found in 1996 are described as having a denture to connect the bottom and the «relevaison», the use of «cuillères» to form the «relevaison des extrémités» and the usage of nails to reinforce the joints (such as the boats of Zwammerdam, for instance) and narrow planks (such as the Pommeroeul boat)⁴⁵⁵. They share, therefore, similarities with vessels of the Romano-Celtic type, and there seem to be more Gallo-Roman monoxyle vessels which have been found by the Saone river (two pirogues found in Sassenay, 2007 and a series of canoes found in Lyon in 2003, dated between the mid-1st century CE and the mid-3rd century CE⁴⁵⁶). The vessels found in Sassenay in 2007 are very similar to those found in 1996, only that the pirogue is described as having smaller dimensions, at «8,40 m de longueur, 0.73 m de largeur maximale à l'extérieur de la base monoxyle aux bordés et atteint 0.86 m, évasement des fargues compris»⁴⁵⁷.

Galere de César and Jules Verne

Whilst the vessels found in the Centre and North of France are more closely related to their North Atlantic counterparts, archaeological findings in the South of France, in connection to their Mediterranean background, present different characteristics. Marseille has been particularly prolific in providing ancient vessels for study, with a group of at least five Roman vessels⁴⁵⁸, having been found between the second half of the nineteenth century and 1993. The characteristics are as follows:

⁴⁵⁴ Lonchambon et al. 2009: 84. Louis Bonamour presents slightly different measurements, although not significantly altered; a researcher must consider that one has to deal with estimation, due to ship deterioration and the lack of ship parts. Bonamour also underlines the usage of «fibres végétales», and «un calfatage à la mousse identique à celui des bateaux de Bevaix et d'Yverdon».

⁴⁵⁵ Lonchambon et al. 2009: 95.

⁴⁵⁶ Laurent et al. 2011: 538. A monoxyle vessel is a «single-log dugout vessel», whilst a «monoxyle assemble» is a «specialized, flat-bottomed punt». See note 28 in chapter 8, Snyder 2016. The canoe found in 1996 is referred to by Laurent et al. as «fond assemblé», whilst all the findings in Lyon are described as «monoxyle-assemblé».

⁴⁵⁷ Laurent et al. 2011. The article describes the similitudes between the several Gallo-Roman river crafts found at the region, which seem to share construction techniques.

⁴⁵⁸ There are at least two more findings amongst the *Jules Verne* wreckage numbered 1 and 2, which are said to belong to the same wreck. As they were dated to the 4th century CE, which is far beyond the time-period we propose to discuss, and considering the small size and scarcity of remains, they will not be analysed in a detailed manner. For more on *Jules Verne 1-2*, see Pomey 1995, 462-63.

II. VELAE ET REMI

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1864	2 nd – 3 rd c. CE (N1)	7 m (N1)		17 m (N1)	Pine (N1)	Sailed (N1)
<i>Construction features</i>	Galere de Cesar: Cargo vessel? Shell first and carvel; mortice-and-tenon joints. Bronze, iron and wooden nails. Bolt. (N1)					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1974	3 rd c. CE (N1)	9 m (N1)		24 m (N1)	Larch, pine, cypress, holm, olive tree. Potentially ash and poplar. (N1)	Sailed (N1)
<i>Construction features</i>	La bourse: Cargo vessel? Shell first and carvel; mortice-and-tenon joints. Bronze, iron and wood nail. Bronze bolt. (N1)					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1974	1 st – 2 nd c. CE (N1)	5 m (N1)		16 m (N1)		Oared (N1)
<i>Construction features</i>	Jules Verne 3: Working boat. Shell first and carvel. Mortice-and-tenon joints. Iron and wooden nails. Bolt. (N1)					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1993	1 st – 2 nd c. CE (N1)	5 m (N1)		16 m (N1)		Oared? (N1)
<i>Construction features</i>	Jules Verne 6: Shell first and carvel; mortice-and-tenon joints. Bronze, iron and wood nail. Bronze bolt.					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1993	3 rd c. CE (N1)					Oared (N1)
<i>Construction features</i>	Jules Verne 8: Shell first and carvel. Mortice-and-tenon joints. Wooden nails. (N1)					

As observable in the chart above, even though these boats' datings are believed to span for one or two centuries, they all share similar characteristics. All vessels found follow the shell-first construction method, differently from the skeleton/bottom-first builds found in the Romano-Celtic vessels. Mortice-and-tenon joints are also a constant amongst all findings, with most including metal nails (iron, bronze or both) combined with wooden counterparts, with the exception of Jules Verne 8, where only wooden nails have been found. If seemingly bound to the Mediterranean tradition, some of these shipwrecks appear to have particular styles:

«Trois de ces épaves romaines, abandonnées aux I^{er} et II^e siècles ap. J.-C. et qui appartiennent à un même type de bateau totalement inédit à ce jour, et les deux épaves grecques archaïques, datables de la fin du VI^e siècle av. J.-C., constituent de loin par leur intérêt et leur rareté les ensembles le plus remarquables» – Pomey 1995: 459-60.

The *Galere de Cesar*, together with Fiumicino 5, are two of the few ships found thus far which enable us to observe a large number of different wood types utilised as ship timber. There are two inferences that can be made: thus far, the ships found in Marseille have different materials from those in Northern Atlantic shipwrecks and Mediterranean ones, in which oak is predominant. Whilst both the 19th century finding and *La Bourse* include pine, the latter includes a greater variety of construction materials and shares a specific

detail with Fiumicino 5, which is the usage of olive tree for ship components, as well as cypress and holm⁴⁵⁹.

Jules Verne 3, together with ships 4 and 5⁴⁶⁰, is said to belong to the same ship-type, which seems unusual for the time period they are ascertained to, namely the 1st-2nd centuries CE⁴⁶¹. Ship 3 is said to have had «l'ensemble de la structure et les assemblages (...) de type traditionnel», with «la coque (...) à simple bordé et les virures sont normalement assemblées à franc-bord par des tenons chevillés dans des mortaises», but is also acknowledged as having a singular characteristic: the presence of an orifice of 2.55 metres length and 0.50 width at the centre of the vessel, and prolonged in height by a structure which would have come from the interior of the vessel. Throughout the remains of Ship 5, «trois éléments de planches, entières ou fragmentaires, qui appartiennent à la structure du puits», it was possible to «compléter à l'intérieur do navire», which was concluded as «le tout formait donc au-dessus du puits un caisson intérieur évasé à la base». Pomey concludes that these vessels would have been in charge of harbour service, serving as dredged vessels through the aid of hydraulic mechanisms⁴⁶².

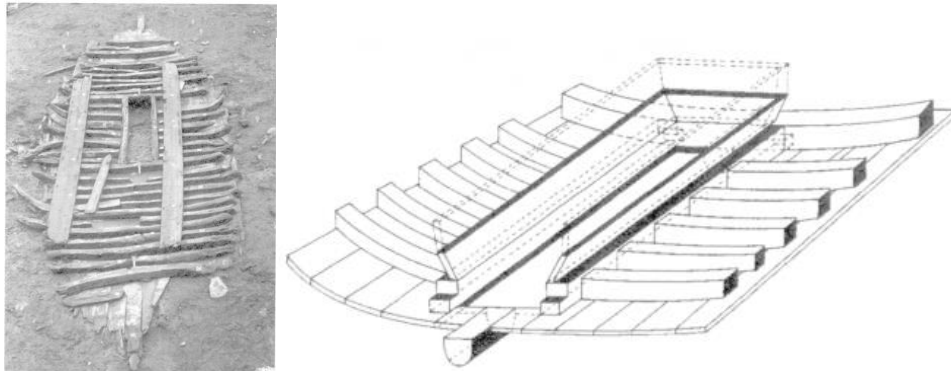


Fig. 10 as shown in Pomey 1995: 466. One can observe the orifice in the middle of the ship, which seems to cut across the beams, and fig. 11, described as a reconstitution of the «base de caisson intérieur» of vessel five.

⁴⁵⁹ Unlike the Gallo-Roman or Romano-Celtic ship types observed so far, it does not use oak as its main material.

⁴⁶⁰ Not included in Navis I, perhaps due to their poor conservation state: as mentioned by Pomey (1995, 263), Jules Verne 3 is the best preserved of all. Measurements presented by Pomey are slightly different from those of NAVIS I, at 12 metres length and 4 metres width.

⁴⁶¹ Pomey 1995: 463.

⁴⁶² Another vessel, Pont-Vendres 1, found in 1929, is believed to have circulated during the 4th century CE. With a width of 2.30 metres and a length of 20, it uses pine, cypress and olive tree, wooden nails and bronze bolt. A sailing vessel, it was constructed with the shell, carvel and mortice-and-tenon methods. When compared to the other vessels, as one can observe, even with the different timespans, the difference in materials, construction techniques and size is nearly null. The vessels have an average length of 20 metres; pine continues to be utilised as timber into the 4th century CE, together with the olive tree, which may have been a regional preference, judging by the fact that it is not found outside of a specific geographical region.

Arles-Rhône

<i>Arles-Rhône 2 (1989)</i>	2 nd c. CE	Flat-bottom
<i>Arles-Rhône 3 (2004)</i>	1 st half of 1 st c. CE	Mono-assembled barge
<i>Arles-Rhône 5 (2007)</i>	1 st c. BCE – 1 st c. CE	Mono-assembled barge
<i>Arles-Rhône 6</i>	1 st c. BCE – 1 st c. CE	Maritime or oceanic ship
<i>Arles-Rhône 7 (2007)</i>	3 rd c. CE	Fluviomaritime ship
<i>Arles-Rhône 8 (2007)</i>	1 st c. CE	Fluviomaritime ship
<i>Arles-Rhône 12 (2007)</i>	-	Scarce information
<i>Arles-Rhône 13 (2011)</i>	3 rd – 4 th c. CE	Maritime ship
<i>Arles-Rhône 14 (2011)</i>	1 st half of 3 rd c. CE	Fluviomaritime ship
<i>Arles-Rhône 15 (2009)</i>	1 st c. CE	

The Arles-Rhône shipwrecks belonging to the ancient period, as seen in Long et al. 2013.

The region of Arles-Rhône has been prolific in archaeological findings of vessels that may be regarded as Romano-Celtic, with fourteen shipwrecks found thus far. As they share similar characteristics, we shall focus on the three most-widely studied vessels, namely Arles-Rhône 3, 5 and 14. As mentioned by the *Dossier de presse* of the Arles-Rhône 3 exhibition, this vessel, like many others of the same kind, is a flat-bottom which would operate exclusively in fluvial environments; however, judging by the reconstitution, one can observe that the mast and sail are considerably further to the edge than in other vessels of the same period, including Gallo-Roman vessels. It was possibly a cargo vessel, judging by the archaeological findings: ceramics of several types and blocks of limestone, which were assigned to the St-Gabriel quarries; and it has the particular trait of presenting a towing mast, which is a rare archaeological finding, together with the «monnaie votive» and the «nombreuses inscriptions» of C.L. POSTV, NOBILM⁴⁶³.

Arles-Rhône 5, although discovered in 2007, only began to be targeted by substantial operations in 2014, and the recovery works were postponed in detriment to Arles-Rhône 3 due to the absence of cargo and furniture⁴⁶⁴. The construction is similar: a flat-bottom with no keel, belonging to the «barge» type and with the presence of nails and sewn fabric and pitch⁴⁶⁵. It is believed that a cooking area existed on board, even if the furniture and tools have disappeared⁴⁶⁶.

Whereas Arles-Rhône 3 and 5, interpreted as exclusively river boats, are considered to mark «la spécificité d'une zone de rupture de charge et de redistribution des marchandises

⁴⁶³ http://www.atlaspalm.fr/fr/s26_ar3.html#. For a specific approach to Arles-Rhône 3, see Marlier 2011; on the dating, Greck et Guibal 2011.

⁴⁶⁴ Marlier et al. 2018, 1.

⁴⁶⁵ Marlier et al. 2008, 17.

⁴⁶⁶ Marlier et al. 2008, 39.

vers la Gaule», thus being «lié à un commerce régional dans un espace délimité»⁴⁶⁷, the Arles-Rhône group also includes fluvial-maritime vessels, namely 7, 8 and 14. These were possibly used to transport materials brought by maritime vessels into the river and are thus built differently, as flat-bottoms with mortice-and-tenon technique and no keel. As observed in the chart above, the Arles-Rhône findings provide a great variety of ship-types, including transition typologies: the vessels are either exclusively fluvial, fluviomaritime or maritime.

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>	<i>Cargo</i>
2004	1 st c. CE	3 m		31 m	Oak and fir; iron nails.	Sailed	21-31 tons ⁴⁶⁸
<i>Construction features</i>	Arles-Rhône 3: Before the assembling of the boards, fabrics and cords would have been coated together with vegetable resin. ⁴⁶⁹ It was built through monoxyle flanks carved into half-trunks of fir, which were then attached to the bottom ⁴⁷⁰						
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>	<i>Cargo</i>
2007 ⁴⁷¹	51-135 CE ⁴⁷²	c. 4.30 m		30-35 m	Oak and fir; iron nails		
<i>Construction features</i>	Arles-Rhône 5						
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>	<i>Cargo</i>
2007				20 m ⁴⁷³			40 to 50 tons
<i>Construction features</i>	Arles-Rhône 7						
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>	<i>Cargo</i>
2011	2 nd c. CE – 3 rd c. CE			15-20 m	Iron nails		
<i>Construction features</i>	Arles-Rhône 14: keelless flat-bottom with mortice-and-tenon technique.						

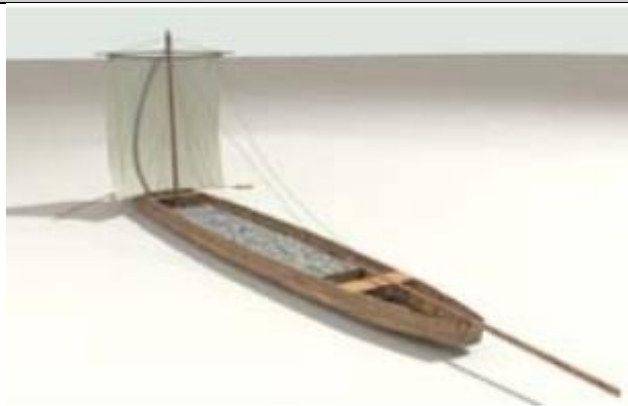


Fig. 12. Possible reconstitution of Arles-Rhône 3 by M. Cazaux, F. Conil, J. Pasquet, D. Schiano, Sup infocom-Arles and MDAA, 2009⁴⁷⁴

⁴⁶⁷ Together with smaller vessels, such as the Arles-Rhône 10, a c. 9 metres long fishing boat.

⁴⁶⁸ Values it carried when it sank, as stated by ATLAS.

⁴⁶⁹ http://ipsofacto.coop/wp-content/uploads/2016/07/ExpoArles-AR3DP_AR3-juin2011-mai2012.pdf; the measurements of the vessel, materials and chronology are as stated in 16-18.

⁴⁷⁰ As seen in ATLAS.

⁴⁷¹ Marlier et al. 2018, 1.

⁴⁷² The data regarding Arles-Rhône 5 derives from Marlier et al. 2008.

⁴⁷³ The data for Arles-Rhône 7 and 14 derives from Long et al. 2013.

⁴⁷⁴ In http://ipsofacto.coop/wp-content/uploads/2016/07/ExpoArles-AR3DP_AR3-juin2011-mai2012.pdf, 14.

Lyon (Tolozan and Parc Saint-Georges)

<i>Find date</i>	<i>Chronology</i>	<i>Width</i> ⁴⁷⁵	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1990	30 CE				Oak	
Construction features	<i>Tolozan</i> : Bottom-based construction; river barge, with an «étanchéité des joints par des cordons de mousse maintenues par des baguettes, des clous, et (ou) des petites ferrures en forme de cavalier» ⁴⁷⁶ .					

Prior to the findings in Tolozan, only an early 19th century finding (1808) in Fontaine-sur-Somme had been found which could be dated as early as them; it was then accompanied by a series of other wreckage. Six barges, which have since then been classified as Romano-Gallic, have been found near a parking lot in Lyon. These have been dated between c. the 1st and 3rd CE. It seems that significant portions of the ships are missing: for instance, wreck 4, which has a preserved length of 18.53 metres, is calculated as having a reconstructed length of 28 metres, 4.85 width and 1.35 height. All of them follow the flat-bottom, keelless construction, with oak as the main material and the usage of nails in the construction. Whilst five of the wrecks are monoxyle, Saint-Georges 8 has a composite structure, with the presence of caulking joints and iron nails alike⁴⁷⁷.

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
2003/2004 (2)	210-215 CE ⁴⁷⁸	2.83 m	1.10 m	15.11 m	Oak	
(3)	Chronology	Width	Height	Length	Material	Propulsion
	160-185 CE	3.05 m	0.25 m	14.64 m	Oak	
(4)	Chronology	Width	Height	Length	Material	Propulsion
	158-185 CE	4.67 m	1.15 m	18.53 m	Oak	
(5)	Chronology	Width	Height	Length	Material	Propulsion
	150 CE	0.83 m	0.55 m	7.30 m	Oak	
(7)	Chronology	Width	Height	Length	Material	Propulsion
	254-260 CE	5.05 m	1.13 m	19.82 m	Oak	
(8)	Chronology	Width	Height	Length	Material	Propulsion
	55 CE	2.80 m	0.50 m	17.41 m	Oak	

⁴⁷⁵ 7 metres of preserved length and 2.40 m of preserved width. Rieth 2011.

⁴⁷⁶ Rieth 2011, 70.

⁴⁷⁷ Data from Rieth et Guyon 2010.

⁴⁷⁸ Chronologies provided by Rieth et Guyon 2011, 94. Width, height and length measurements as well; these are preserved measurements, rather than reconstructed.

3. Great Britain

In the year 2000 and according to Michael Walsh, there were «only five Roman vessels discovered in British waters, none of which originated in the Mediterranean». These, he lists as the «Blackfriars I ship», the «New Guys House boat», the «County Hall ship», the «St Peter Port ship» and the «Barlands Farm boat»; the author adds that of these, only Blackfriars I and St. Peter Port were in relatively good conditions which would allow for «substantial evidence of cohesive cargo which in both cases was primarily fairly ordinary building material»⁴⁷⁹, which is derived from the fact of them being actual shipwrecks, and not ships which have been abandoned⁴⁸⁰. The two subsequent vessels under analysis, namely Blackfriars I and the Barland's Farm Boat, are of particular importance in what comes to the comparison of archaeological sources, as they are, amongst «the ships recovered through archaeological excavation, the ones that offer the closest parallels to the specifications outlined for Caesar's transport vessels»⁴⁸¹.

Blackfriars I

One of the most well-known cases of Roman period shipwrecks in Britain is the Blackfriars ship, found on the bank of the Thames, which is «the earliest known seagoing sailing ship yet found in northern Europe, and although of the Roman period it appears to belong to a native Celtic tradition of shipbuilding»⁴⁸². The characteristics of Blackfriars 1 are as follows:

⁴⁷⁹ Walsh 2000, 54. Even so, the ships are still subjected to deterioration: Marsden mentions that Blackfriars 1 has «the borings of mature *Teredo* in its hull timbers». See Marsden 1994b, 17.

⁴⁸⁰ Walsh (2017a, 6-7) mentions six potential Roman ships found during the 19th century, none of which have reached the 21st century and, therefore, with no possibility of further analysis. There is also record of a shipwreck called the «Pudding Pan», which Walsh analyses fully in Walsh 2017; as mentioned by Marsden 1994b, 22: the wreckage indicates that it was involved in the «samian importation trade, probably to London, and, if its exact site could be located, it may give important information about the methods used to package and stow the cargo».

⁴⁸¹ Millar 2002, 47.

⁴⁸² Marsden 1994c, 33. As mentioned by the author (1994c, 56), «although Blackfriars ship 1 is of the roman period its construction is very different from the Roman ships of the Mediterranean tradition».

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<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>	<i>Cargo Capacity</i>	<i>Speed</i>
1962	2 nd c. CE (N1)	6.12 m (N1)	2.96 m (N1)	18 m (N1) ⁴⁸³	Oak; iron nails (N1) ⁴⁸⁴ Hazel and birch shavings and pine resin as caulking ⁴⁸⁵ .	Sailed (N1)	50 tonnes ⁴⁸⁶	C. 7 knots. ⁴⁸⁷
Construction features⁴⁸⁸	<p>«Constructed of oak planks clenched with bent-over iron nails»⁴⁸⁹</p> <p>«Flat bottomed without keels»</p> <p>Cargo vessel, inland (coastal or offshore) operation. Skeleton first and carvel. (N1)</p> <p>«It is presumed that the cargo was placed centrally to give the ship an even keel»⁴⁹⁰</p> <p>«With sides of this [“at least 2.16 m from the bottom of the hull”] height the Blackfriars vessel must have had a deck of some form rather than have been a fully ‘open boat’»⁴⁹¹</p> <p>«(...) likely that the ship carried a square sail, and that the master attempted to plan his voyage so that he had a following wind – in this way he would minimise the steering problem»⁴⁹²</p> <p>Average speed based on a reconstruction: 6 knots (max: 12 knots).⁴⁹³</p> <p>«It seems most likely that it had two quarter rudders, one on each side»⁴⁹⁴</p>							

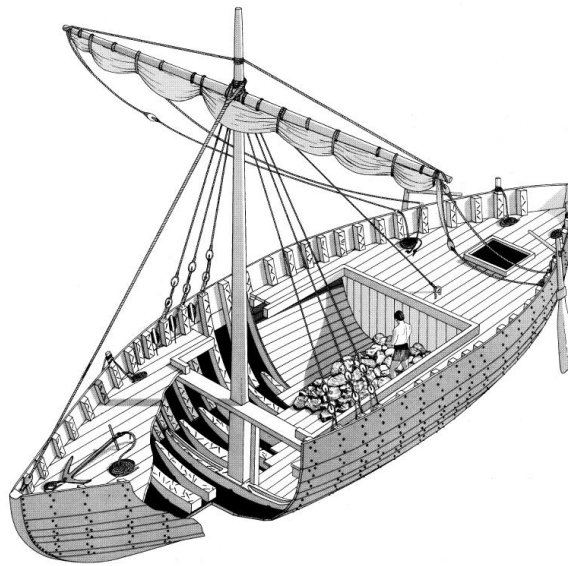


Fig. 13 as shown in Marsden 1994c, 77. Described as a «cut-away reconstruction of Blackfriars 1 ship».

⁴⁸³ Marsden (1994c, 35), states that «the only constant features extant during the excavation were the gantry supports, large circular piles, but as these did not give exact surveying points the overall length of the ship should be considered as only approximate».

⁴⁸⁴ «Treenails in the frames were of oak. The iron nails which fastened the planking to the frames had distinctive cone-shaped heads in which there was a ‘caulking’ of slivers of hazel wood with pine resin. Ordinary flat-headed iron nails with square shanks were used to fasten the ceiling planks to the frames inboard». Marsden 1994c, 38.

⁴⁸⁵ Marsden 1994c, 38.

⁴⁸⁶ Based on Marsden 1994c, 89; the ship would have been carrying «26 tonnes of ragstone», and «there was room for up to a further 24 tonnes of cargo».

⁴⁸⁷ The maximum possible speed considered by Marsden is of 9-10 knots, «under ideal conditions with a strong following wind». Marsden 1994c, 89.

⁴⁸⁸ The construction method is described by Marsden 1990, 66.

⁴⁸⁹ Gould [2000] 2001, 116.

⁴⁹⁰ Marsden 1994c, 60.

⁴⁹¹ Marsden 1994c, 61.

⁴⁹² Marsden 1994c, 73.

⁴⁹³ Marsden 1994c, 73.

⁴⁹⁴ Marsden 1994c, 76.

The contribution of Blackfriars 1 to the advancement of Roman nautical archaeology has significant importance when one observes that it was the first vessel to be suggested as representing «a Celtic method of shipbuilding current during the Roman period», which only later came to be known as «Romano-Celtic»⁴⁹⁵. Its construction indicates that «the flat bottom of the ship was clearly designed to sit on the sea or river bed at low water»⁴⁹⁶, with no keel but «two thick flat keel-planks»⁴⁹⁷. However, in spite of the ship's Celtic-style construction, it seems to have shared significant bonds with the Mediterranean tradition of shipbuilding, perhaps more than the vessels found in Belgium and France: aside from a believed mortice-and-tenon construction⁴⁹⁸, a bronze coin was found «in a recess on the port side of the bottom of the mast-step socket», with the «representation of Fortuna, goddess of luck, holding a ship's rudder»; this is, to this day, a singular case, as «coins have not been found in the mast-steps of other Romano-Celtic ships from central and northern Europe, or in Scandinavian ships of the first millennium AD», making it likely that the «luck coin ceremony was introduced from the Mediterranean»⁴⁹⁹.



Fig. 14. The bronze coin, as found in Marsden 1994c, 55.

In spite of archaeology considering that several of these Romano-Celtic ships can be dated to the 1st century CE, a dendrochronological dating system had slightly different results and, in a general revision of most shipwrecks of the same sort – the Zwammerdam, Druten and De Meern, Woerden, Bevaix, d'Yverdon, Lyon and the Blackfriars ships – it states that it is most likely that they all belong to the 2nd or 3rd century CE, with no 1st century

⁴⁹⁵ Marsden 1994c 36-37, quoting his earlier work (Marsden 1967, 34-5). Blackfriars might yet result in new contributions, as there are portions of it that have not yet been retrieved.

⁴⁹⁶ Marsden 1994c, 38.

⁴⁹⁷ Marsden 1994c, 38.

⁴⁹⁸ Marsden 1994c, 50. However, it also includes «massive hooked iron nails which attached the bottom planks to the floor timbers».

⁴⁹⁹ Marsden 1994c, 49. Marsden underlines the fact that coins were found in several Mediterranean wrecks of the classical period.

mention found amongst this specific dating system⁵⁰⁰; hence, discussion continues. Upon finding, «the timbers were identified as probably the frames of a carvel-built ship with flush-aid planking»⁵⁰¹; that it was carvel-built was confirmed following the early prospection works, which also revealed the sternpost⁵⁰². Another feature is the «large rectangular socket, measuring 0.35m by 0.25m, in floor-timber 7 on the centre-line of the ship»⁵⁰³.

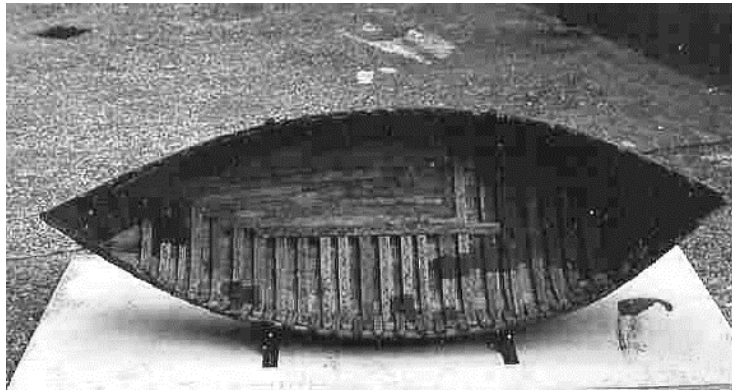


Fig. 15, described as the «reconstruction model at the Museum of London, inboard view»⁵⁰⁴.

Although we lack information regarding the specific tonnage, it is likely that it carried heavy loads, as it is believed to have sunk whilst «carrying a cargo of ragstone from Maidstone (Kent)»⁵⁰⁵. There is yet another different approach as to the typology and function of these ships, presented by Milne, which considers that they «may have been built for the *Classis Britannica*, the Roman fleet responsible for transporting legions and their supplies from the continental mainland to and around the British Isles» – which would make the construction type in consonance with the «needs of the Roman military»⁵⁰⁶. This would require significant resources of both timber and iron, as the author states, adding that «it should therefore come as no surprise that the well-attested large scale exploitation of iron in the Weald should have come under the auspices of the

⁵⁰⁰ Thiébaux 2011.

⁵⁰¹ Marsden 1994c, 33.

⁵⁰² Marsden 1994c, 33-35: initially, conservation attempts were not the most successful, which led to deterioration; however, «26 years later there were still many substantial pieces available for examination, and by that time advances in nautical archaeology had improved research objectives and techniques, and new facilities were available, such as tree-ring dating».

⁵⁰³ Marsden 1994c, 37.

⁵⁰⁴ https://www2.rgzm.de/scripts/dbWeb/dbwebc.dll/SingleString_Full_Image?linkxresults/obj/Part_Strin_gsearch/col/NR/dat/1110.

⁵⁰⁵ Milne 1996: 234; Marsden 1994c, 89 (Marsden estimates approximately 24 tonnes).

⁵⁰⁶ Milne 1996: 235.

Classis Britannica», and that several quarries dedicated to the exploration of iron were under their management⁵⁰⁷.

Barland's Farm boat

Together with the Blackfriars 1 tradition, there is also the Barland's Farm boat, which «was not flat-bottomed – her plank-keel projects below the outer bottom planks – and some framing elements must have been in place *before* these two planks were installed»⁵⁰⁸; the planks «were fastened to the framing and not to each other», enabling researchers to establish a «frame-first» construction⁵⁰⁹. Thus, in what regards the Barland's Farm boat, dated to the 3rd century CE, one can mention similar characteristics to Blackfriars 1. This ship, comparably to what is verified in several other Romano-Celtic vessels, also lacks a keel in the Mediterranean fashion, but, as established, has a replacement – «the builder would have fashioned plank-keel, posts and some of the framing, and then set them up»⁵¹⁰. What happens in this specific case is that one may observe several longitudinal planks, and one of these would have been used as the vessel's keel, instead of the more traditionally Mediterranean fashion of an outward keel shape⁵¹¹. McGrail considers that this specific ship would have been built through a 'design by eye' method, in which the builder would have opted for «using inherited wisdom, his own expertise and possibly details from another boat», which makes it not the product of a studied ship architecture, but of transmitted knowledge between the members of a community. The measurements for the Barland's wreck are approximately the following:

⁵⁰⁷ Milne 1995, 236.

⁵⁰⁸ McGrail et Nayling 2004, 197.

⁵⁰⁹ As stated by McGrail and Nayling, not necessarily a «full framework or 'skeleton' (...), rather that, before planking was added to the structure, some framing was in position to receive it and to determine how it should be shaped».

⁵¹⁰ McGrail 2015, 129.

⁵¹¹ «(...) the underside of the hull bottom still exhibited a slightly stepped profile during dismantling (...), the central planks forming a plank-keel». Nayling et Hunter 2004a, 23.

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<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>	<i>Cargo capacity</i>	<i>Speed</i>
1993	3 rd century CE (N1)	3.20 m (N1)	1 m (N1)	12 m (N1)	Oak ⁵¹² ; iron nails. (N1)	Sailed. (N1)	4-7 tonnes (optimal) ⁵¹³	4-5 knots under sail, 1.5 – 3 under oars ⁵¹⁴
Construction features	Skeleton first and carvel. Believed to be a cargo vessel. (N1) Inland / coastal (N1) operation.							



Fig. 16 as seen in Nayling et Hunter 2004, 18, described as «Photograph of boat *in situ* looking south (bow)».

Barland's Farm shipwreck seems to have been considerably smaller than Blackfriars 1⁵¹⁵, although they appear to have had similar characteristics and purposes, with Blackfriars 1 being pointed as the most ancient of the two. The two finding sites vary in their nature: whilst Barland's Farm ship was found in Magor (Gwent), in modern-day Wales – a location by the sea – Blackfriars 1 was found in London, by the River Thames. Whether the different location sites can be accounted for any significant difference in ship size or whether this may be uniquely derived from constructional purposes remains unanswered⁵¹⁶, but there seems to have been a degree of attention to the construction itself

⁵¹² «All the samples examined were identified as oak (*Quercus* sp). (...) All the planks were sawn tangentials in which the centres of the parent tree were rarely visible and only partial if any sapwood survived. The majority of timbers had insufficient rings for dating purposes». Regarding dendrochronology, the estimate is of it having been of about 281-326 BCE and 283-328 BCE, judging by two dated samples. Walker et Caseldine 2004, 67.

⁵¹³ McGrail et Nayling 2004, 216.

⁵¹⁴ McGrail et Nayling 2004, 216.

⁵¹⁵ As stated by Nayling and McGrail, «she was about one-fifth the size of Blackfriars 1», which gave her a probable «capacity of c 3 tonnes». McGrail et Nayling 1998, 57.

⁵¹⁶ To observe the specific environment under which Barland's Farm boat would have dislocated itself requires inspection of specific details, such as the types of molluscs found: whilst some are «estuarine», such as «*Hydrobia ventrosa*» and «*Hydrobia ulvae*», evidence has been found for «freshwater and land

that involved, for instance, that «suitable species [of trees had] been selected for specific purposes, but also that wood with certain growth or size characteristics had been chosen to meet specific needs»⁵¹⁷.

New Guy's House

Amongst 2nd century CE ships found in England, there is also New Guy's House boat⁵¹⁸, a «river barge (...) designed to carry cargo», with a «pointed end»⁵¹⁹; according to Navis I, it is still «in situ»⁵²⁰. This vessel offers similar characteristics to those mentioned above when one regards its dimensions and materials, together with the already well-attested for skeleton-first method⁵²¹. Marsden refers to it as the «only known example [of Romano-Celtic ships] definitely built in Britain, since it is just possible that Blackfriars ship 1 could have been built in Northern Gaul»⁵²².

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1958	2 nd c. CE (N1)	4.25 m (N1)	1 m (N1)	16 m (N1)	Oak; hazel-wood caulking ⁵²³ ; iron nails. (N1)	
<i>Construction features</i>	Skeleton first and carvel. (N1) Operated inland, at the coast and offshore. (N1).					

County Hall

Another significant shipwreck found in London is that of County Hall. Dated to the 3rd century CE, it is likely contemporary of the Barland's Farm wreck. This vessel has different characteristics from all others of the Romano-Celtic type found in Great Britain:

molluscs», although «relatively small in number». The fact that freshwater molluscs have been attested for does not mean, however, that the vessel would have dislocated itself along the river, and could indicate instead the movement of tides, as stated in Walker et Caseldine 2004, 61.

⁵¹⁷ Walker et Caseldine 2004, 69-70. «Oak was clearly selected preferentially for construction of the vessel: all structural elements with the exception of treenails and caulking were made from oak».

⁵¹⁸ For the most recent archaeological report, which is mostly directed towards preservation but has no new information regarding ship size, tonnage, cargo, etc., see «The Roman boat adjoining New Guy's House», 2010.

⁵¹⁹ Marsden 1994d, 103.

⁵²⁰ See <https://www2.rgzm.de/navis/home/frames.htm#../ships/ship021/Ship021.htm>.

⁵²¹ «The building sequence of the vessel was similar to that of Blackfriars ship 1. Frames had probably been fastened to a keel or keel-plank, and the stem and sternposts were added presumably before most of the planking». The caulking, constituted of «hazel shavings and warmed pine resin», would have been «placed on the plank edges before the next plank was attached». Marsden 1994d, 102.

⁵²² Marsden 1994d, 97.

⁵²³ Marsden 1994d, 98: «*Quercus* sp» and «*Corylus Avellane*».

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it is the one with the greatest length, and the small reconstructed width seems to suggest an elongated shape; the fact that it is the only vessel out of these built in the shell-first technique, with mortice-and-tenon joints⁵²⁴, also sets it apart. Beresford considers that it «provides clear confirmation that the Mediterranean shipbuilding technique, and perhaps even Mediterranean shipwrights, had been introduced to north-west Europe by at least the late third century AD»⁵²⁵.

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1910	3rd c. CE (N1) ⁵²⁶	5.06 m (N1)	2 m (N1)	26 m (N1) 18.30-21.30 ⁵²⁷	Oak (N1) ⁵²⁸	Probably sailed ⁵²⁹
<i>Construction features</i>	Shell first and carvel with a mortice-and-tenon technique. (N1) Inland, coastal, offshore operation (N1).					



Fig. 17. County Hall ship, in Marsden 1974: 56.

⁵²⁴ «The joints and construction throughout indicate the vessel as a fine piece of carpentry, and no caulking was necessary». Marsden 1974: 57.

⁵²⁵ Beresford 2013, 119.

⁵²⁶ Attested by the finding of a «bronze coin of Tetricus the Elder (Emperor in Gaul), AD 270-273», one of «Carausius (Emperor in Britain), AD 287-293» and one of «Allectus (Emperor in Britain)», AD 293-296. Marsden 1974: 62.

⁵²⁷ Marsden 1974: 56. These are slightly smaller measurements than those suggested in Navis I, closer to those of the vessels presented above.

⁵²⁸ Marsden (1974: 55) states that the species could either be «*Quercus robur*» or «*Quercus petraea*», which grow «in central and northern Europe, but not in Mediterranean lands».

⁵²⁹ «There is little evidence to show how the ship was propelled. There is, however, no arrangement for rowing on the preserved east side, and this fact, together with the size of the vessel, the discovery of a pulley block, and what was thought to be part of a mast, indicates that the ship was probably propelled by sail» (Marsden 1974: 63).

If both County Hall and Barland Farm's boat are believed to have operated simultaneously in inland and coastal areas, only the former is considered as capable of sailing offshore. Its characteristics may be related to the tradition of building vessels for sailing across the Thames and into the Atlantic Ocean, in spite of the constant associations of the Veneti vessels with the Romano-Celtic, skeleton-first types.

Guernsey

Another archaeological finding is the Guernsey shipwreck, also in the Gallo-Roman tradition. This seems to have been another case of an actual shipwreck rather than abandonment, as the ship was destroyed by fire⁵³⁰. In this case, «the strongest and heaviest element in the hull is the tripartite keel plank», constructed with timbers of «14.05 m long and 0.12» each⁵³¹. Found in 1982 and preserved by the Mary Rose Trust in Portsmouth, this is one of the vessels regarding which there is less information, as it is still under conservation, but it has resulted into a wide array of studies. The investigation rhythm is worsened by the fact that proper funding for housing the vessel «would not be addressed» until after 2017, as stated in an article by BBC News⁵³²; the same article, which dates from 2015, mentions as characteristics a length of 22-25 metres. Aside from the original and initial conclusions published in 1993, there is a more recent article, published in 2010, by Jason Monaghan. In spite of its main focus not being the characteristics Guernsey ship (rather the best methods for exhibition and preservation), it does provide a series of information.

⁵³⁰ Rule 1990, 50. There are several samples of burnt timber (amidst other objects, as seen in Fig. 18 and 19). It probably sank due to fire on-board, but as it happened on «a low spring tide», not only the crew would have had scarce difficulty in leaving it, but it also «would have been easy to salvage useful timbers such as the steering oars or the anchors»; Rule 1990, 51. The entire building process, according to the author, can be verified in Rule 1990, 53, and consisted, firstly, of selecting, felling and seasoning timbers, cutting and sawing them, assembling the keel planks and then the floor timbers. Thus, there is an indication for the skeleton construction, rather than shell.

⁵³¹ Rule 1990, 52.

⁵³² <https://www.bbc.com/news/world-europe-guernsey-30852076>.

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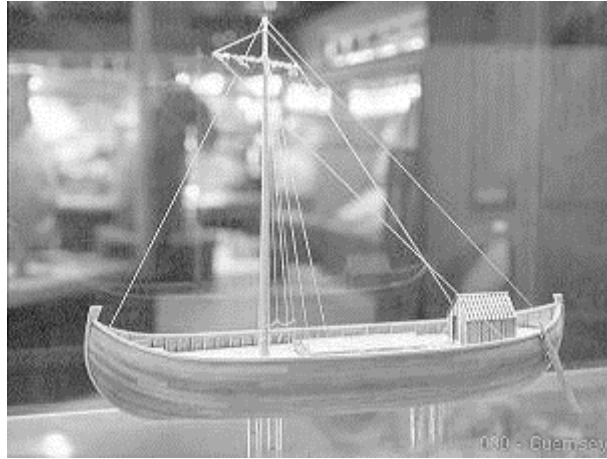


Fig. 18, a reconstruction of the Guernsey ship⁵³³.

Classified it as yet another «Gallo-Roman» or «Romano-Celtic» ship, its measurements are relatively close to those already seen for other ships of the same typology: of the surviving 18 metres, an estimate total of 22 is derived, with a «maximum beam» of 6 metres, a keel, and the usage of «heavy oak timbers fastened by massive iron nails»; «the timbers were butted together without jointing and were assembled frame first, unlike many Mediterranean ships of the time»⁵³⁴.

As is the case for other vessels, the dating of the vessel has been made mostly through cargo (pottery dating to the late 3rd century CE and coins, the latter divided in a «group of 2nd century regular issues dating AD 117-200 (...) all well worn», and «75 coins (...) all Antoniniani dating from the late 3rd century»⁵³⁵.

Navis I has the entry for Guernsey as a shipwreck of the 3rd century AD, and states the following data:

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1982 (N1)	3rd century CE (N1)	6 m (N1)	3 m (N1)	25 m (n1)	Oak ⁵³⁶ ; iron nails.	Sailed
<i>Construction features</i>	Cargo vessel; skeleton first and carvel.					

⁵³³ https://www2.rgzm.de/scripts/dbWeb/dbwebc.dll/SingleString_Full_Image?linkxresults/obj/Part_Stringsearch/col/NR/dat/2922.

⁵³⁴ Monaghan 2010, 35-36.

⁵³⁵ Rule 1990, 55.

⁵³⁶ Rule 1990, 49: «the ship was constructed entirely of oak (*Quercus* sp) with edge-to-edge planks fastened to floor timbers and side-frames with long iron nails. All the longitudinal seams were caulked with oak or willow shavings and moss was used to effect a seal between the cone shaped heads of the nails and the planks».



Fig. 19, described as «pitch & burnt debris on plank T114»⁵³⁷



Fig. 20, described as a «pitch block»⁵³⁸

4. Netherlands

De Meern ships

The Netherlands are a very particular case when one is observing the shipwrecks of the Roman period, especially the Romano-Celtic ship types. Some of the vessels' characteristics don't seem identifiable in any of the crafts found thus far in Belgium, France and Great Britain. One of the points that can be signalled regarding shipwreck findings in the Netherlands is the fact that they often come in large groups, rather than being isolated findings. Such is the case, for instance, of the De Meern ships, with six having been uncovered thus far between 1997 and 2008⁵³⁹. The De Meern findings, dated to the 3rd century CE⁵⁴⁰, are overall classified as being early Zwammerdam types⁵⁴¹, and investigation has distinguished them from the North Atlantic tradition by subdividing the craft in two groups, of which one is mostly constituted by what Morel calls «Prahme

⁵³⁷ https://www2.rgzm.de/scripts/dbWeb/dbwebc.dll/Cargo_fullImage?linkxresults/obj/Cargo/col/Autower/t/dat/102.

⁵³⁸ <https://www2.rgzm.de/navis/home/frames.htm#./Navihelp/General/shiplist.htm>.

⁵³⁹ The location of De Meern 5 has since then become unknown, with the last unsuccessful attempt to trace it having occurred in 2005. See Graafstal 2012, 17.

⁵⁴⁰ On a first approach, the sand deposits on the riverbank formed during the 3rd century CE or not much later, which means the shipwrecks must date from before that period. Dinter et Graafstal 2007, 22.

⁵⁴¹ Morel 2007a, 15: «(...) betreft he teen vroege representant van het type Zwammerdam».

rheinischer bauart» (Rhenanian barges style) and the other by the «caravel built» style found in Bevaix, Pommeroeul and Yverdon, of which only the «Druten» shipwreck can be found in the Netherlands⁵⁴². As one approaches central Europe, the ship types in use seem, therefore, to diversify, in a line that flows along the Rhine and downwards to Switzerland. Even if these Rhenanian vessels share general characteristics with the Romano-Celtic ships (the flat bottoms, in this specific case without a keel; the usage of iron nails⁵⁴³), the exclusively carvel-built style is not a constant, being accompanied by clinker types. It also follows that, as early as 90 CE, ships were being built with a growing mixture between the preservation of local technology and the inclusion of the Mediterranean one: De Meern 4 was the first vessel that allowed an identification of both «huidplanken» (a hull plank) and «veer-endeuvelverbindingen», a mortice-and-tenon joint technique as found in the Mediterranean⁵⁴⁴. A particularity regarding De Meern 4, possibly built during Traianus' construction program, is that it seems to have been sunk purposefully, in order to control river erosion⁵⁴⁵.

⁵⁴² Morel 2007a, 21; 2007b, 95.

⁵⁴³ Morel 2007a, 21.

⁵⁴⁴ De Meern 4, identified as a Zwammerdam type, has considerably fewer nails than De Meern 1, although it belongs to an earlier period. It is possible that this was a circumstantial occurrence and that the Mediterranean technique was used only for a short time span, or that both coexisted. See Morel 2007b, 32. Morel et Valmeijer 2007, 39: the specific way in which the technique was usually applied had to do with the application of animal hide after the ship had been built. As nails were used to secure it and subsequently removed, pegs were used to avoid leakage; this is unlikely in this case, leading to the interpretation as a Mediterranean mortice-and-tenon technique. The same occurs in the Vechten, Zwammerdam and Oberstimm wrecks (42), although De Meern 4 likely has the lowest number of nails per plank (50). This is why De Meern 4 is described extensively by Morel as the «missing link» in the evolution of vessels, the thorough explanation being found in Morel et Valmeijer 2007.

⁵⁴⁵ Earlier measures had not been entirely effective, thus leading to this occurrence. See Dinter et Graafstal 2007, 32.



Fig. 21, *De Meern 1* during archaeological works in 1997⁵⁴⁶.



Fig. 22, *De Meern 1* during its excavation in 2003⁵⁴⁷.

⁵⁴⁶ https://www2.rgzm.de/scripts/dbWeb/dbwebc.dll/SingleString_Full_Image?linkxresults/obj/Part_Stringsearch/col/NR/dat/1529.

⁵⁴⁷ <https://leidscherijninbeeld.nl/?tag=de-meern-1>.

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<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>	<i>Cargo capacity</i>	<i>Speed</i>
1997 (N1)	150 CE ⁵⁴⁸	2.50 (N1)	1 m (N1)	22 m (N1)	Oak ⁵⁴⁹ ; iron nails (N1)	Oared or sailed (N1) ⁵⁵⁰	14 tons (max.). ⁵⁵¹	21 to 26 knots ⁵⁵²
<i>Construction features</i>	<i>De Meern 1</i> : bottom first; carvel bottom and clinker sides; mortice-and-tenon technique. Cargo vessel.							
<i>Find date</i> 1997	<i>Chronology</i> 310 CE ⁵⁵³	<i>Width</i> 1 m (N1)	<i>Height</i> 0.40 m (N1)	<i>Length</i>	<i>Material</i> Oak; iron nails. (N1)	<i>Propulsion</i> Paddled / sailed (N1)		
<i>Construction features</i>	<i>De Meern 2</i> : Dugout with clinker sides ⁵⁵⁴ Possibly a working boat. (N1)							
<i>Find date</i> 1997	<i>Chronology</i> 310 CE	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>		
<i>Construction features</i>	<i>De Meern 3</i>							
<i>Find date</i> 2003 ⁵⁵⁵	<i>Chronology</i> Before 100 CE ⁵⁵⁶	<i>Width</i> 4.75 m	<i>Height</i>	<i>Length</i> At least 30 m	<i>Material</i> Oak	<i>Propulsion</i>		
<i>Construction features</i>	<i>De Meern 4</i> : Mortice-and-tenon.							
<i>Find date</i> 2008	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i> 10 m ⁵⁵⁷	<i>Material</i> (?) Nails	<i>Propulsion</i>		
<i>Construction features</i>	<i>De Meern 6</i> : keelless, flat-bottom ship. Buck-type ⁵⁵⁸ . Unlike what will be observed in <i>De Meern 7</i> , this vessel had nails used in its construction and subsequently removed.							
<i>Find date</i> 2008	<i>Chronology</i> After 74 CE ⁵⁵⁹	<i>Width</i> 3.20 m	<i>Height</i>	<i>Length</i> 20-25 m ⁵⁶⁰	<i>Material</i>	<i>Propulsion</i>		
<i>Construction features</i>	<i>De Meern 7</i> . The construction used nails for additional security, tilted in a curve. ⁵⁶¹							

De Meern 1, called by Dinte and Graafstal a «ship with a mission», seems to have been circulating along an important border zone. Whether it was doing a local mission or not is still being discussed, as authors believe ships circulating along the Roman *limes* would

⁵⁴⁸ Morel 2007a, 9.

⁵⁴⁹ 131 samples of oak were found, together with 16 samples of pine, 18 of alder wood, 12 of ash tree and one of willow. These include not only those found amongst the ship timbers, but also the inventory. See Brinkkemper 2007, 36-37. As some of the materials found did not exist in this region during this time, it is likely that they were a Roman introduction (for instance, box wood); see Brinkkemper 2007, 290-296.

⁵⁵⁰ It could be rowed for 250 minutes at an average power of 160 watts. See Dallmeijer, Moeyes et Morel, 2007, 166-68 (depending on the number of rowers). It would have required at least six rowers to attain 5 kph and twelve to reach 6.4 kph. It is likely that the rowers would have been standing, rather than sitting.

⁵⁵¹ Dallmeijer, Moeyes et Morel 2007, 156.

⁵⁵² 39 to 49 kph, on strong winds. Dallmeijer, Moeyes et Morel 2007, 153.

⁵⁵³ Morel 2007a, 9.

⁵⁵⁴ De Meern 2 and 3 are described as two «boomstamkano» (dugout canoes), of which 1377 fragments were found. Dallmeijer et Morel 2012, 217.

⁵⁵⁵ Morel 2007a, 21.

⁵⁵⁶ Morel 2007a, 9, with the dendrochronological data pointing to about 90 CE (32); 25-26 (width and length measurements); 28: possible cargo would have been building material; 53: material. All the data for De Meern 4 is provided by this study.

⁵⁵⁷ Dallmeijer et Morel 2012, 230.

⁵⁵⁸ It is not possible to ascertain the exact measurements due to the vessel's poor state of conservation (Ibid. 234-36). It is the only Roman era example of a flat-bottomed inland vessel.

⁵⁵⁹ Dallmeijer, et Morel 2012, 242.

⁵⁶⁰ Dallmeijer, et Morel 2012, 247.

⁵⁶¹ Dallmeijer et Morel 2012, 247. As it does not have a stem bar, it is possible that De Meern 7 is not a barge but a «pram-achtige vaartuigen». De Meern 6 is the only punter-like vessel of the Roman type in north-west Europe and 7 the only one representative of a relatively large flat-bottom without L-shape nails. See Dallmeijer et Morel 2012, 242.

have taken this path either way⁵⁶². It was probably either a cargo ship or working boat, its functions being correlated to the army but on its economic branch, the activities being carried through by the *immunes*, the veterans and the army's civil agents⁵⁶³. This vessel is a case of a rare finding where there are particularly well-preserved pieces of inventory. Several kinds of carpentry tools and utensils have been found, together with a wooden box with a bottom made of ash wood (but that also includes pine, beech and alder wood, the latter on the lid), as well as a bucket⁵⁶⁴. Pieces of furniture were also found, with mentions of a bed, a cupboard, a chest, and wooden cutlery (*pyxi*)⁵⁶⁵. It is described as a «rivierpraam», a flat-bottomed sailing boat, and the latest works have dated it to approximately 148 CE, with dendrochronology going as far as 85 CE⁵⁶⁶.

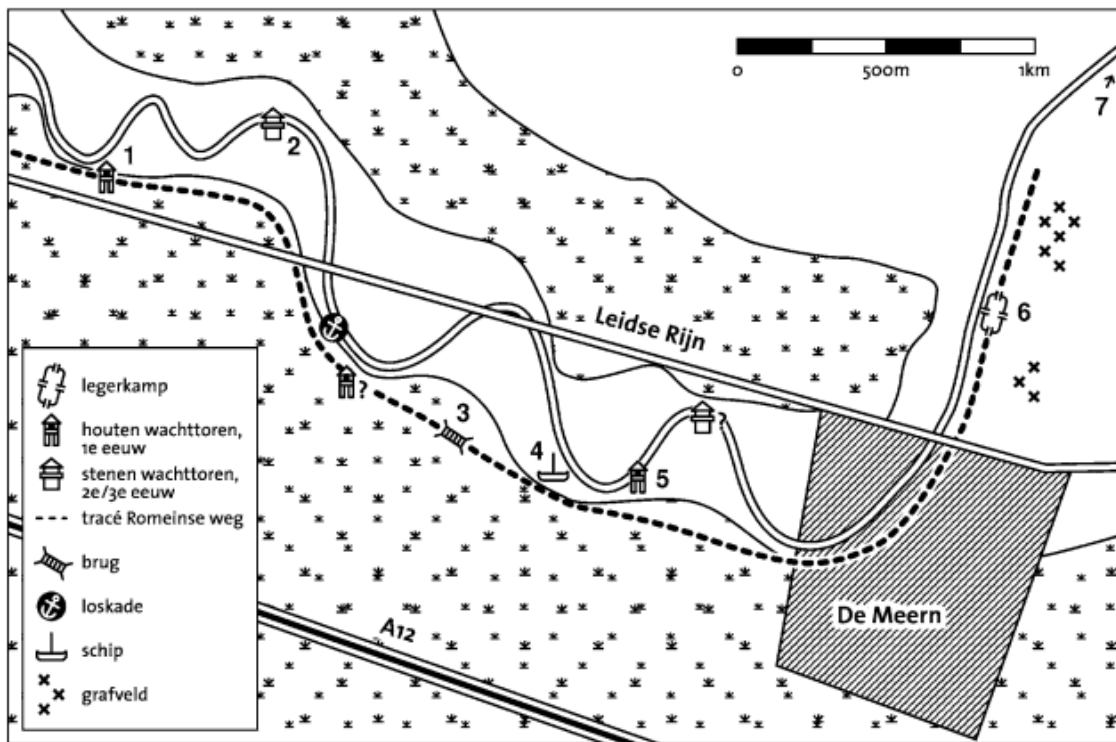


Fig. 23⁵⁶⁷: a representation of the area amongst which the *De Meern 1* was found.

⁵⁶² Dinter et Graafstal 2007, 35.

⁵⁶³ Dinter et Graafstal 2007, 35-36.

⁵⁶⁴ One of the possibilities, considering the utensils that have been found, is that this box was holding a carpentry tool set.

⁵⁶⁵ Brinkkemper, Koehler et Nientker 2007.

⁵⁶⁶ Graafstal 2012, 17.

⁵⁶⁷ Subtitle: army camp, wooden watchtower (1st century CE), stone watchtower (2nd – 3rd c. CE), Roman road, bridge, docks, ship and cemetery. As present in Dinter et Graafstal 2007, 26.

As verified in the figure above, the river seems to have been an important centre of communication, with a network built along its margins. Throughout the centuries, several watchtowers⁵⁶⁸ were built (one fairly close to the dockyards), which follow the outlines of the river up to the Roman camp; the ancient road also seems to accompany the river and the watchtowers. This supports the theory that marching Roman legions could frequently be accompanied by transport vessels along the rivers⁵⁶⁹, which would ease the load and make for a faster travel.

There is no longer a dualism exclusively between shell-first or skeleton-first construction – De Meern 1 is a bottom-first type, whilst De Meern 2 is a dugout – which means the ship would have been carved into a trunk. This means that ships built with the bottom-first technique and the dugout types would have coexisted. The tradition of dugout ships seems to have begun in early periods throughout this area; however, if one observes the Hardinxveld-Giessendam wrecks 1⁵⁷⁰ and 2⁵⁷¹ both, believed to have been fishing or cargo vessels dated to the 5th or 6th millennium BCE, they equally present a dugout technique which may have persisted through historical periods in this specific region, possibly adapted from materials and to the specific navigation characteristics of the region (De Bruin). The same can be said for Pesse 1⁵⁷², dated from the 2nd millennium BCE, found in Pessen. This ship, however, was built in pine, instead of oak – a different material for the dugout ships presented so far – and is believed to have been a cargo vessel, instead of a workshop. De Meern 2 is one of the few ships of this period fully built with a clinker technique instead of carvel, but it must be considered it was a dugout of small dimensions and the clinker technique may have been applied differently.

⁵⁶⁸ As mentioned by Dinter et Graafstal (2007, 26-27), the earliest structures in this area are two watchtower complexes dated to the 1st century CE, which show a succession of three building stages (the earliest in the time of Claudius, 41-54 CE; the second, the watchtower of De Balije, of 70 CE; and the last about 96 CE). Located in the southward river bends, they are presumed to have been built both to allow a better sight and to protect them from direct erosion. This region in particular is believed to have been a transport corridor during the pre-Flavian times.

⁵⁶⁹ The earliest built in 80 CE; Dinter et Graafstal (2007, 32).

⁵⁷⁰ <https://www2.rgzm.de/scripts/dbWeb/dbwebc.dll/Wreck?linkxresults/obj/Wreck/col/Ship%20Nr/dat/99>

⁵⁷¹ <https://www2.rgzm.de/scripts/dbWeb/dbwebc.dll/Wreck?linkxresults/obj/Wreck/col/Ship%20Nr/dat/100>

⁵⁷² <https://www2.rgzm.de/navis/home/frames.htm#../Navihelp/General/shiplist.htm>



Fig. 24⁵⁷³: *De Meern 2* as it was found in archaeological works.

Druten 1

Other ships built through the bottom-first technique were found along the Netherlands. One such case is Druten 1⁵⁷⁴, found in 1973 and dated from the 2nd to 3rd century CE, believed to have been a cargo vessel⁵⁷⁵. Druten 1 was not as complete as De Meern 1, with «one end of the ship» destroyed and the «timbers (...) in a poor condition»⁵⁷⁶. Similarly to De Meern 1, it also displays a carvel construction; however, Druten 1 is one of the few vessels on which a «zigzag pattern» of nailing is found, rather than an «L-shaped»⁵⁷⁷.

⁵⁷³ <https://www2.rgzm.de/navis/home/frames.htm#../Navihelp/General/shiplist.htm->

⁵⁷⁴ Distinguished from Pommereul I by the absence of «a covering board» and an incomplete «swimhead» (Lehmann 1990, 79). Note that «Druten is the successor of a Roman settlement but there were other reasons to sail westward through the lowlands. In the south-west (...) there was probably an estuary with a temple of the goddess Nehallenia on each bank»; amongst the cargo there were «stones from the Ardennes or from the German mountains, but chiefly slate» (Lehmann 1990, 81).

⁵⁷⁵ Amidst the findings are amphoras, bowls, a coin and slate. See Lehman 1978, 265-66.

⁵⁷⁶ Berg 2015: 446. According to the same article, «charring and charcoal remains» were also found, which probably indicates the ship was damaged by fire.

⁵⁷⁷ Lehman 1978, 259-61. As observed in the «best preserved *ile*», the «floor timber 4 (...) started curving south and upward, more abruptly on the inside than the outside (...), so that the *ile* thickened towards the end where it was cut across the grain. This was also a common feature of non-split dugouts, beginning with the Mesolithic example of Pesse (Van Zeist, 1957)». This seems to confirm the mixture of local traditions with the Mediterranean, in this case with the opposite circumstances: «instead of a Roman characteristic influencing the northern ships, the latter influenced the vessels in use by the Romans».

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<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1973	2 nd -3 rd c. CE (N1) ⁵⁷⁸	C. 2.80 m ⁵⁷⁹	-	16 m ⁵⁸⁰	Oak; iron nails (N1); alder ⁵⁸¹ .	Sailed (?) (N1)
Construction features	Cargo vessel; bottom first with carvel.					



Fig. 25. Druten 1, as seen in Lehman 1978, 259.



Fig. 26. Described by McGrail as a «boat on a first-century AD monument to Blussus», currently at the Mittelrheinisches Landesmuseum, Mainz. One can observe three oars, two at one end and one at the other (possibly a paddle-oar), with a sternpost.⁵⁸²

⁵⁷⁸ Berg has suggested a dating which is «at the earliest in the AD 210s, but more likely during the 220s, possibly even the 230s», considering an amphora found inside the ship. See Berg 2015 and Lehmann 1990, 79.

⁵⁷⁹ Berg 2015: 445.

⁵⁸⁰ Floor timbers' measurements. Berg 2015: 445; Lehman 1978, 259.

⁵⁸¹ There are possibly two types of oak («*Quercus robur* L.» and «*Quercus petraea* Lieblein»), which only grows in south and central Europe). This leads Lehman (1978, 266-67) to affirm that the ship «may have been built anywhere on the Rhine or one of its tributaries but may have been refitted somewhere in the upper reaches».

⁵⁸² In McGrail 2001, 206; the matter is discussed by Lehmann 1990, 79 (with the figure being taken from apud Ellmers 1978, fig. 5). Lehman says it «looks somewhat like the prints of oberländers, but we do not know the ship it represented. Some mistrust is justified towards Roman ship representations. Sculptures were very much inclined to compress ships lengthwise and to make disproportionately large heads».

Kapel Avezaath

Kapel Avezaath 1⁵⁸³, found in 1968 and dated from the 2nd century, was identified as a Zwammerdam type and has very similar characteristics to most of the other vessels⁵⁸⁴: bottom-first and carvel construction plus the usage of nails. In this specific case, a reconstructed length of 30.70 metres is presented – one of the largest ship types of this period found in the Northern Atlantic Ocean. On the same site, Kerk-Avezaath 2 was found, in this specific case fully connected to De Meern 1, as it makes use of Bottom-first, carvel to the bottom and clinker to the sides and possibly nails as well.

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1968 (N1)	2 nd c. CE (N1)			30.70 m (N1) ⁵⁸⁵	Oak (N1)	Sailed? (N1)
<i>Construction features</i>	Kapel Avezaath 1: Bottom first with carvel technique.					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1980 (1972?)	Iron age / Roman (N1)	2.80 m	0.96 m	21.50 m	Oak	Paddled
<i>Construction features</i>	Kerk-Avezaath 1: Dugout.					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1980 (1972?)		2.80 m	0.96 m	21.50 m	Oak	Oared / sailed
<i>Construction features</i>	Kerk Avezaath 2: Bottom first; carvel bottom, clinker sides.					

A group of archaeological findings in Woerden⁵⁸⁶ seem to follow the same typologies. There is a prevalence for bottom-first construction, in this case with both carvel bottoms and clinker-sides, or dugouts (with and without clinker sides). They are all dated to the 2nd or 3rd centuries CE, and one can group Woerden 1 with either bottom-first with carvel bottoms and clinker sides or dugout vessels. They also seem to belong to the same chronologies – either the 2nd or 3rd century CE. It is possible to group them in two: Woerden 1 and 2/6 belong to the bottom-first. Woerden 7 is of particular significance,

⁵⁸³ This vessel, probably of local use on the river Linge (Vlierman 1996, 16) is classified as another «boomstamkano» (it is made from an oak trunk) and is stated as being greatly damaged by the sand bank. See 12-13.

⁵⁸⁴ Hocker 2004, 68. As stated by McGrail (2001, 201), both Bevaix, Yverdon 1, Woerden and Kapel Avezaath have «diagonally laid or ‘mosaic’ planking which may be repair work (...) this planking is generally not fastened together». However, some of these vessels (Yverdon 2 and possibly Pommeroeul) have «angled nails» regardless. One may also add that «many of them had a mast-step well forward of amidships, some in floor timbers, others in a keelson: these were probably for towing masts, although a sail might be set in fair winds».

⁵⁸⁵ Of which only 5.98 m have been preserved (Vlierman 1996, 14).

⁵⁸⁶ Woerden 4, found during the 16th century, is not preserved, as seen in Navis I; «just three ships (Woerden 1, Woerden 7 and a rafter of Woerden 8) have been documented by means of excavation. The others are known through a written source (Woerden 4) and through rescue operations ensuing after accidental discoveries (Woerden 2/6, Woerden 3 and Woerden 5)»; Hazenberg 2013, 95. The Woerden findings are possibly associated to the Roman fort «possibly constructed around the time that Caligula was preparing an invasion of Britannia (...) may have formed part of a pre-Limes phase which is thought to have existed (...)». See Hazenberg 2013, 94.

seeing as a «rowing rig» was found; «this was the first evidence of rowers on a barge of the Zwammerdam type», with the subsequent discovery of another in Zwammerdam 6⁵⁸⁷.

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1978 (N1)	2 nd c. CE	3.65 m (N1)	1.60 m (N1)	25 m (N1)	Oak; iron nails (N1)	Sailed / Paddled (?)
<i>Construction features</i>	Woerden 1: Bottom-first with carvel bottom and clinker sides. Cargo vessel ⁵⁸⁸ . (N1) ⁵⁸⁹					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1988 (N1)		3.10 m (N1)	1.20 m (N1)	20 m (N1)	Oak; iron nails (N1)	Sailed / Paddled (N1)
<i>Construction features</i>	Woerden 2: Bottom-first with carvel bottom and clinker sides.					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1988 (N1)	2 nd / 3 rd c. CE	1.25 m	0.49 m	12 m	Oak; iron nails	Sailed / Paddled (?) N1
<i>Construction features</i>	Woerden 3: Dugout with clinker sides.					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1998 (N1)	1 st c. CE (N1)	0.50 m (N1)			Oak (N1)	Towed (N1)
<i>Construction features</i>	Woerden 5: Dugout (N1)					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
2003	c. 150-180 CE ⁵⁹⁰	4.70 m	1 m ⁵⁹¹	29.60 m ⁵⁹²	Oak ⁵⁹³	
<i>Construction features</i>	Woerden 7 ⁵⁹⁴ : described as a «barge with rowing rig, constructed from ‘German’ and ‘Dutch’ wood».					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
2003						
<i>Construction features</i>	Woerden 8: «galley».					

⁵⁸⁷ Hazenberg 2013, 94.

⁵⁸⁸ Hazenberg 2013, 94: Woerden 1 would have been carrying grain, «providing a good insight into the supply routes of food destined for the Limes troops».

⁵⁸⁹ Only 10 metres of the estimated 25 have been found. Woerden 1 has been identified as belonging to the same typology as «Bevaix, Druten, Kapel-Avezaath et Yverdon». However, it also shares characteristics with Zwammerdam 4: «sur la couture, une latte a été clouée à l’extérieur; ce qui surprend, du point de vue hydrodynamique. Le même phénomène se retrouve sur le bateau de Zwammerdam IV, mais là, les planches sont cassées et le Seuil manqué, de sorte que la construction n’est pas évidente» (Lehmann 1998 : 71).

⁵⁹⁰ http://www.machuproject.eu/machu_cms/VoC/VoC_Wreck_View.php?wreck_id=152&lang=EN.

⁵⁹¹ Jansma 2005, 3. This study focuses mostly on the timbers: dendrochronology, their origin (which, as mentioned, has been ascertained to different geographical areas) and the method of working wood.

⁵⁹² Width and length values also provided by the Machu project. Out of these 29.60 m, 25.40 m were found; the estimate maximum width is 4.70 m (Blom et Brakman 2008, 360). The same work adds there was no building sacrifice («bouwoffer» or votive gift («votief-gift»)) as the coin found in Blackfriars 1; the ship displays remains of a mast cabine («mastvoet»; 365) There are also benches which were potentially meant for rowing (366).

⁵⁹³ «(...) from the Eiffel [and] local wood». Hazenberg 2013, 94.

⁵⁹⁴ It was found near the Roman *castellum*. Blom et Brakman 2008, 253.



Fig. 27. A reconstruction of *Woerden 7*, currently at the *Museum für Antike Schifffahrt te Mainz*. Note the tall, rectangular sail⁵⁹⁵.



Fig. 28. *Woerden 7*, as seen in Blom et Brakman 2008, 361.

Vechten

Vechten 1 is believed to have been a Roman military vessel from the 1st century CE, which makes it one of the few preserved vessels serving military purposes. The Vechten 1 wreck, found in De Burg, is not built in oak but in pine; furthermore, unlike the cargo ships presented above, this is not a bottom-first or dugout ship, but a more traditionally Mediterranean type, with shell-first and carvel, mortice-and-tenon usage and both wooden and iron nails. This means that this ship may not have been built by the local communities under Roman influence, but to have followed orders directly from Roman shipwrights and commanders. The operation environment, as presented by *Navis I*, would have been inland. which means that this ship would have been different from the large triremes, quadriremes and quinqueremes sailing across the Mediterranean during wars, and may explain why the reconstructed length points towards 12 metres, a significantly smaller length than that of the formerly presented cargo ships.

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1892/93 (N1)		3 m (N1)	1.50 m (N1)	12 m (N1)	Pine; Wood and iron nails (N1)	Oared / sailed (?) (N1)
Construction features	<i>Vechten 1</i> : Shell first; carvel; mortice-and-tenon technique. (N1)					

⁵⁹⁵ Blom et Brakman 2008, 354.

Zwammerdam shipwrecks

Six ships have been found thus far in Zwammerdam, one of the largest archaeological findings so far in this regard. All but Zwammerdam 4 are considered to belong to the 2nd to 3rd century CE, with Zwammerdam 4 being dated to an earlier period, at the 1st century CE. Their nature, size and functions vary significantly, as may be observed below⁵⁹⁶:

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1971 (N1)	2 nd – 3 rd c. CE (N1)	1.05 m (N1)	0.50 m (N1)	6.99 (N1)	Oak; Iron nails (N1)	Paddled (N1)
<i>Construction features</i>	Zwammerdam 1: Fishing vessel; dugout with foredeck. (N1)					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1972/1973 (N1)	2 nd – 3 rd c. CE (N1)	2.95 m (N1)	0.95 m (N1)	22.75 m (N1)	Oak; iron nails (N1)	Sailed / Paddled (?) (N1)
<i>Construction features</i>	Zwammerdam 2: Cargo vessel; bottom first; carvel bottom and clinker sides. (N1)					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1973 (N1)	2 nd – 3 rd c. CE (N1)				Pine (N1)	Oared / Sailed (?) (N1)
<i>Construction features</i>	Zwammerdam 2a: possible military vessel. Shell first; carvel, mortice-and-tenon technique. (N1)					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1973 (N1)	2 nd – 3 rd c. CE (N1)	1.40 m (N1)	0.43 m (N1)	10.66 m (N1)	Oak and pine; iron nails. (N1)	Sailed / paddled (N1)
<i>Construction features</i>	Zwammerdam 3: Cargo vessel, dugout bottom with clinker sides. (N1)					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1973/1974 (N1)	1 st c. CE (N1)	4.40 m (N1)	1.20 m (N1)	34 m (N1)	Oak; iron nails (N1)	Sailed / Paddled (?) (N1)
<i>Construction features</i>	Zwammerdam 4: Bottom first, carvel bottom, clinker sides. (N1)					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1973 (N1)	2 nd – 3 rd c. CE (N1)	0.76 m (N1)	0.30 m (N1)	5.48 m (N1)	Oak and pine; iron nails (N1)	Towed (N1)
<i>Construction features</i>	Zwammerdam 5: Fishing vessel. Dugout, overall deck.					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1974 (N1)	2 nd / 3 rd c. CE (N1)	3.55 m (N1)	0.90 m (N1)	20.40 m (N1)	Oak; iron nails (N1)	Sailed / Paddled (?) (N1)
<i>Construction features</i>	Zwammerdam 6: Cargo vessel; bottom first, carvel bottom and clinker sides, mortice-and-tenon technique. (N1)					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1973 (N1)	2 nd – 3 rd c. CE (N1)	1.24 m (N1)	0.50 m (N1)	5.15 m (N1)	Oak (N1)	
<i>Construction features</i>	Zwammerdam 7: Potentially a cargo ship; mortice-and-tenon technique, operated inland. (N1)					

«Barges of the Zwammerdam type (...) are not rooted in a Celtic shipbuilding tradition. The flat-bottomed rivercraft with flush-laid planking show a shift in technology from that used in the North Adriatic coastal craft (...). To stiffen the boat in transverse direction, the edge-joining by sewing planks in sutiles naves of the North Adriatic was replaced, in the Zwammerdam boats, by bridging the full width of the flush-laid bottom planking with a system of floor timbers running from side to side. (...) The characteristics of the type – ‘celtic’ to use Marsden’s (1977) term – are not Celtic in terms of archaeological attributes. (...) vessels of the Zwammerdam type (...) cannot be seen as an evolutionary development from split logboats – intruded into the Northern Provinces along with the Romans in the 1st century AD». (De Weerd 1990, 75).

⁵⁹⁶ As seen in McGrail 2001, 195. «Fastened together with locked mortise and tenon joints»; «as were the three parts of the blade of a steering-oar also excavated from Zwammerdam». «The first side strake of Zwammerdam boat 6 (...) was fastened edge-to-edge to the transition strake by mortise and tenon joints, as well as angled nails».

In 1990, M. de Weerd went against the overall current by saying that the Zwammerdam-type of vessel could not be considered Celtic in terms of its specific attributes; however, the terminology has prevailed, and lasted to this day. Most works on the matter will quote the Zwammerdam findings and display them as «Romano-celtic»; for the purpose of clarity, we have maintained that terminology throughout the work. This position comes to show, however, how scarce the certainties are regarding the evolution and origins of these vessels, and that the very idea of them being «Romano-Celtic» cannot be firmly ascertained as of yet, due to the lack of archaeological findings and potential connecting components⁵⁹⁷. Following De Weerd and seeing as boats of this type cannot truly be called Celtic and do not derive from an indigenous shipbuilding style, the next step is to determine whether these vessels can be called Romans; and, if so, one has to state that the «Roman» vessels do not necessarily need to be made in the Italian Peninsula, but can also be the product of Romanisation. This approach, which does not dwell too much on the analysis of terminology but on establishing the concepts so they can be worked, fits the purpose of this study. As seen below:

«Any definition of a shipbuilding tradition is inferred from the set of elements which we select to describe and which we arrange in a presumed procedural pattern. Such a pattern, however, is only a reconstruction of the boatbuilder's mental template, i.e., the ideal 'boat' which he planned to realize, using the available technologies in some well-tried sequence of action. In his view, building traditions and boat types (sewn, mortice and tenon, Zwammerdam, Utrecht, cog) are mental constructs resulting from classifying boats as archaeological artifacts. It is here argued that some building procedures cross our basic technological, morphological and functional classifying concepts and reflect the boatbuilder's mental template: his – historical – action of copying a specific functional procedure to build a boat using, however, quite different technologies to adapt to a comparable environmental circumstances.» De Weerd 1993, 14-15.

There are at least three different ship types⁵⁹⁸. The oldest of the vessels, Zwammerdam 4, has a bottom-first construction with clinker sides and a carvel bottom, a type of combination already found in other ships, and seems to be one of the oldest with this specific construction. However, when one advances to the 2nd and 3rd centuries CE, three of the ships are dugouts, two are bottom-first constructions like Zwammerdam 4, and one is a shell-first type, less common amongst the Northern ships. The Zwammerdam ships (as Vechten 1, according to McGrail) seem to include two different construction methods: one with «reed caulking» and the other with «a Mediterranean-style mortise-and-tenon

⁵⁹⁷ There is currently an on-going project to restore and display all the Zwammerdam ships to the public. More information can be read at <http://www.zwammerdamschepen.nl/het-project.html>; the current schedule has 2020 as an opening date for the museum, and 2021 for the conclusion of the restoration.

⁵⁹⁸ McGrail 2001, 195: Vechten 1, Zwammerdam 2a, Zwammerdam 6 and both the Oberstimm vessels are built in a similar manner.

type of fastening». It is considered that the «large, flat-bottomed vessel» known as Zwammerdam 6 was a «large, flat-bottomed vessel that may have served as a ferry on the Rhine»⁵⁹⁹.

With the one exception of Zwammerdam 2a, most ships are either cargo vessels or fishing vessels. Coincidentally, Zwammerdam 2a is the only ship that follows a fully Mediterranean pattern of shell-first, carvel and mortice-and-tenon construction. One may question whether the differences in construction have any direct connection to the fact this is a military and not a cargo vessel (whether there was military engineering involved, unlike what happens with some of the other ships, particularly dugouts and fishing vessels. One may also mention that, out of all ships found, the military vessel is the only one that was built in pine rather than oak, pine being a material which has been found for vessels in Italy and Southern France. Whether there is any likelihood of this ship having been transported from the South to the North is debatable – resource and construction wise, it may have been more practical for the Roman army to build their ships *in loco*, similarly to what Caesar did whilst campaigning against the Veneti in the 1st century BCE. However, the finding site, modern-day Rotterdam, is within a city connected to plenty of large water courses, amongst which the river Rhine and the Meuse. There is, thus, the possibility that this ship was built away from the Netherlands and used to carry Roman soldiers and army provisions into the North of Europe.

It is also verifiable that several of these ships combine the carvel and the clinker construction, and one of them, specifically, a dugout bottom with clinker sides. This ship, the Zwammerdam 3, together with Zwammerdam 5, combines two different timbers in the construction, unlike the most ordinary occurrence of ships made entirely of oak. These two timbers are, specifically, oak and pine, which means it is likely pine was also being used in the construction of these vessels, and it was not exclusive to the military craft, although the latter is the only one to use this timber in exclusivity. One may also observe the presence of small boats used as fishing vessels, namely Zwammerdam 1 and 5. They are both believed to have been fishing craft following the dugout typology, with ship 1 having a foredeck and ship 5 having an overall deck, both with nail irons accounted for. The one significant difference between them is the fact that ship 1 utilises only oak, whilst ship 5 has included pine.

⁵⁹⁹ Gould [2000] 2001, 115.

In spite of its poorly preserved state, there are a few conclusions which may be found from the archaeological remains of Zwammerdam 7. There is evidence to the fact that Zwammerdam 7 was also built with the mortice-and-tenon joint technique, as may be observed through the pictures in Navis I, which show the joints and holes where the nails would have been. The inclusion of a rudder blade and a steering oar possibly indicate that it attained a speed significant enough to require devices to easily shift direction, instead of relying on manpower and oars alone.

Zwammerdam 3 seems to share characteristics with both groups. Whilst it is believed to be a cargo vessel, its reconstructed length is significantly inferior to that of Zwammerdam 2 and 5, at an estimate of under 11 metres, and a width of 1.40 metres – about half of what one may observe amongst the other ships. Unlike those, it is not a bottom-first ship, but a dugout, which connects it to the fishing vessels; however, not only is it larger than these, but also incorporates the clinker sides seen in some of the larger cargo vessels. Thus, we have a cargo vessel which may not have been intended for the same purposes as its largest counterparts, as it would have lacked the capacity for heavier and more numerous loads.

Campbell mentions the Zwammerdam findings in his analysis of propulsion methods, classifying them as punters; however, he does not disregard other methods. «Where estuaries and rivers of sufficient volume allowed larger cargo vessels to travel upstream, sails were used with the support of onshore winds», especially down the stream; but «river navigation was more often accomplished by oars, and a long-established method of rowing in Gaul and Germany used push oars, which were tied to the sides of the craft»⁶⁰⁰. The author mentions, for instance, the funerary monument of Neumagen, as seen below:



Fig. 29, the Neumagen funerary monument.⁶⁰¹

⁶⁰⁰ Campbell 2012, 232-36.

⁶⁰¹[https://commons.wikimedia.org/wiki/File:Funerary_stone_monument_found_in_Neumagen_in_the_shape_of_a_rowing_ship_for_transport_of_wine_barrels_on_the_Moselle_river,_about_220_AD,_Rheinisches_Landesmuseum_Trier,_Germany_\(29591303742\).jpg](https://commons.wikimedia.org/wiki/File:Funerary_stone_monument_found_in_Neumagen_in_the_shape_of_a_rowing_ship_for_transport_of_wine_barrels_on_the_Moselle_river,_about_220_AD,_Rheinisches_Landesmuseum_Trier,_Germany_(29591303742).jpg).

One can observe twenty-two oars (thus, a total of forty-four when the other side is accounted for, if it has an equal number); Campbell observes that it is curious that «six oarsmen and possibly six on the other side» propel the vessel when twenty-two oars are displayed, but perhaps this can yet again be ascertained to the matter of proportion in art. A «steersman and one man who marks time by clapping his hands» are also observable. Whether this is a transport or «a warship used to transport wine for the army» is uncertain, and Campbell also suggests the possibility that, in this case, there could be «forty-four oarsmen, or double this if there were two men to an oar». Towing through «mules, horses or men» was also frequent, being used in «certain rivers or certain parts of rivers and in getting past bridges with low clearance». The usage of a «pole like a punt on small craft» not only took up «less room than oars» but also «provided strong propulsion from riverbeds that were sufficiently shallow». There is also the possibility of «the punter [pushing] the pole into the river bed, (...) put the handle under his arm [and...] walked along the boat in the direction of travel». In the specific case of the Zwammerdam vessels, the dugouts could «be used on the river as far upstream as Switzerland; the barges were to transport heavy goods and may have been mainly for use downstream».

5. Germany

Mainz and Oberstimm

<i>Find date</i> ⁶⁰²	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1981/1982 (N1)	3 rd c. CE ⁶⁰³	3.70 m (N1)	1.30 m (N1)	17 m (N1)	Oak, iron nails ⁶⁰⁴ (N1)	Oared / Sailed (N1)
<i>Construction features</i>	Mainz 3 ⁶⁰⁵ : Military vessel operating inland, Mainz B type. Mould construction, carvel.					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1982 (N1)	1 st – 2 nd c. CE	5.40 m (N1)	0.95 m (N1)	4.20 m (N1)	Oak; iron nails (N1)	Sailed / Paddled (?)
<i>Construction features</i>	Mainz 6: Shell first with carvel bottom and clinker side.					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i> ⁶⁰⁶	<i>Material</i>	<i>Propulsion</i>
1986/1994 (N1)	2 nd c. CE				Pine and oak; wooden nails (N1)	Oared / Sailed (N1)
<i>Construction features</i>	Oberstimm 1: Shell first and carvel; mortice and tenon technique.					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1986 / 1994 (N1)	2 nd c. CE (N1)	2.65 m (N1)	1.05 m (N1)	15.40 m (N1)	Pine and oak; wooden nails, iron bolts (N1)	Oared / Sailed (N1)
<i>Construction features</i>	Oberstimm 2: Shell first and carvel, mortice and tenon technique.					

As one approaches central Europe, the construction techniques seem to vary and distance themselves further from their northern counterparts. In Germany, three of the vessels found share a shell-first and carvel construction with the usage of a mortice-and-tenon technique, with the one noticeable difference of being made not exclusively of pine, but also oak, displaying a diversification of the main timber; the nails are also wooden rather than iron, as observed North⁶⁰⁷. The Mainz findings, which probably are related to brick workshops or shipsheds (which «presumably have housed vessels directly attached to the

⁶⁰² Mainz 1, 2, 4 and 5 were not included, as they already greatly extend our proposed timeframe (estimate to be dated to the 4th century CE). In spite of the discovery having been 20 years ago, there is still scarce work on some of the Mainz vessels, with most studies focusing on ship 3; however, seeing as most belong to a later period, the most important for the timeframe in question is ship 6.

⁶⁰³ The Machu project classified Mainz 3 as a «*navis actuatoria*» belonging to the 4th century CE (In: http://www.machuproject.eu/machu_cms/); Paine classifies it as a «cubiculata or iudiciaria» (101-2).

⁶⁰⁴ «When the Mainz hulls were dismantled there appeared as well a number of round drilled holes which had been closed by wooden pegs»; Höckmann 1993, 126. The construction method possibly included these pegs as a «temporary fastening of the strakes to moulding frames, later removed and replaced by final frames»; this took Höckmann to speak of a «moulding-frame-first» technique to create a «plank shell which could then be treated in the same way as a Mediterranean-style mortise-and-tenon joined shell» (1993, 127).

⁶⁰⁵ «(...) the Mainz site (...) was probably chosen for stationing a flotilla of river warships which would be able to block the River Mainz outlet, only 700 m distant, against German boats at shortest notice, so protecting the provincial capital [Mogontiacum] against surprise attacks». Höckmann 1993, 125.

⁶⁰⁶ Bockius 2002 places the lengths at 15.1 for Oberstimm 1 and 14.5 for Oberstimm 2.

⁶⁰⁷ Syvanne lists Vegetius' (4.37, 4.46) names for vessels used in the Danube, the Rhine and at sea, many of which were already mentioned by Campbell (2012): the «*scaphae* / *picate* / *picati*» («scouting ships»), river patrols («*lusoriae*»), the small «ship-boat» («*scafula*»), the «*pictas* / *picatos* (...) a scouting boat with nearly 20 oarsmen on each side, used on the high seas»; the «*lusoriae* were also used on the Rhine and elsewhere», and there were «other types of vessels in use ranging from the merchant ships and transports to the specialist ships like the horse transport (*hippagogos*)». See Syvanne 2015, 47.

legions for patrolling or transport purposes, similar perhaps to second-century ships found at Oberstimm») and potentially were «operated (...) by military personal who were not attached to any of the Roman fleets»⁶⁰⁸, can be classified in two different types, according to Paine: «ships 1, 4, 7 and 9 are slender, open vessels called *lusoriae*, general-purpose cutters used extensively on the Rhine and Danube Rivers», whereas «ship 3» would have been an «inspection boat»; nothing is said of ships 6 and 8 in his work⁶⁰⁹. Navis I is, as of yet, one of the main sources regarding Mainz 6. If the first five Mainz vessels are considered as military ships, Mainz 6 is yet another flat-bottom type, similar to Zwammerdam 4⁶¹⁰; there is not much more information.

Bockius (2011, 49) classifies the Oberstimm wrecks as suiting «military purposes», classifying them as «the smallest class of ancient galleys, known to the ancient as *moneres* – in this individual case, approx. 16 m long light open boats. Driven by oar crews of 18 and 20 men respectively, remains proved the original presence of an auxiliary sailing rig». According to the Oberstimm findings and a 19th century Dutch wreck in Bunnik-Vechten, Bockius concludes that «in the first two centuries AD Mediterranean shipbuilding tradition reached the continental military zone of the Roman Empire along the Northern boundary, and locally built vessels also in a functional sense were connected to the Roman army» (50-51). It seems that in wreck 2 there would have been a combination of timber: «the oak keels are slightly rounded over their whole length (...). The 3.5 to 4 centimetres thick shell is made of pine wood planks». As the «carpentry of the seams» is considered «poor», the mortise-and-tenon joints was joined by the luting through «cords of lime-tree fibres»⁶¹¹.

The construction types found across the Danube and the Rhone seem to have served defence purposes well into the Late Antiquity, as stated by Sarantis: the «imperial fleets in Germania, Moesia and Pannonia» would prevent invasions from enemies which would have been using «unsophisticated and small canoes», whilst the «liburnians with forecastles», as well as «triremes», would have been used on the Rhine as «platforms or missile attacks against barbarian groups»⁶¹². These fleets in the Danube would include «a

⁶⁰⁸ Rankov 2013, 34-36.

⁶⁰⁹ Paine 2000, 101-3.

⁶¹⁰ As stated by Pferdehirt in <https://www2.rgzm.de/navis/Themes/Flotte/FleetsAndBorder.htm>.

⁶¹¹ Bockius 2002, 152.

⁶¹² Apud Hockman 1997, 202. One may add that «During the Roman Imperial period towns near rivers, particularly along the Rhone but also in Dacia, had guilds of *utricularii* “bladdermen”», which would have

variety of small, flat-bottomed vessels, such as the *superventores*», and the Oberstimm vessels are very similar to these. Thus, it seems that a significant portion of river craft had a «policing role», whilst providing «logistical and intelligence support to land campaigns – transporting troops, supplies and bridge-building materials, and scouting the movements of enemy forces»⁶¹³.

6. Switzerland

Bevaix

A few Roman ships were also found in Switzerland, one of them in different circumstances from what we have observed thus far. The Bevaix shipwreck⁶¹⁴ was discovered close to the Lac de Neuchatel, which implies a closed inland navigation, instead of river or coastal. Bevaix 39, dated to the 2nd century CE, is presented as follows:

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1970	182 CE ⁶¹⁵			20 m	Oak	Oared / Sailed
<i>Construction features</i>	Bevaix: Shell first.					

Bevaix, which shares characteristics with a later finding (Yverdon 2), presents some differences from Yverdon 1: «la presence d'un ensemble de rangées de chevilles rondes, dispose perpendiculairement à l'axe longitudinal et apparemment sans fonction, a été identifiée sur le chaland de Bevaix, mais également sur la petite barque *Yverdon 2* (...). Ce procédé semble avoir été très courant sur le lac de Neuchâtel, mais pas exclusive comme en témoigne le chaland *Yverdon 1* où aucune cheville n'a été identifiée dans le fond, à l'exception de l'extrémité de la levee de la poupe». Arnold also distinguishes Bevaix from the Lyon and Zwammerdam wrecks, and states that it seems to be the result of «un artisanat sans rapport avec des constructions en série»⁶¹⁶.

operated «landing floats, pontoon bridges, buoyed-raft ferries, or other apparatus involving the use of inflated skins». Casson [1971] 1995, 5, note 3.

⁶¹³ Sarantis 2013, 204-5.

⁶¹⁴ The data presented by Navis I is significantly different, with a length of 4 metres, a width of 2.90 metres and a height of 0.90 metres.

⁶¹⁵ Arnold 2011, 22; remainder data also from Arnold 2011.

⁶¹⁶ Arnold 2011, 25.

Believed to be a transport ship, it is, however, significantly smaller than plenty of the other vessels of this kind which we have seen thus far, save a few exceptions like Zwammerdam 5. The reconstructed length of 20 metres points to it being similar to *Yverdon 1*, as seen below:

Yverdon

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1971	110-115 CE ⁶¹⁷			24 m		Oared
<i>Construction features</i>	<i>Yverdon 1</i> ⁶¹⁸ .					

This ship was also found alongside the Lac de Neuchâtel. It is possible that we are yet again in presence of ships carrying different types of cargo – with distinctive needs, which would determine the way they are built – or a situation in which one of the ships would have belonged to someone with a more advantageous economic situation, thus allowing for the cargo transporter to invest in larger ships and make more profitable journeys.

Yverdon 2, found in 1984, was attributed to a subsequent time period, believed to have been in use during the 4th century CE, thus two-hundred to three-hundred years following the former two. Nonetheless, the continuity of ship materials and propulsion methods is observable, and one can notice the ship's different dimensions (9.70 metres length and 1.50 metres width), which put it somewhere in between the two presented above. The Yverdon boats, both 1 and 2, are considered as a «sub-group of first-third centuries AD boats» which also include «Druten, Kapel Avezaath, Pommeroeul 4 and 5, Mainz 1-5, Woerden (...), Zwammerdam 2, 4 and 6, Xanten 1 and 2, and a fragment from Avenches», and it has been found that they are «not as homogeneous as the 'Blackfriars vessels'», making it «more difficult to identify their common characteristics». Amongst these are, for instance, «mosaic planking» for both Yverdon 1, Woerden and Kapel Avezaath⁶¹⁹.

⁶¹⁷ Dendrochronological analysis. Arnold 2011, 21.

⁶¹⁸ Yverdon 2 was not included, as it is dated to the 4th century CE.

⁶¹⁹ McGrail 2001, 201.

7. Slovenia

Sina Gorica and Lipe

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
	c. 176 BCE – 2 CE ⁶²⁰				Beechwood (<i>Fagus sylvatica</i>) ⁶²¹	
<i>Construction features</i>	<i>Sina Gorica</i> : «All seams between planks, chine-girders and floor timbers were caulked with braided stems and leaves of grasses» ⁶²² . Flat-bottom, applies the shell-first technique.					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1890	1st c. BCE – 1st c. CE	4.8 m		30 m ⁶²³		
<i>Construction features</i>	<i>Lipe</i> ⁶²⁴ : «The applied technologies are predominantly Mediterranean in origin, but certain constructional features, such as moss caulking and the use of iron nails, can be traced back to the prehistory of both continental and Atlantic Europe» ⁶²⁵ . It utilises sewing and wooden tenons or dowels in its construction, unlike most of the other Romano-Celtic barges that use mortise-and-tenon techniques (Eric et al. 2014, 243).					

An older vessel, *Sina Gorica*, was found in Ljubljana, which has become particularly relevant due to the fact that it is one of the only vessels not made of oak as its main timber; pine, the second most common finding, is also not used, in detriment of beechwood. The usage of iron nails can also be ascertained in connecting the timbers. It is currently believed that this vessel is connected to the Roman vessels of Bevaix, Yverdons and Arles-Rhône (Eric et al. 2014, 211), and it seems that the «shape and construction of the vessel reveal a longitudinal hull concept, which formed the basis of the Mediterranean shipbuilding tradition till the end of antiquity», on which even the frame was inserted later, it is present, although as this is a flat-bottomed vessel. It seems to differ from the *Lipe* vessel in that iron nails and clamps have been found, even if they seem to have a relatively similar tradition.

⁶²⁰ Dendrochronological data in Eric et al. 2014.

⁶²¹ Minor elements made of «*Fraxinus excelsior*», «*Ulmus sp.*», «*Abies alba*» and «*Alnus glutinosa*» (alder wood); Eric et al. 2014, 197. As mentioned, oak is the most usual element in ship construction, which makes this finding uncommon; beechwood was possibly used due to its greater availability. Eric et al. 2014, 199.

⁶²² Eric et al. 2014, 240.

⁶²³ Eric et al. 2014, 233.

⁶²⁴ «It is considered a prototype of the so-called Romano Celtic cargo boats that are between 18 and 40m long, up to 5m wide, and have a flat bottom, steep and 0.5-1.2m high sides, a sloping bow and stern, and made almost exclusively of oak wood». Eric et al. 2014, 242.

⁶²⁵ Eric et al. 2014, 243.

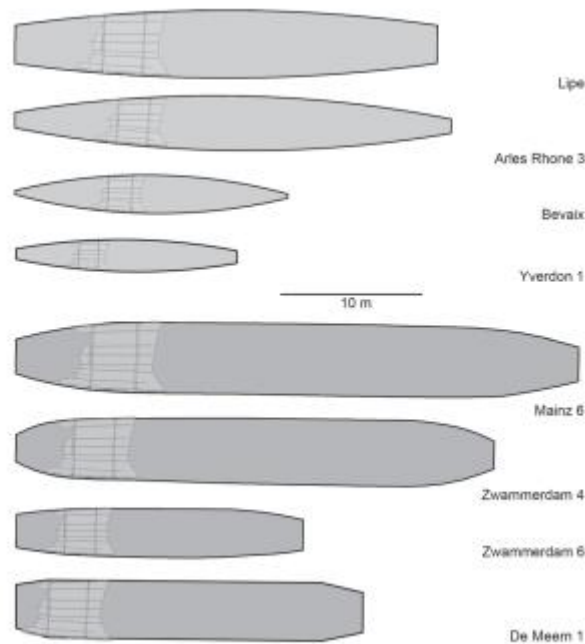


Fig. 30: an image from Eric et al. 2014, that shows the comparative size of the river craft found.

8. Portugal: A particular case-study

As mentioned by Bombico⁶²⁶, «a historiografia arqueológica duvidou, até há bem pouco tempo, da existência de uma navegação romana ao longo da faixa atlântica». Roman navigation through the Roman province of Lusitania seems to have been undervalued by historiography, which may or may not be one of the reasons for the absence felt thus far of Roman shipwrecks along the Portuguese coastline⁶²⁷. However:

«não faltam provas literárias, epigráficas e arqueológicas que nos sugerem (...) a existência de uma significativa actividade de exploração de recursos marinhos (...), o reconhecimento de fenómenos de variação nas dinâmicas do povoamento, ligada a uma valorização das zonas de estuário e ao desenvolvimento das cidades marítimas; a multiplicação de registos arqueológicos relacionados com o transporte e circulação de mercadorias por via marítima ao longo da faixa atlântica (...); e, por fim, a identificação de vestígios concretos de navegação antiga (cepos de âncoras, naufrágios e elementos de sinalização naval». (Bombico 2008).

⁶²⁶ Bombico 2008.

⁶²⁷ Navigating the Western Mediterranean and the Atlantic has been observed, both through archaeological and iconographic resources, since long before established Roman presence. For in-depth studies of the matter, see, for instance, Alvar Ezqueria (1981), who focuses on pre-Roman navigation, and García Cardiel 2013, who presents a multidisciplinary approach to Western Mediterranean/Atlantic navigation and particularly focuses on the ship types of the pre-Roman world, as well as the transition and changes brought by increased Roman presence between the 3rd century BCE and 1st century CE; see also Rey da Silva 2009, for an iconographic approach, and García y Bellido 1944, one of the earliest studies combining archaeological and written sources to interpret navigation in the Iberian Peninsula during Antiquity.

The epigraphic and archaeological evidence exist but are only beginning to be investigated. Whilst there are several underwater sites that point to evidences of shipwrecks, including those in which anchors were found⁶²⁸, no actual ship has been encountered thus far; but the large number of findings, including more recent ones by the river Arade⁶²⁹, extends this possibility to the future. There are other difficulties to take into account, several of which underlined by Octávio Lixa Filgueiras' many works on the subject: the historiography surrounding Portuguese ship types began by focusing on the Discoveries, which led to overlooking other periods and ship types of which an investigation of Roman period craft would have benefitted, as well as Portugal's particular circumstances and position between the Atlantic, the Mediterranean and the Northern Sea⁶³⁰. This perspective has been defied in Filgueiras' studies, which provide valuable inventory and photographic catalogues for studying enduring river and sea-going craft which withstood the eras and may thus be used for comparatist history approaches, although the author underlines the importance of not looking at singular shared characteristics and see them as determinant to connect ship types and disclose their respective construction methods⁶³¹. In 1965, he had divided influence areas of Portuguese craft in three sectors, namely the Northwestern area, with a clear difference between river-going ships of Nordic type and sea-going ships of Mediterranean style; the Douro and Estremadura, which he classifies as homogeneous and closer to Near Eastern techniques, and a third region between the south of Estremadura and the Algarve, which receives its influences mostly from the Mediterranean aside from the interior of the Guadiana river (connected to Spanish traditions); therefore, inheritances and ship-type development in the Portuguese territory present a significant variation, and potential findings of ancient craft or possible reconstructions may help understand the early influences and their respective future developments, as well as to ascertain whether this regional variation was also present during the Roman period⁶³².

⁶²⁸ See, for instance, Alves, Almeida et Veríssimo 1988, for a catalogue of anchors; Bombico 2008, for a potential Roman shipwreck in Peniche.

⁶²⁹ See Castro 2006 for the 17th century shipwreck found in 1970.

⁶³⁰ Filgueiras (1958) 2013, 27.

⁶³¹ Filgueiras (1958) 2013, 31-35.

⁶³² Filgueiras (1958) 2013 also observes, for instance, the different specificities of the same type of craft: for instance, as far as the «saveiro» is regarded, it can both be a river boat or a sea-going vessel (34), as well as coincidences between Portuguese craft and vessels from distant locations (for instance, although the «rabelos» lack the clinker construction, their keel is similar to that of the Gokstad Drakkar (45, as seen in the work's fig. 8); the sea-going ships of Aveiro have similar prows and sterns than Egyptian vessels of the 12th dynasty (figures and text of pp. 46-47). The same necessity may lead different populations to find distinct solutions (48-49). In fact, some of the 20th century Portuguese craft is very different from the ones

Mediterranean Challenges

1. Croatia

The vessels found thus far in Croatia do not generally have the same preservation conditions as their chronological counterparts. However, this study will include some of these vessels, as there are cases in which they are sufficiently preserved to provide some comparison. The first example is that of the Sisak barge (Croatia), which seems to have been a river boat. As mentioned by Gaspari et al. (2006), «the importance of navigable waterways and the epigraphically attested river port (CIL III 11382)» are well-represented by the «numerous archaeological finds from the Kupa riverbed. The latter represents one of the most extensive collections of objects obtained in European rivers». This particular river barge, found in 1985, is classified as a «large box-shaped vessel with a flat bottom and low sides». It was dated to the 2nd or 3rd century CE, and «the setting of the planks in parallel strakes with diagonal scarfs, represents an ancient technical solution, probably of Mediterranean origin»; it is considered that its «exceptional constitutional feature» is the «fastening of planks with tightly spaced iron clamps that held the joints between the floor and the side elements». Together with the Kušjak wreck and the «Chalon-sur-Saône and Lyon» vessels, it is one of the scarce occasions in which «both mortise-and-tenon joints and luting appear». Thus, the Sisak vessel seems to be a meddle between Adriatic and Mediterranean techniques and likely had the capacity to carry a heavy cargo⁶³³.

found in the Roman period, such as the «masseiras», which are box-shaped boats with curved sides, as seen in (1958) 2013, 58-59 and the «canote» or «batel», a flat-bottom with two prows (64-65). By opposition, the «carocho», elongated and flat-bottomed, presents some similarities with the Mainz and Swammerdam findings (74-75).

⁶³³ Gaspari, Erič et Šmalcej 2006.

2. Italy⁶³⁴

Aquileia

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1988 (N1)	1 st – 2 nd c. CE (N1)			15 m. ⁶³⁵		
<i>Construction features</i>	Aquileia: Shell first and carvel, sewn.					

One of the few detailed descriptions of a Roman cargo ship comes from the 2nd century CE, noted by the Syrian satirist Lucian of Samosata. In his work «The Ship, Or The Wishes», one can find the description of a grain ship named *Isis*, which would have been traveling in the Mediterranean on a journey from Egypt to Rome. The measurements are of «120 cubits long, over 30 in beam and 29 deep (5) – and the ship is said to carry enough grain to feed Attica for a year (6)». The whole of the journey would have lasted about 70 days⁶³⁶. When one is studying Roman ships, it is indispensable to analyse the archaeological findings in Italian shores. Thus far, this study has mostly focused on inland and Atlantic navigation, due to its challenging character towards the Roman army during a period of expansion. Now, we move towards what would have been familiar territory, namely the Adriatic and Mediterranean. The former has a particularity: one will find a large number of ships which present sewn planks, rather than the mortise-and-tenon techniques. As mentioned by Castro and Capulli:

«Most of the vessels in this laced tradition have flat bottoms assembled first by lacing the planks together over a grass wad that is compressed against the inboard seams and acts as caulking. On the interior face of the planking, the lacing holes are widened with a triangular notch, which facilitates the insertion of wedges to lock each stitch in place. The bottom structure is then reinforced with treenailed floor-timbers, and the side planks bent against a number of futtocks, which can be extensions of L-shaped floor timbers, or fastened to the floor-timbers with treenails». (Castro et Capulli 2016: 41).

⁶³⁴ There is a well-known tradition in the Adriatic of sewn vessels. For a complete analysis of the Adriatic shipbuilding tradition of sewn vessels, as well as an introduction to its early counterparts, see Willis 2016. One may add that sewing was present amongst the earliest vessels: «one of the earliest forms must have been the skin boat, made of sewn hides stretched over a light frame of branches and laced together with withes, cords, or thongs». Casson [1971] 1995, 5.

⁶³⁵ Beltrame et Gaddi 2013: 6.

⁶³⁶ Houston 1987: 446.

Stella 1

These include several shipwrecks found near Aquileia, the first in 1988 and the latest in 2004-2005. So far, sixteen ships have been detected along the shoreline, but as most of the findings are relatively recent, the information is still lacking⁶³⁷. Even the earliest findings provide scarce information, due to their dimension and poor preservation: the 1988 wreckage mostly consists of a 10 metres-long hull and two/three sewn planks⁶³⁸; the 2005 finding is also a hull, presenting similar characteristics. Sewn boats have also been found in fluvial contexts, with one of the most well-known being the Stella 1, which is currently undergoing new studies. Found in 1981, it is described as a «flat-bottomed barge, a little over 2.00 m wide and its length unknown»⁶³⁹. Regarding these sewn vessels, and as stated by Castro and Capulli, «few are fully published and a comprehensive study is impossible at this point because the information available is incomplete and sometimes confusing». They present the «laced vessels» found in the «upper Adriatic region», underlining the Ljubljana barge, the Comacchio wrecks and the «presumed small Nin boats». In what regards Stella 1, there were important epigraphic findings that listed «six different manufacturers: M. Albus Macrus, M. Albius Rufus, L. Epidius Theodorus, C. Oppius Agathopus, C. Titius Hermeros and Valeria Magna Epidiana, and date to the 1st century AD»; these findings helped with discovering the «date and provenience» of the ceramics (C. Oppius Agathopus comes from Concordia Sagittaria, whereas the others are local producers). Stella 1 was built mostly in oak and elm, thus presenting a timber combination which is not entirely usual, and the ceiling with spruce⁶⁴⁰.

Alberoni

Other findings of the same nature were conveyed in Venice, such as the Alberoni, found in 1993, classified by Beltrame as a «*sutilis navis*», dated to the 2nd century BCE; these have led to a belief that the northern Adriatic is a region of greater «conservatism» of «ship-yard tradition»⁶⁴¹. The technique in itself, as a Mediterranean finding, goes as far

⁶³⁷ Beltrame and Gaddi (2013) make a brief summary of these discoveries. We opt for not including detailed descriptions of all, as some are very small pieces of wreckage that allow little scope for interpretation, aside from them being sewn vessels.

⁶³⁸ Beltrame et Gaddi 2013: 2.

⁶³⁹ Fozzati, Capulli et Castro 2011.

⁶⁴⁰ Detailed studies of Stella 1 are recent and still undergoing. One can mention the aforementioned Castro et Capulli 2016 and Fozzati, Capulli et Castro 2011.

⁶⁴¹ Beltrame 1996.

as the 3rd millennia BCE, even if with variations in the sections that were sewn (whether the whole skiff, the stern and prow, etc.)⁶⁴²; however, in regard to this regional specificity, there is, to this date, «no convincing explanation of why this technique was used exclusively in the High Adriatic Sea»; Gaddi and Beltrame propose that «the use of this technique to build boats and ships of simple shapes and limited dimensions was simpler and cheaper than the much more common mortise-and-tenon technique. The latter was perhaps necessary for building big ships (perhaps more than 20 m) and ships with a bottle neck profile». The authors suggest more experimental archaeology to discern the explanation; until then, it will remain unanswered⁶⁴³.

Comacchio

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1980 (N1)	1st c. BCE (N1)	5.62 m (N1)		21 m (N1)	Elm, oak, holm, ash, cornel, lime, box, walnut (N1)	Sailed (?) (N1)
<i>Construction features</i>	<i>Comacchio I</i> : Shell first and carvel with both mortise-and-tenon technique and sewn. Keel plank and a stern gripe; trapezoidal mortises; Side rudders. Believed to be used for internal and coastal navigation. Caulking: «placed within the joint», with «lime fibres» «covered in wool cloth and fixed by four esparto cords, passed through together transversally and then split and interlaced. The holes are closed by pegs made of various wood types (ash, cornel and lime)». There is also a «7 cm wide wale, attached to the hull by pegged tenons of holm oak» (N1) ⁶⁴⁴ .					

As mentioned by Willis, «the first century B.C.E. Comacchio hull exhibits a special case of mixed construction, combining the traditions of mortise-and-tenon joinery with that of laced joinery», which would have created «a vessel with a flexible bottom and rigid sides»⁶⁴⁵. The widely utilised oak is used for the main construction of the frames and planks, but the materials used for smaller portions of the ship, including those which implied detailed handicraft, usually present different woods. The ship is also believed to have had two rudders instead of one. Horizontal planks will be found instead of a keel, and although the ship was built with the usual Mediterranean method of shell-first and carvel, sewing was also added. One may find a «plaid of Esparto grass joining a floor timber to the planking». This apparently minor detail may be of great relevance, as the esparto grass is a «native of the Iberian Peninsula and North Africa»⁶⁴⁶. White defends its

⁶⁴² In the Roman world, however, it was used mostly for repairs, as seen in Beltrame 1996.

⁶⁴³ Beltrame et Gaddi 2013.

⁶⁴⁴ <https://www2.rgzm.de/navis/ships/ship050/thecomacchiowreck.htm>.

⁶⁴⁵ Willis 2016, 125.

⁶⁴⁶ Wickens 1988, 265.

exploration is relatively late even in the Iberian Peninsula: «the plant does not seem to have been exploited in the western Mediterranean area before the Carthaginian conquest of southern Spain in the third century B.C.»⁶⁴⁷; however, it has been found in burials up to the Neolithic⁶⁴⁸, and the «leaves are used in the region [La Mancha] since at least 7000 years ago for making ropes, rugs, basketry, clothes, espadrilles, panniers and even paper»⁶⁴⁹.

The Romans did know the plant (as recalled by White, it is mentioned by Pliny, *HN* 19.26), and «the steppes dominated by esparto grass constitute one of the most representative ecosystems of the semi-arid areas of the Mediterranean basin». However, it is not as dominant in the Italian peninsula as it is in the Iberian Peninsula. Why this specific vessel would be using esparto grass as sewing material is a question that remains to be answered. There are several types of esparto grass (the *Lygeum spartinum* and the *Stipa tenacissima*), but the fact remains that the samples collected from Italian craft do present *Stipa Tenacissima*, which is the one most common in the Iberian Peninsula and North Africa⁶⁵⁰. This is, in fact, the type of fiber identified for Comacchio I, but also Stella I and the recent Venice Lido III.

Grado (Iulia Felix) and the Fiumicino findings

Alongside the sewn vessels, more common findings of mortise-and-tenon built craft can be mentioned. There is, for instance, the Grado hull, found in 1986 and dated to the 2nd century CE, poorly degraded due to «the activity of *Teredo navalis* and the penetration of *Posidonia oceanica*»; at 9.5 metres long, it is unlike the *Aquileia* due to the presence of the mortise-and-tenon technique, with pine being the main timber in use⁶⁵¹. The Grado vessel is also noticeable due to the fact that it has been repaired through «patch-tenons

⁶⁴⁷ White [1975] 2010, 30.

⁶⁴⁸ Waldman et Mason 2006, 402.

⁶⁴⁹ Fernández-González et al. 2017, 107.

⁶⁵⁰ Comacchio 1 is compared to the Venice Lido III which, in fact, presents *Stipa tenacissima*. Venice Lido III is still not much explored, as it was found in 2012 and it is consisted of smaller fragments. As stated by Willis (2018), «Within the north-western Adriatic lace tradition, two disparate types of hulls can be distinguished (...). The fluvial type, such as the Stella 1 barge, has a flat-bottomed hull with a hard chine connecting the bottom planking to the side planning, and was used almost exclusively on inland waterways (Boetto and Rousse, 2011, 187; Castro and Capulli, 2016). The fluvio-maritime type is also flat-bottomed, but has a smooth, rounded turn of the bilge and a thickened central plank or keel plank; such a hull is well-suited for both inland waterways and coastal travel (Boetto and Rousse, 2011: 187). The Comacchio ship is perhaps the best known fluvio-maritime type in this tradition (Berti, 1990). The Venice Lido III timber assemblage show clear signs of being from a seagoing vessel, placing it within the fluvio-maritime type of Boetto and Rousse». Willis et Capulli 2018.

⁶⁵¹ Olive was used for the nails, however.

inserted from the outside», which were likely placed with the aid of markings by the *fabri nauales*. The essential material for planking was pine and the presence of larch indicates that it «must have been a local ship», as it is very common «through the Italian Alps»⁶⁵².

Shipwrecks found in Italy attest for a wide span of centuries. A group of five ships was found in 1959 during the construction of Fiumicino Airport, with dating that spans from the 2nd century CE to the 5th century CE. The ships known as Fiumicino 1, 2 and 3, belonging to a later period, will present their specific characteristics and make for a different tradition. As they belong to a period much beyond the year 14 CE, we will not overly prolong the exposition of their characteristics, but will, nonetheless, attempt to summarise them. Fiumicino 1, 2 and 3 are believed to have been «naues caudicariae», a type of ship which would work both in river and at sea – «bateaux fluviaux et notamment des embarcations du Tibre qui remontaient les denrées alimentaires, en particulier du blé, amenées par des navires de commerce à Ostie et dans le port maritime, jusqu'aux ports fluviaux de Rome»⁶⁵³. These are not believed to be actual shipwrecks, but another case of ships being «abandonnés, avec deux autres embarcations»⁶⁵⁴ (the two others being the Fiumicino 4 and 5, which belong to earlier periods).

This study will focus on Fiumicino 4 and 5, which are regarded as the oldest vessels (1-3 are dated to the 4th or 5th century CE). Most of the Fiumicino findings are believed to have been cargo vessels, with the one exception of Fiumicino 5, which is believed to have been a fishing vessel; this is also believed to be the oldest ship amongst the group of five. The characteristics, as presented in Navis I, are as follows:

⁶⁵² Beltrame 2007.

⁶⁵³ Boetto 2010: 140 ; Kahanov 2011, 185.

⁶⁵⁴ Boetto 2010: 138.

II. VELAE ET REMI

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1959 (N1)	3 rd c. CE (N1)	3.50 m (N1)		17 m (N1)	Oak, walnut, holm, stone pine, black pine, willow, olive, cypress. Wood and iron nails. (N1)	Sailed
<i>Construction features</i>	<i>Fiumicino 4</i> . Shell first and carvel with mortice-and-tenon technique. Cargo vessel with coastal operation.					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1959 (N1)	2 nd c. CE (N1)	1.55 m (N1)		5.10 m (N1)	Oak, holm, cypress, Juniperus, stone pine, spruce, olive tree, elm; wood and copper nails (N1)	Oared
<i>Construction features</i>	<i>Fiumicino 5</i> : shell first and carvel with mortice-and-tenon technique. Fishing vessel with coastal operation.					

Fiumicino 4 and 5 present a series of characteristics which differ significantly from most of the ship types presented above, and also between themselves. Whilst Fiumicino 4 is a larger sailing cargo-vessel, 5 is a small oared fishing vessel. However, both share a characteristic that is relatively unique amongst most findings: the great variety of materials found⁶⁵⁵. In spite of their great difference in dimension, the construction technique, down to the type of nails used, is similar; seeing how the smaller fishing vessel also uses mortice-and-tenon joints, it is very unlike the situation presented for the sewn vessels of the Adriatic. It is described by Boetto as able for a «navigation maritime de petit et moyen cabotage à cause aussi de ses petites dimensions»⁶⁵⁶, whereas Fiumicino 5's function is «facilement déduite de la présence, au centre de la coque, d'un petit puis pour conserver vivants les poissons»⁶⁵⁷, or «il fondo dello scafo era, infatti, forato in corrispondenza del vivaio, in modo da permettere la circolazione interna dell'acqua e conservare così vivo il pescato»⁶⁵⁸.

⁶⁵⁵ This does not mean that the other vessels found have fewer materials, but only that they have not been accounted for in analysis. One must account for different degrees of destruction and soil chemistry.

⁶⁵⁶ Boetto 2011a, 124.

⁶⁵⁷ Boetto 2011a, 123.

⁶⁵⁸ D'Alessio et al. 2016.



Fig. 31: *Fiumicino 4*, as seen in Navis I⁶⁵⁹.

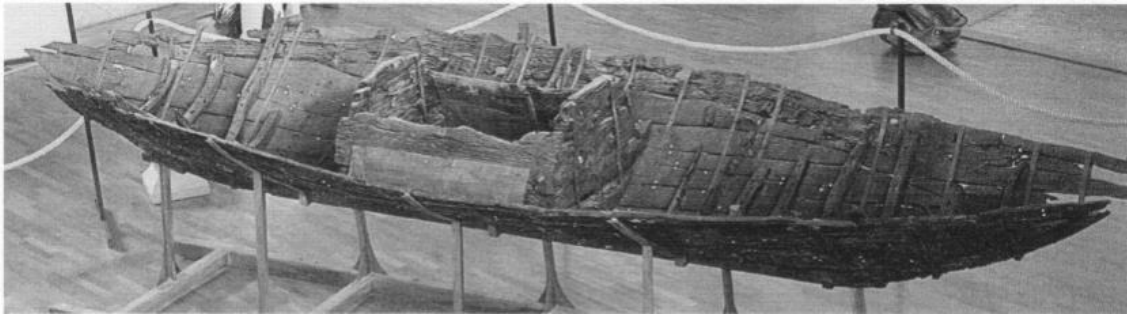


Fig. 32: *Fiumicino 5*, as seen in Boetto 2011a.

⁶⁵⁹ <https://www2.rgzm.de/navis/home/frames.htm#../Navihelp/General/shiplist.htm>.

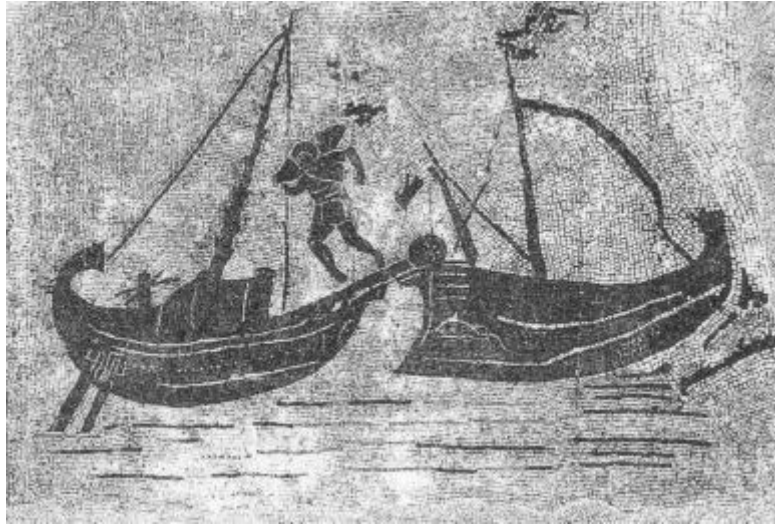


Fig. 33, described by Boetto (2011, a) as a mosaic of the *statio 24* in Ostia, Place des Corporations, photo by Mario Letizia.

Herculaneum and Monfalcone

Aside from the ships found during the building of Fiumicino Airport, there are still other shipwrecks which belong to this period, namely in Herculaneum. Two vessels, dated to the 1st century CE and with similar characteristics, can be accounted for, namely Herculaneum wrecks 1 and 2. As they are still undergoing conservation (they are believed to be charred remains from the eruption of Mount Vesuvius) there is still scarce specific information about them. The precise dimensions and function are uncertain; it is likely that *Herculaneum 1* used a mortise-and-tenon joint technique⁶⁶⁰.

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1982 (N1)	1st c. CE (N1)				Iron and wooden nails (N1)	Sailed (N1)
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1990s (N1)	1st c. CE				Iron and wooden nails (N1)	Sailed (N1)

⁶⁶⁰ <https://www2.rgzm.de/navis/home/frames.htm#/Navis/Ships/Ship121/Ship121a.htm>.
<https://www2.rgzm.de/navis/home/frames.htm#../Ships/Ship094/NaveAquileiaEnglish.htm>.

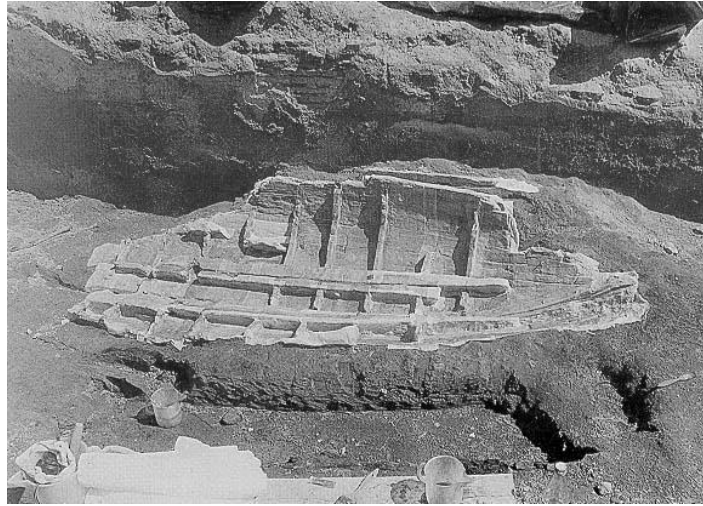


Fig. 34: *Herulaneum 2* during its excavation, as seen in Navis I⁶⁶¹

There is yet another ship found in Monfalcone, in a Roman Villa, dated to the 2nd century CE. Currently under guard of the Museo Archaeologico Nazionale di Aquileia, Monfalcone presents the following characteristics:

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1972 (N1)	2 nd c. CE (N1)				Fir (?), walnut; wooden nails (N1)	
<i>Construction features</i>	Monfalcone: Shell first and carvel with mortice-and-tenon technique. Cargo vessel. (N1)					

Monfalcone follows what is the most traditional method in the Mediterranean during the 1st century CE, namely the shell-first and carvel methods with mortice-and-tenon pegs. It is thus closer to the Fiumicino wrecks. As mentioned by Bertacchi, «Il rinvenimento di una imbarcazione romana costituisce indubbiamente una rarità», and special care has been put in the conservation of Monfalcone. Such as with the Herculaneum wrecks, there is still plenty to be studied⁶⁶², which is confirmed by the scarce number of publications dedicated to it. Additional investigation of this wreck's composition and estimate dimensions would be important to further its interpretation amongst the studies of Roman shipwrecks⁶⁶³.

⁶⁶¹ <https://www2.rgzm.de/navis/home/frames.htm#/Navis/Ships/Ship199/Ship199.htm>.

⁶⁶² Bertacchi 1976, 39.

⁶⁶³ One could mention a last important set of ships, namely the ones found in Lake Nemi, but this would be a short parenthesis. The Nemi ships, said to have been «built by the Roman emperor Caligula», were destroyed during World War II in 1944, after being recovered in c. 1920; these were essentially «pleasure craft» and there are on-going attempts to reconstruct them. In the moment, though, there is still little to be said, aside from the dimensions («230 feet long and 65 feet in beam», 70 metres long and about 19 in beam).

3. Sardinia

Spargi wreck

A shipwreck has been found along the shores of Sardinia, known as the Spargi Wreck. According to Carlson, this ship is dated to the 2nd century BCE, which makes it one of the most ancient Roman vessels found thus far. It seems, however, that the fact the ship was not at significant depth – of about 18 metres – allowed for looting and, thus, «very few artifacts were subsequently recovered». 1957, the year in which the explorations began, seems to have marked «an important shift in the philosophy of treating shipwrecks as submerged archaeological sites»: the archaeologist in charge, Lamboglia, would have «fixed a network of grid squares to the seabed to facilitate photographic documentation of the wreck before the excavation ever began». Thus, new methods to preserve archaeological patrimony were being used, which impacted the study of ancient ships⁶⁶⁴.

Spargi was a cargo vessel, judging by the contents found amidst the site, and its cargo was probably valuable, judging by the fact that it had guards («the point of a lance and some fragments of helmets, one of which was still attached to a human skull, have been interpreted by P.A. Gianfrotta as the armour of a guard or part of the ship's equipment which could be used during a pirate attack»⁶⁶⁵).

A more recent wreck, found in 2015, has been found off the coastline of Sardinia, but it is still too recent for more information to be presented⁶⁶⁶. The wreckage pieces are beginning to be retrieved.

In the next few years, if the reconstruction is finished, there will be new information to add. See Carlson 2002; for now, the Nemi ships remain a short parenthesis in our investigation.

⁶⁶⁴ Carlson 2011, 382.

⁶⁶⁵ Gianfrotta 1981: 232: the author considers it unlikely for it to be a military enterprise and adds that it is impossible to distinguish whether the skull belongs to one of the defenders or the attackers); Beltrame 2000. Information on the Spargi wreck is currently more focused on its contents than the ship itself; see, for instance, Atauz et al. 2011.

⁶⁶⁶ <https://archaeologynewsnetwork.blogspot.com/2015/06/roman-shipwreck-found-off-coast-of.html#br6paREUDcPpQfyc.97>. There are several ships in this situation, especially off the Sardinian and Sicilian coasts.

4. Greece

Antikythera

The shipwreck of Antikythera is one of the few vessels actually dated to the 1st century BCE. It has not yet been fully explored, considering that archaeological findings continue to be produced among the site. The region is known for a vast array of shipwrecks, which have been found along «the Italian Riviera, in the straits between Sardinia and Corsica, off Greece and the Aegean Islands»⁶⁶⁷. Thanks to the archaeological findings amongst the shipwreck, including the well-known «Antikythera» mechanism, it was possible to date the ship with relative precision – as stated by Mastrocinque, «Ceramic finds in the shipwreck allow a dating of the ship and its cargo to the 70's of the first century BC». This means that the ship found in Antikythera would have been sailing during the timespan of the Mithridatic Wars⁶⁶⁸, and the theory seems to have been reinforced with the finding of «another important shipwreck of the same period» at Mahdia, carrying materials which are believed to have resulted from the «pillage of Athens and Peiraieus by Sulla in 86 BC»⁶⁶⁹.

In late 2018, what is believed to be a two-thousand and four-hundred-year-old vessel was found by the Black Sea Maritime Archaeology Project within the Black Sea, possibly a merchant ship, on which more information is expected in the following years. It will require particular care, as the ship has only been preserved due to the sea's particular conditions⁶⁷⁰.

5. Spain

Spain and the Balearic Islands are particularly rich in Roman shipwrecks, but not so much in Roman vessels, which have since degraded. It is common to find the cargo of the ships but not information for the ship itself. Such is the case, for instance, of the Cabrera 3: there is plenty said about the amphoras, but nothing about the vessel⁶⁷¹. There are

⁶⁶⁷ Casson 1991, 25.

⁶⁶⁸ Mastrocinque 2009, 313.

⁶⁶⁹ Mastrocinque 2009, 214.

⁶⁷⁰ <https://www.nationalgeographic.com/culture/2018/10/black-sea-shipwreck-archaeology-map/>.

⁶⁷¹ For instance, Andreau 2010, 148.

exceptions, which are fairly recent: a 3rd – 4th century CE shipwreck has been found in 2017 along the Balearic shoreline. This, too, has only begun undergoing archaeological works, but it is believed that the original vessel may lie beneath the cargo. If so, it is possible that new information will be provided in the years to come⁶⁷².

Warships

<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1971 (N1)	3rd c. BCE (N1)	4.80 m (N1)		35 m (N1)	Pine (Corsica pine?), oak, maple, beech, cedar, pistachio; wood and copper nails (N1)	Oared (N1)
<i>Construction features</i>	<i>Marsala 1</i> : Military vessel built with a shell-first and carvel method, following a mortice-and-tenon technique.					
<i>Find date</i>	<i>Chronology</i>	<i>Width</i>	<i>Height</i>	<i>Length</i>	<i>Material</i>	<i>Propulsion</i>
1973 (N1)	3rd c. BCE (N1)	4.80 m (N1)		35 m (N1)	Pine; wood and iron nails (N1)	Oared (N1)
<i>Construction features</i>	<i>Marsala 2</i> : Military vessel built with a shell-first and carvel method, following a mortice-and-tenon technique.					

As observed above, archaeological findings of cargo vessels occur in reduced numbers and are frequently presented in poor preservation conditions. Warships are even rarer. One would expect warships to be easily found amidst the sea, at least in regions where parasites are not as corrosive, considering that **ships are bound to sink during naval battles**; but this notion is defied through factual evidence. Aside from the already mentioned matter of shipworms deteriorating the timber, one must also keep in mind that warships were a great investment: unlike cargo ships, they would always necessarily require both sails and oars, as well as frequently displaying bronze rams, together with the investment in finding capable oarsmen and the training of such individuals, stabilising the structure to allow for machinery to be loaded on board and an experienced steersman and crew who would be capable of directing the ship during battle. All of this makes the warship a very valuable piece, particularly for civilisations that were necessarily bound to the sea by their own geography. It would seem, thus, that the primary goal of a naval battle would not be to sink the enemy ship, but to capture this economical resource and reutilise it within one's own armada.

⁶⁷² https://www.nationalgeographic.com.es/historia/actualidad/descubierto-importante-naufragio-epoca-romana-las-islas-baleares_11098/5.

Other reasons may be found to justify the absence of a great number of warships amidst the Mediterranean and the Black Sea: one may find mentions in the sources to ships being recovered, which means that these civilisations had the methods and the technology to retrieve a sunken ship, at least if it were not at a great depth. If the armies are going this far to retrieve a warship, it only confirms the significant weight one of these vessels would have in terms of economical investment: it would be preferable to spend one's time and resources in an attempt to retrieve the sunken ship than to build an entirely new one. Even when the sunken ship presented itself in a poor condition, there were probably parts which could be reutilised, if one was fast to retrieve them, even if only the metallic components. It is likely that there was somewhat of a recycling of these ships and materials which, combined with an approach of capture rather than destruction, together with the Roman tradition of boarding ships instead of engaging in actual sea battles, may justify, to great length, the absence of significant records of Roman warships in archaeological remains. A cargo vessel may be abandoned when a warship would only be so with difficulty. Even when the ship was to not be retrieved, it would most likely have decomposed, although there is the possibility of objects such as the rams surviving the centuries and reaching us.

If finding ships belonging to the 1st century BCE is difficult when one is observing the cargo ships, thus far, warship remains have been essentially null. To this date, the largest and best-preserved warships are known as the Marsala ships, found along the shore of Sicily, close to the Aegadian Islands⁶⁷³. They are presumed to have fought the battle of the Aegadi, during the First Punic War. The Marsala wrecks are also believed to be Punic ships, although Polybius mentions several times that the Romans would have adapted their own warships from the Phoenician models. There are, however, scholars that doubt the Marsala ships were in fact warships: Averdung and Pedersen consider that the «absence of cargo» is justifiable by their proximity to the coastline, believe that these are two separate shipwrecks rather than one single vessel, and that its ram is not an actual ram but a «cutwater», arguing that a «detachable ram is not attested in historical sources, nor is it practical», because it would «dampen the shock of impact (...) [and] risk of wedging itself in the body of the opponent ship»⁶⁷⁴. However, the fact remains that these vessels are acknowledgedly Punic («attested by Phoenico-Punic letters painted onto their

⁶⁷³ It is still debated whether this was one or two different vessels.

⁶⁷⁴ Averdung et Pedersen 2012.

hulls»), that the «sites lie some 8 km from the estimated centre of the battle-zone and half-way between it and the besieged Punic stronghold on Cape Lilybaeum» and that «most of the unexcavated sites do, however, lack the usual-characteristics of commercial wrecks (piles of solid cargo such as identical amphorae), while the discovery in the area of a spearhead and a warship type anchor adds a hint that other warships may lie buried under the sand», as stated by Frost. However, if his article dates from 1989 and already suggests that «years of excavation would be needed to find out», there have not been further findings of this nature in the region⁶⁷⁵. There was a great deal of planning on this ship, as attested by the markings found along it, and Frost believes it was «probably a Liburnion, or fast messenger ship», which would not be a «ship of the line», even though it would likely resemble a «long» ship.

The Marsala warships were found nearby a «moving sand bank»⁶⁷⁶. Regarding these ships, which show signs of significant damage, one may observe, for instance, that the «keel of the vessel [Marsala II] is broken in two»; that the ships, which present a «bow construction», had a «vertical stem (...) flanked at keel height by two tusk-like timbers made of pine»... «the bow construction of Marsala II is interpreted by Frost as having once included a battering ram, which is a crucial factor for the reconstruction of the Marsala Punic wrecks as warships»⁶⁷⁷; the said ram would have been «detachable», and «only minimally secured to the ship».

Averdung and Pedersen's article on the Marsala warships and the analyses which have been made regarding their nature and function provide information on some of the recent hypotheses on the nature and usage of the rams. The novelty introduced by the new theories is an idea that these rams, much like the edges of a 1st century *pilum*, would have been meant to be truly detachable. By this, the theories mean to imply that the function of a ram would have been to enable the attacker to quickly «pull back from the rammed enemy ship, leaving behind its ram. Thus, the absence of the ram on Marsala II is explained as is the minimal and weak attachment points». Nonetheless, as the article will later mention, it is possible that «the evidence of the detachable ram of Marsala II should not be seen as such but as a cutwater»⁶⁷⁸, with the addition that «a detachable ram is not attested in historical sources, nor is it practical»; it would «dampen the shock of impact,

⁶⁷⁵ Frost 1989.

⁶⁷⁶ Averdung et Pedersen 2012.

⁶⁷⁷ Averdung et Pedersen 2012: 126.

⁶⁷⁸ Averdung et Pedersen 2012: 127.

deflecting or decreasing the force on the keel, thereby reducing possible damage to the attacker»⁶⁷⁹. Pedersen reminds that «there would be a high loss of material involved, as seen by the example of the Athlit Ram, which is 465 kg»⁶⁸⁰; although they may have been retrievable, it does present a potential loss of a material which was not only expensive, but also difficult to work.

Perhaps this indecision regarding the true nature of the Marsala ships is one of the explanations for the lack of detailed work focusing exclusively on their characteristics. It is not discussed, for instance, why the main material seems to be pine rather than oak, nor the finding of copper nails, which are rare amongst other vessels. As to whether these vessels are warships or cargo vessels, we point towards the more immediate visual cue: whereas the bottom of most cargo vessels seems to be round, this seems to take an abrupt angle of nearly 90 degrees between the keel and the side planks.



Figs. 31 and 32: *Marsala 1* by comparison to *Fiumicino 5*. The keel is considerably deeper in the former.

Another vessel, believed to have been a warship, was found in the harbour of San Rossore in Pisa, but the timespan to which it could belong is very wide, with an attribution of somewhere between the 2nd century BCE and the 6th century CE. At least three warships such as this one were found with equipage: as mentioned by d'Amato, «the contents of Nemi, San Rossore and Comacchio ships, as well as those of many other shipwrecks, can give an idea of the kind of objects used on Roman warships». The author lists «bronze balances with three gradations of weight, blocks used as moorage, a water wheel used for

⁶⁷⁹ Averdung et Pedersen 2012, 127; based on Bosch's theory, with which Pedersen disagrees.

⁶⁸⁰ Averdung et Pedersen 2012, 128.

collecting water from the bilge, a piston-driven pump (like those found in Silchester), pieces of scuppers for draining water, boat hooks, baskets and nets, and other leather and wooden objects».

Detachable rams, if still debated regarding their archaeological existence and viability, as observed above, seem mentioned by historical sources. This is observable, for instance, in *BAlex.* 44, regarding an episode of the civil wars between Caesar and Pompeius. When Vatinius was in Brundisium and in an attempt to defend the harbour from M. Octavius, seeing himself with scarce *naues longae*, he reutilised the *rostra* on the *naues actuariarum*, which he would have a great number of, even though they would have not been considered large enough for fighting (*«magnitudo nequaquam satis iusta ad proeliandum»*); these would have joined the scarcer number of *naues longae* present at the fleet. The small *nauculae actuariarum* would have been a major component of the fleet, and Marcus Octavius, a supporter of Pompeius, would have considered that his fleet was superior. The warships present in Vatinius' fleet, however, would have been large, as at least a quinquereme is mentioned (*BAlex.* 46), which would have been used to attack Octavius' quadrireme, the ship on which the commander himself would have been sailing. The quadrireme and quinquereme had their rams, and it seems that these would have collided against each other, resulting in the quadrireme being destroyed and getting stuck against the quinquereme through the timbers. What happened immediately afterwards – whether it was boarded or how the quinquereme managed to return to combat – is not specified, but it seems that it would have later been sunk (*BAlex.* 46), forcing M. Octavius to escape on a *scapha*.

If Roman warship remains are scarce amidst the Mediterranean and Black Sea, they seem even more difficult to find in Rome's Atlantic conquests. Evidence for such vessels comes mostly in the shape of epigraphic inscriptions, as exemplified in Marsden (1994b, 17) through the reference of two tile fragments, one found «in the Cripplegate fort» and the other «on the Winchester Palace site, Southwark», both bearing the CL.BR stamp (*Classis Britannica*)⁶⁸¹. Marsden also adds the 19th century finding of a «miniature bronze prow»

⁶⁸¹ As mentioned by Peacock, «bricks and tiles stamped with the initials of the Classis Britannica (...) have been found on nine sites around the shores of Sussex and Kent and at two localities in the Boulogne region of France. Supplemented by a few inscriptions on stone, they form the principal archaeological evidence for the presence of the fleet in the channel». See Peacock 1977: 235.

with the inscription «AMMILA AVG FELIX», which he believes may be representative of the warship typology found amongst the harbour of London⁶⁸².

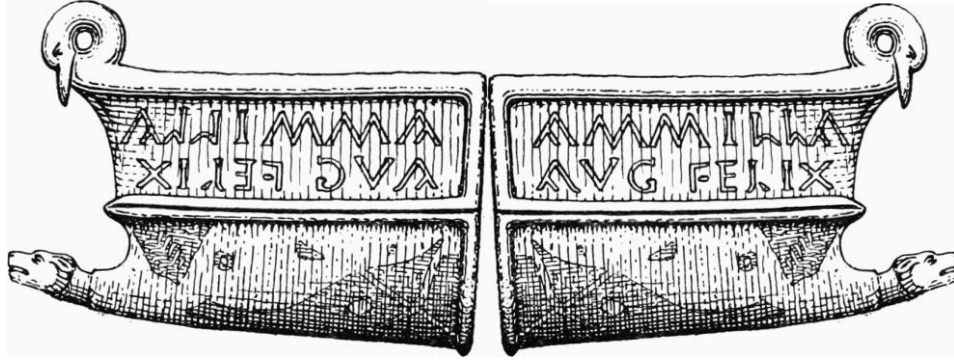


Fig. 35, described as the «bronze prow of a ship in miniature: *Ammilla Aug. felix*», with a «retrograde» inscription, said to commemorate the victory won by the imperial ship «Ammilla» («Greek ἀμιλλα a contest»)⁶⁸³. On the right, its mirrored image.



Fig. 36. The piece mentioned above, described by the British Museum as a «copper alloy model of a galley prow, probably a votive offering. The ornament at the head resembles the head and neck of a goose, and at the bottom, just above the keel, is a projection terminating in an animal head». © The Trustees of the British Museum⁶⁸⁴.

Other representations are attested as being of Roman vessels, albeit of later periods. There is, for instance, what is known as the «Neumagen wine ship», a tombstone dated to the «early 3rd century», which depicts a «warship of the German fleet, with a ram, 22 oars and a steering oar, plus a cargo of wine barrels»; as stated by Adkins, the individuals on the vessel are disproportionate, and the eight figures, together with their shields, are easily

⁶⁸² Also mentioned by Hingley, together with «an intaglio depicting a warship in a comparable style», found «on the Thames foreshore in Southwark». See Hingley 2018, 131.

⁶⁸³ As described in Collingwood 1928. The finding is now kept in the British Museum.

⁶⁸⁴ https://www.britishmuseum.org/research/collection_online/collection_object_details/collection_image_gallery.aspx?assetId=181368001&objectId=1365603&partId=1.

enough to occupy the whole craft, but definitely not enough to sustain the twenty-two oars on each of its sides⁶⁸⁵.



Fig. 37. A replica of the Neumagen wine ship, as found in Adkins et Adkins 1998, 71.

Materials

1. Timber

In spite of some vessels having relative variety of materials, there is little doubt that the two most common are oak and pine. The two most common oak species in Europe are *Quercus robur* (pedunculate or English oak) and *Quercus petraea* (sessile oak), which prevail, above all, in Central and Northern Europe⁶⁸⁶. It would be particularly difficult to specify the type of oak used in Ancient ships without very detailed analysis, particularly when considering that «these two tree species, as well as other oaks, are very variable morphologically, and can naturally hybridise»⁶⁸⁷. It is an issue, then, as mentioned by Goodburn, that:

⁶⁸⁵ Adkins et Adkins 1998, 71.

⁶⁸⁶ However, «the genus *Quercus* [presents] more than 20 species» in the Mediterranean; Scarascia-Mugnozza et al. 2000: 98. The variety of plants in the Mediterranean greatly surpasses that in Central in Northern Europe, with «ca. 25,000 plant species whereas in central and northern Europe, a region four times greater, only 6000 flowering plants and ferns can be found».

⁶⁸⁷ Eaton et al. 2016, 160.

«Most scholars had concerned themselves with describing the hulls of these craft in general terms, the ethnicity of the builders, typological considerations and the possible order of construction; that is, whether framing was erected before or after the planking. Relatively little attention had been paid in detail to the woodworking or raw materials involved in the construction of the craft (...).»⁶⁸⁸

The shape of the oak in question would have been a determinant factor in the choices for each ship. For the case of Barland's Farm boat, for instance, «oaks likely to grow the shapes and sizes of curved limbs and branches (crooks) needed for the boat's posts and framing are nowadays to be found mainly in open ground with isolated trees»; however, «some of these crooks could have come from the crowns of the oaks chosen for planking; others would have been especially selected from trees that did not necessarily have to be felled». The timber would have been worked «soon after it was felled», as it would have been «easier to work and bend»⁶⁸⁹. According to Bromwich, «timber from Gaul was believed to be of particularly high quality and Gallic woodworking skills were admired throughout the ancient world». The fact is that, even amongst ship types from former periods found in Great Britain, oak has a strong predominance – out of the five ships found in North Ferriby, only one of them – North Ferriby 4, an 8th century-5th century BCE shipwreck – does not seem to include oak in its composition, but Alder (although North Ferriby 1, 2 and 3 are all believed to include Yew, and North Ferriby 1 ash, as well).

Pine is more common amongst Mediterranean findings, and there is a significant number of them that use it rather than oak. Aleppo pine (*Pinus halepensis*) has been found in Mediterranean harbours (including Portus and Neapolis) and shipwrecks⁶⁹⁰. This type of pine tree has «high heat content, surface-to-volume ratio and very low ash content and particle density»; thus, one of the characteristics of the Aleppo pine is that it is considered as being «very flammable»⁶⁹¹. As will be verified below, there are several instances in which flammable projectiles are said to have been cast against enemy ships; although these mostly occur during war situations, one will often find transport ships travelling alongside the warships, for protection and carrying the supplies, and these flammable materials could have been one of the matters in which they would have been helpful.

⁶⁸⁸ Goodburn 1998 : 172.

⁶⁸⁹ McGrail et Nayling 2004, 196-97.

⁶⁹⁰ Sadori et al. 2015.

⁶⁹¹ Bobolous 2010, 15.

The materials used are themselves a handicap in preservation and investigation. The fact that Ancient ships were built in wood allows for their fast deterioration underwater. In an analysis of the shipwrecks at the Pulaski site – a 19th century shipwreck along the waters of North Carolina – Donna Souza points that not only the ships will quickly begin to deteriorate underwater (due to the action of shipworms, of which the most nefarious, according to Souza, are the «*Teredo navalis*» and the «*Bankia gouldia*») but also the subsequent attempts to retrieve materials following the wreck will lead to decay – not only attempts on the Ocean bed itself, but the flotation characteristics which usually make up for the greater part of ships up to the industrial age⁶⁹². Other sorts of «*mollusca*» may be found amongst these wrecks, as seen, for instance, in Barland's farm Boat, where the records underline «*Hydrobia ventrosa*», «*Hydrobia ulvae*» and «*Leucophytia bidentata*»⁶⁹³.

To the most immediate material one may add the usage of either «wooden tenons» or «nails» of varied sizes, some of them «tacking willow batons along the caulking»⁶⁹⁴. This seems to have been a characteristic of Atlantic shipbuilding, and oak-based ship construction seems to have been a constant in the North until, at least, the Early Modern age, which «contrasted to the Mediterranean where a wide variety of species was used»⁶⁹⁵.

If archaeological data is difficult to ascertain with certainty, this is even more true regarding Ancient sources. There are odd mentions that give us scarce information: Caes. *BCiv.* 1.58, for instance, mentions that the usage of unseasoned timber would have made it difficult for some vessels to attain the same speed they would have otherwise: «*facta enim subito ex umida materia non eundem usum celeritatis habuerant*». It seems that the tree wood would not have been dry enough to provide for maximum potency in this regard. The sources also seem to state several occurrences in which timber for Roman craft would have been brought from the province of Hispania. As observed below, during Caesar's campaigns in the North of Gaul, there is a shipbuilding enterprise that would have been sustained through timber coming from this region. During the Civil Wars,

⁶⁹² Souza 1998b; Souza 1998a. The shipworms are «small bivalves (family *Teredinidae*) which tunnel into wooden structures using their serrated shell». See Munn 2004, 259. In vessels such as Blackfriars I, *Limnoria* has also been found, albeit causing more recent (and, therefore, less significant) damage. See Marsden 1994c, 86. As mentioned by the same study (1994c, 88), *Teredo* «cannot live for long in water with a salinity of less than 16 to 20 parts per 1000, while the latter requires a salinity of at least 5 to 9 parts per 1000. *Teredo* is therefore found further up rivers than *Limnoria*».

⁶⁹³ Walker et Caseldine 2004b, 61.

⁶⁹⁴ Bromwich 2003, 259.

⁶⁹⁵ Loewen 2001, 241.

Varro would have dislocated his army to Gades in order to attain *«naues frumentumque»*, ships and cereal (Caes. *BCiv.* 2.18). This specific combination may also be observed: considering the significant amount of material resources it would have taken to keep a Roman legion fed, one may question whether the ordering of ships from Hispania would have included the transport of any amount of cereal within them. In Caesar's enterprise one will observe that it is mostly the materials being transported, and not the ships themselves; but, seeing as there would have been a pathway and a logistics enterprise to convey them, it is possible that they would have been allied to the transport of nourishment. Varro's ships would have been paid in *«pecuniae»*, not in gender (2.20). In Caes. *BCiv.* 2.21, there seems to be a distinction between the two different fleets built: one is said to have been made by Varro, the other by the *Gaditani*, which can mean that the constructors involved in the former may have been part of Varro's legion.

If this western tendency seems to have been a preference of the Caesarian faction, it does not seem to have been equalled by the Pompeians, who would have possibly resorted to ships collected in the Mithridatic Wars, the campaigns against the pirates and the eastern Mediterranean in general. That is observed, for instance, in Caes. *BCiv.* 3.3, where fleets are said to be collected *«ex Asia Cycladibusque insulis Corcyra Athenis Ponto Bithynia Syria Cilicia Phoenice Aegypto classem coegerat»*, and a large fleet to have been built. To this fleet would have been added *«frumenti uim maximam ex Thessalia Asia Aegypto Creta Cyrenis reliquisque regionibus comparauet»*. It would seem, however, that whether the option comes from the Eastern or the Western Mediterranean, commanders frequently attempt to gather or construct fleets in places from which they can subsequently gather nourishment for their troops.

2. Metal

Another primary ship material is metal. This is particularly relevant in the case of small ship components, such as nails, which were often verified above to be made of iron (or copper, in the case of Marsala 1), even though they could be replaced or accompanied by wooden counterparts; and, in the case of warships, the ram. Even though the Roman navy often preferred to opt for boarding – which would require specific tools to allow marines

to embark on the enemy ship – Roman warships also kept rams, like their Greek and Phoenician counterparts⁶⁹⁶.

The earliest finding of a ram is believed to have belonged to the 6th century BCE, which makes it a long-lasting and standing tradition amongst naval combat⁶⁹⁷. According to Mark (2008), there is Greek iconographic evidence which attests for early prototypes of rams since, at least, the beginning of the first millennium BCE; the author uses, as example, a «stirrup-jar from Asine», although he acknowledges it can either be a ram or a «quarter-rudder» or a «ship's wake». Mark discusses that it is not known whether the «bow timbers are structurally sound enough to withstand the shock of ramming» during these early periods, thus, if the structures are not rams, «based on the iconography, they were used as boarding-ramps for warriors and as latrines»⁶⁹⁸. A similar analysis will be presented towards Phoenician ships: for the illustrations on the *Kuyunjik* relief, Mark considers that could be a «cutwater», to improve the «hydrodynamic» of the ships; on the *Til Barsib* painting, which depicts an Assyrian or Phoenician galley, the author considers there is the possibility of a «long naval pike»⁶⁹⁹, thus approaching the traditional purposes of a ram, as it was being used as an offensive device.

Mark's analysis of naval battles and the impacts of ramming during such circumstances allows one to understand the practical mechanics of combat:

«In this situation, when a pointed ram penetrated planking, it had to be strong enough to cut sideways as its victim continued to move forward. If two ships were travelling at the same speed, for every centimetre a point moved into a hull, it must have been strong enough to cut a centimetre sideways through heavy hull planking and naturally-curving framing until the wounded ship lost momentum and came to a stop. A ram too weak to resist these transverse forces would break.

Furthermore, even under the best conditions an attacking ship with a pointed ram had to moderate its speed to keep from getting stuck or being damaged. If so, a victim's best strategy was continually to increase speed». (Mark 2008).

Thus, ram construction, the way of the respective attachment of a ram to the ship timbers and the materials used both in planking and the rams, would have greatly influenced the

⁶⁹⁶ Our approach will focus on rams rather than the smaller components such as nails, seeing that deterioration and the conditions on which they are found often allow for little interpretation, and adding that there are very detailed studies on nail-holes on the timbers of each ship, which have been presented in this work's bibliography.

⁶⁹⁷ Mark 2008: 253.

⁶⁹⁸ Mark 2008: 256.

⁶⁹⁹ Mark 2008: 260.

development of naval battle structure throughout the centuries. The impact of a ram against an enemy ship could cause the attacking one to break through the severe impact such a collision would have (although it does not necessarily follow that it was so, nor that this was the main function of a ram); the fact that oarsmen would have needed to control the ship's speed (thus implying very specific technical approaches, considering that these were large structures and the combination of potential changes in direction and immediate needs to increase speed, in order to dodge enemy attacks) shows that the person in charge of rhythming the paddling would have needed some knowledge on the specific mechanics of different ship types, which would probably react differently to increases or reductions of speed depending on size, bulk and materials. It would also require a degree of synchronisation between the rowers which would demand significant and repetitive training, which is observable in sources: during the First Punic War, for instance, Polybius tells that devices would have been built on land for the oarsmen to be trained. It was, thus, more than a physically demanding task, a technically demanding one.

One of the oldest evidences of an ancient ship ram is the Athlit Ram, found in 1980 and currently exhibited at the Haifa Museum. According to the carbon-14 test «performed at the Weizmann Institute», this particular piece could be dated from any period between 400 and 130 BCE⁷⁰⁰. The museum's webpage regarding this piece states that the «Athlit ram is one of the largest single bronze castings ever found», and that «the bronze is high quality, weighing 465 kg», which would make for a total of «600 kg» when joined with the ship timbers. Such a heavy structure would have required two elements: the means for keeping it attached to the ship without causing weight imbalance, for the ram would be attached to the prow and such a heavy device is likely bound to create difficulties to the ship stern; and the technical capacity not only to lift it, but to attach it to a warship without causing the planks to break. If the Athlit ram was, in fact, built from a single mould, it would mean that the whole of the structure would have had to be transported and attached to the ship whilst still on land.

The technique which is believed to have been utilised is described by Mark at great length: «The first step was to lay the keel and set up the sternpost. Bottom planks were attached to the keel with large mortise-and-tenon joints. (...) Frames were probably fastened to

⁷⁰⁰ http://www.nmm.org.il/eng/Exhibitions/468/The_Athlit_Ram.

planks with oak treenails through which bronze nails were driven instead of copper nails as found in merchantmen, producing a very rigid hull»⁷⁰¹. The latter statement may be valid for specific merchant ships in determinate periods, but, as we observed, from the 1st century BCE until the 4th century CE, the grand majority of merchant ships have iron nails, having progressed from the earliest variants of copper and bronze. «Once the hull planking was assembled, the ramming-timber was fashioned and fitted to the hull (...). This timber was then removed, and a mortise was cut into its upper surface». Through further processing of nails, timber and mortise, the «bronze cover» would finally be «fitted». In essence, the process of building a ram would require both a very heavy investment in timber, to make for the shape, and the subsequent attachment of a hollow bronze cover, which would have been the last step; thus, in what regards potential imbalances, we must acknowledge not only the heavy bronze structure, but also the heavy timbers which would have been attached to it. One may observe the structure of the Athlit ram, which would have been fully in bronze, and where some holes may yet be observed, carved out with what are to be believed as «Poseidon's trident, a helmet surrounded with a star – the sign of the Dioscuri, an eagle's head, and a caduceus – the wand of Hermes»⁷⁰² – apotropaic, defensive symbols.

Octavianus is believed to have made a monument in celebration of the victory at Actium; of this monument, not much survives. Authors believe it would have been on a «hill near the modern city of Preveza»; «the entire complex was anchored in place by a massive retaining wall that bore a long inscription and held, imbedded in its face, the back ends of some 36-37 warship rams of at least six different sizes». These are believed to have been «removed, broken up, and recycled» throughout the centuries; but the sockets where they would have been are still visible on the wall, in what is described as a «complex cavity, 25 to 50 cm»⁷⁰³. These have different sizes, and potentially different shapes: one may observe them, for instance, in page 14 of Murray's chapter regarding «Frontal Ramming», where at least six of them are photographed, or by observing the photographs and reconstructions provided by the Institute for the Visualization of History. When one observes the model created by this institute and compares it to the Athlit ram, one may notice that the reconstruction of one of the rams utilised during the Battle of Actium points for a much larger device; if the Athlit ram is said to have weighed over 450 kilograms,

⁷⁰¹ Mark 2008, 262.

⁷⁰² http://www.nmm.org.il/eng/Exhibitions/468/The_Athlit_Ram.

⁷⁰³ Murray 2012a, 40.

this means that the ram reconstructed from socket 4 at the Actium monument must have been larger and fairly heavier. From this, one may imagine that it would have belonged to a ship with a significant weight and length, even larger than the Athlit equivalent; the fact that there are several different-sized sockets at the wall seems to show that, even during the later periods of the 1st century BCE, when the Roman Republic is already transitioning for different internal infrastructures, the very large battle ships are still in use, alongside with several different typologies of smaller sizes, something that coincides with what we observed in Chapter I.

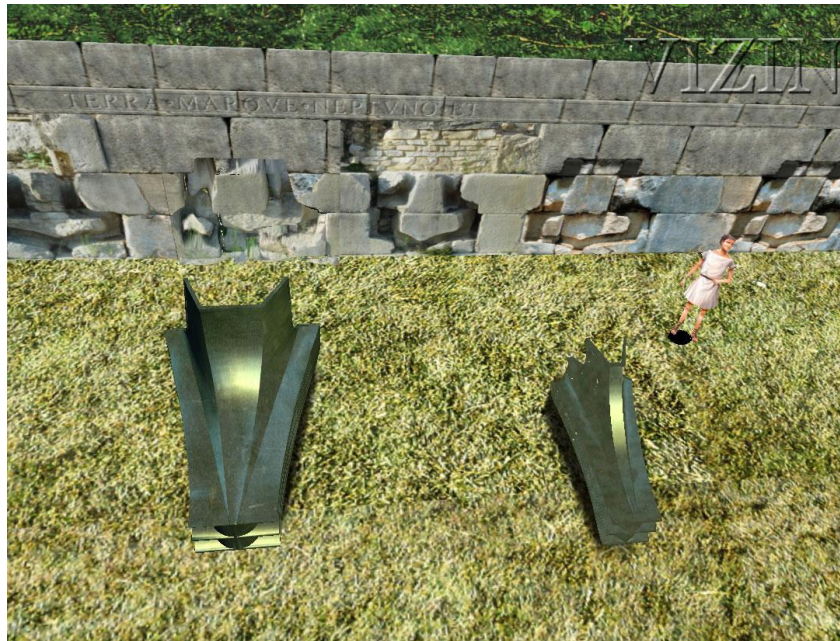


Fig. 38: the Socket 4 ram compared with the Athlit ram on the side⁷⁰⁴.



Fig. 39: A picture of Socket 4, courtesy of William Murray to the Institute for the Visualization of History⁷⁰⁵.

⁷⁰⁴ <http://www.vizin.org/projects/actium/gallery.html>.

⁷⁰⁵ <http://www.vizin.org/projects/actium/gallery.html>.

In a chapter which he names «The End of the Big Ship Phenomenon», Murray tries to make an account of how and when the larger types began to fall in disuse. According to this researcher, «four separate battle accounts involving midsized polyremes («sixes» to «tens») allow us to complete our picture of the big ship phenomenon», these being three individual conflicts along the shores of Chios and the Battle of Actium in 31 BCE⁷⁰⁶. As we have observed, archaeological records are leading us to believe that different sized ships were present at the last large-scale naval conflict of the Roman Civil Wars; as we will observe below, historical records also seem to state that the larger Hellenistic ship types, such as the triremes, would also be present.

An indication that the essential design and shape of warships did not change significantly through the centuries is the fact that, when one examines the essential shape and bulk of the rams which would have been at the Actium monument and then compares it to those believed to have been amongst Roman warships of other periods, one will not find many differences. This can be observed not only through the Athlit ram, but through the rams found along the Egadi islands, which are in an equally good state of preservation. These are believed to have belonged to battleships (it is uncertain whether Roman or Carthaginian) fighting in the Battle of the Egadi Islands in 241 BCE, two-hundred years before the Battle of Actium. Whether these rams belonged to Carthaginian ships or Roman it is not yet ascertained with certainty; but, considering the similarities between the Athlit ram, the Egadi rams and the reconstructions of those found in Actium, it seems that there was little or no change in Mediterranean ship typologies through, at least, these two-hundred to four-hundred years. There may have been adaptations and there were ships of substantially different sizes, but the same core would have been shared.

There is a particularity one might observe regarding the shapes of the rams which seems to be present in every one of them. The design seems to be well-settled – when one observes the sides, there are always three veins or streaks which protrude from the central structure, and when one observes the front, particularly in those rams that are less deteriorated, one can clearly observe a cross-like structure, which equally projects from the main piece. This is a matter that has been discussed and it seems that although the shape of rams would have evolved through the centuries⁷⁰⁷ (they may have begun as

⁷⁰⁶ Murray 2012b, 208.

⁷⁰⁷ Casson [1971 1995, 85 (note 41) mentions two instances in which there seems to be a «two-pronged ram», one represented in a 4th century BCE coin (as seen in *Greek and Roman Warships* by Morrison and

cutwaters, for instance, and only subsequently developed as war instruments⁷⁰⁸), they were mostly settled in the last two-three centuries BCE.

It is as if a ram is built through four different bronze planks, three of them being horizontal and one vertical, crossing at intersections: it is not one single, massive structure with a simple box shape. One might wonder why the rams have this specific design; the fact that it lasted throughout several centuries possibly indicates that it was effective for their specific purpose. Firstly, the ram's exact positioning on a warship must be considered. For this specific case, aside from iconographical records, we have the example of experimental archaeology, through the reproduction made in the Olympias trireme⁷⁰⁹. When one observes its pictures, it is noticeable that a part of the ram is submerged when in water: about one third of the structure will be underwater at all times. Secondly, the part of the structure that shows above the surface seems to have a display that is slightly tilted upwards, although both upper and lower edges seem to diverge in opposite directions, when one looks at the archaeological remains of the rams. The designs of warships usually have a pointed end, which is elongated through the ram, and a rounded end.

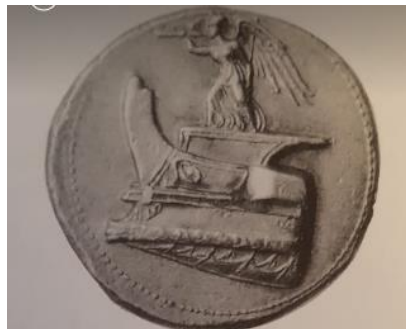


Fig. 40, described by Casson as the prow of a Hellenistic Galley, c.a. 300 BCE⁷¹⁰. Notice the three «prongs».

Williams, 1968, Clas. 16, pl. 27a), the other a «gravestone relief of ca. 400 B.C.» (A. Conze, *Die attischen Grabeliefs*, Berlin 1893-1906, pl. 122).

⁷⁰⁸ See, for instance, Mark 2008, an article which debates the earliest shapes of rams. Pitassi (2011, 41) illustrates the differences in purpose between the different types of ram, as seen by the sequence of images in Fig. 21 (p. 40): the earliest, sharply shaped rams would be used to «pierce and hole» the enemy hull, the latter blunt-ends to «stove in»; the types which are depicted in this chapter's figures, which are mostly Hellenistic, the author believes developed the «vertical spine to break into an enemy hull and horizontal vanes to cut the shell-planking along the grain and joints».

⁷⁰⁹ The debate regarding the general design of a trireme is far from being over, and different perspectives may be found, for instance, in Tilley, who considers that terminology such as «Trieres» is related not to the number of levels, but to the number of oarsmen per level; he distinguishes his position from what he calls «the orthodoxy theory», in which «an ancient trireme, the Greek trieres, had six files of oarsmen at three distinct levels» (33), and thus has some reserve regarding the Olympias. See Tilley 2004.

⁷¹⁰ Casson [1971] 1995, fig. 107.

II. VELAE ET REMI



Fig. 41, described as a Roman trireme of the second half of the 1st century BCE⁷¹¹, and fig. 42, a trireme of the 1st c. BCE to the 1st c. CE.

⁷¹¹ Casson [1971] 1995, fig. 125 and fig. 131.



Fig. 43⁷¹² and Fig. 44⁷¹³. Note the ram's position along the waterline.

⁷¹² <http://www.ekathimerini.com/211557/gallery/ekathimerini/in-images/reconstruction-of-ancient-athenian-trireme-sails-into-the-greek-sea>.

⁷¹³ [https://commons.wikimedia.org/wiki/Category:Olympias_\(ship,_1987\)#/media/File:Olympias.1.JPG](https://commons.wikimedia.org/wiki/Category:Olympias_(ship,_1987)#/media/File:Olympias.1.JPG).

What would be the impact of this ram against another battleship of the same size? It would firstly depend on the place against which the collision happened. Considering that a ram-to-ram approach is probably not viable, as it was more bound to be destructive to both ships than to have any positive effect through an attack, one is left with the stern and the flanks. The round-shaped stern would possibly be raised instead of completely shredded, creating an imbalance in the enemy ship and making it impossible for it to move, which would make it easier for the marines to board the ship (particularly relevant for the Roman fighting techniques). Flank attacks could have one of two outcomes: if the commanders and oarsmen were skilled enough, the ram could potentially destroy a great number of oars, which would come to the same effect, incapacitating the enemy from increasing speed and escaping, or turning direction; if a frontal collision happened, the ram would either create another imbalance – considering the slight curve along the ship flanks – or cross through it, ripping the lower planks⁷¹⁴.

In practice, the rams are not positioned in such a way that is meant to significantly shred the enemy ships at focal fragile points, such as the precise centre of a flank – this would probably go against two of the essential purposes which followed a battle, which would have been the acquisition of the enemy ships and slaves/crew/bounty. One may also add that, even with the intricate systems which bound the rams to the timbers, it is likely that a ram which ripped through a ship's planks could be wedged, and removal would be difficult or impossible, at least without compromising the ship's own structure. If the ship

⁷¹⁴ In the case of the Marsala ships, for instance, and debating against them being warships, Averdung and Pedersen (2012) consider that, «with the ram so minimally attached to the ship through the two pinewood tusks and a single mortise and tenon», it couldn't have «stayed on in rough seas or even (...) serve its purpose in battle», as it «bears the brunt of the seas through which the ship travels and a readily detachable ram could be easily lost through wave action and the forces of sailing». This last point should be taken in further consideration – the Mediterranean displays navigation specificities which, when combined with adverse meteorological conditions, may have rendered such a device impractical or impossible to use. The lack of evidence in ancient sources is also another factor to take into account. Although historical sources seldom give us very specific information regarding the way the ships were built and the precise processes they went through in battle, «no ancient writer mentions such». As mentioned by the author, even if the ship managed to successfully ram an enemy and leave the ram behind, it would remain «involved in battle, making it highly vulnerable». However, one may consider that this might not have been of considerable importance in the Roman case: ships were structurally sturdy, the existence or absence of one ram may not have been that significant regarding practical defensive structures (as it was a single structure at the prow, which did not protect the remainder of ship); and the Roman traditional technique was one of boarding and not of ramming (although it was definitely not unheard of), thus the absence of a ram may not have been very prejudicial. One will often find that specific devices with offensive functions will be included in the narration – for instance, grappling hooks, the so-called *corvus* and boarding devices. It is unlikely – although not impossible – that such a method would have escaped historical record, unless it was extremely common, and the ancient authors found it needless to specify in their writings.

became trapped by its own ram, it could easily be surrounded by enemy ships and boarded during the time it took for it to be moved.

If warships meant for naval combat invariably have rams, other ship types, not meant for battles but for transport, could have had similar structures that, however, had no purpose for war, but to aid with navigation. These would have been used as cutwaters, and they do not seem to appear in all cargo ship types. A cutwater can easily be mistaken for a ram if the archaeological remains of a vessel are severely deteriorated, which is what Averdung and Pedersen believe to be the case of the Marsala warships – the authors mention an experiment, done in the Philipps-Universität Marburg, to «test whether the feature at the bow at Marsala II could function as a device to aid the ship in running over sand banks or beaches», with a similar one having been conducted in the Netherlands through means of a fishing vessel. A model was made which, «upon contact with the sand bank, easily rode over the sand, cutting minimally into the bank».

The circumstances under which naval combat – and, therefore, rams – could be utilised are precise. Ramming the enemy ships would usually require relatively calm waters and not too much wind, as these could interfere with the direction and aim of a moving warship. App. *B Civ.* 2.9.59 says that the commanders in Caesar's fleet would have feared the enemy vessels due to a sudden calm of the wind, using it to their advantage in order to ram them; this would have taken the commanders to try and make the ships lighter, by dropping projectiles. Disposing themselves of apparel which could have been used in battle against the enemy may seem counterproductive, but it is likely that it would have been more profitable to have light ships, which could easily change direction and avoid the enemy ramming, rather than heavy ones but with projectiles, which may have been unable to reach Pompeius' vessels unless they were already under short range.

Capturing a rammed ship would have been considered a significant feat. One can observe that early in the Republic's naval career, when one observes the *rostra* with the rams of Carthaginian ships, or the aforementioned monument built by Octavianus. When Pompeius had his Triumph, Appian says that a tablet would have been inscribed, in which the specific number of rammed ships would have been mentioned (χαλκέμβολοι – App. *Mith.* 17.117); the beaks themselves would have been carried in the procession (ἔμβολα, App. *Mith.* 17.116).

Within the matter of wooden and metallic components lies the question of anchors. As they are not a part of the ship structure per se, we will not dwell upon the matter extensively, not only to avoid this study becoming too vast but also because this type of ship-component would deserve its own detailed analysis in a different chapter. In a 1984 study, Gerhard Kapitän explained the basics of anchor evolution: they began as «stones of no particular shape but sufficiently heavy and lashed to a rope» (Kapitän 1984), with «poles and branches» also being used to be «stuck in the sea bed or loaded with stones»; these «led to fixed mooring devices». The stone anchors themselves would have evolved to «a more longish shape, becoming prevailingly oval or trapezoidal», and then to «longish stones to which the rope could safely be lashed at a central narrowing or cut»; to these, a «bifurcating bough» was added and «transformed the anchor stone into a one-armed anchor with stone stock». The final development would have developed from these and introduced the «two-armed wood anchor with stone stock»⁷¹⁵. For a more recent archaeological study, one can underline Francesco Tiboni's recent work about a Roman anchor found in Genoa, which was already built in iron rather than stone or wood, and follows the most well-known shape of an anchor, with a «segmented arc profile, with pointed ends and no palms»⁷¹⁶; this implies that the basic shape would have remained very much the same, but materials would have been adapted.

Other resources for ancient ship analysis

Ancient sources, although lacking in very specific mentions, can provide some information on this point as well. In App. *Mith.* 14.96, one will find listed copper (*Χαλκός*), iron (*Σίδηρον*), fine linen (*ὀθόνας*), reefing rope (*κάλως*), bark (*ἔλην*) and diverse, unspecified materials used in shipbuilding. This chapter describes an episode occurred during Pompeius' campaigns against piracy and says that, upon encountering the pirate shipyards in Cilicia, the commander would have kept the ships already built (seventy-one would have been captured and three-hundred and six surrendered) but ordered the destruction of the materials. As metals are listed amongst them, it seems difficult to have them burnt – unlikely, also, considering they would have been valuable.

⁷¹⁵ This article explains matters such as the specific design of the anchors, the materials in use (divided between stone and wooden stocks) and the «removable lead stocks of wood anchors».

⁷¹⁶ Tiboni 2016.

Did the source unspecify which materials would have been burnt? Did Pompeius, in fact, order the destruction of all materials? If so, why? Perhaps to avoid the pirates' having the capacity to rebuild their fleets, considering that the Roman navy would have lacked the capacity to carry these materials back to safe harbours or to leave constructors behind to finish them.

In Dio Cass. 30.35.102, we find a reference to a specific ship component that is not very usual to see in other sources. This is the *ἀκροστόλιον*, believed to have been some sort of ornament present at the prow of a ship, a representation of which is likely to be found in the coin represented by fig. 45⁷¹⁷; this is described as a «sort of ornament on the prow of an ancient galley».

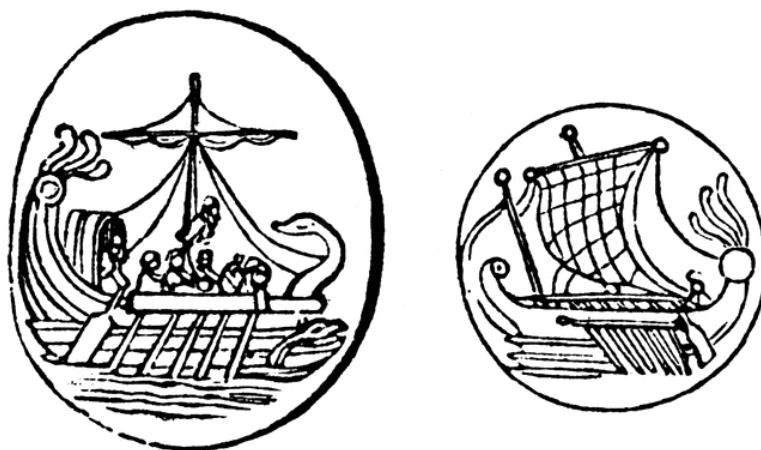


Fig. 45: the *akrostolion*

It seems that the flagships would have been easily identifiable, and one of the elements that would have allowed for it would have been the insignias. These are mentioned, for instance, in Caes. *BCiv.* 2.6, where Brutus's ship is attacked by two triremes due to the identification of the said elements, following an attack on the smaller vessels («*telorum multa nostris de improuiso...*»). Having ordered an increase to the speed of his ship, Brutus would have overcome his enemies and led to the collision of the two triremes, and description says that one of them would have had its ram broken (the *rostrum*) and, therefore, collapsed. As observed, the ram was a detachable component of a ship, kept together through several mechanisms, but it seems that a circumstance which would cause the breakage of a ram could lead to the whole vessel's destruction, probably due to the

⁷¹⁷ <http://www.forumancientcoins.com/numiswiki/view.asp?key=acrostolium>.

impact and strain on the structure's timbers. Seeing how both vessels would have been heavily destroyed by impact, Brutus's fleet would have approached; the triremes would not have sunk, in spite of the significant damage and to ship components being detached, but the fleet would have been able to quickly bring both vessels to such an end. It was not a circumstance of attempting to retrieve them or take them through the usage of grappling hooks and platforms, perhaps due to specific battle components or due to the fact that they would have been too heavily destroyed to be fully reutilised, but the hypothesis of them being recovered later and, if not restored, dismantled, in order to have their timber refashioned into components for other ships, cannot be disregarded.

The matter of ropes is also mentioned during the later conflicts of the civil war, during a moment of a Mediterranean storm (it seems that the ships of a fleet sailing together would have kept a specific positioning and that by rowing against the wind and keeping the anchor-lines loose and the ropes stretched they may have overcome the storm better – *Βέλεσι* and *χαλαρός*, *σχοινία* and *τεινόμενα*), the commander would have achieved not having the ships nor the ropes destroyed (Dio Cass. 48.48.1-2). Ropes are also mentioned as having been used to keep ships together during enemy attacks, in order to prevent the enemy from breaking lines (App. *B Civ.* 4.15.115); this, however, would have made it easier for the enemy to set them on fire or ram them, as verified later in the chapter. It seems that the specific characteristics of these ships would have helped them to remain afloat whilst burning, and one can wonder whether some of the vessels would have sunk following a fire, or whether their separate components would have remained afloat, thus allowing for easy retrieving and, if at all possible, reapplying them in other functions (App. *B Civ.* 4.15.116).

App. *B Civ.* 5.9.82 mentions a circumstance under which ships would have been kept together not through the usage of ropes, but of grappling hooks (*σιδηραῖ*). This would have prevented attacks through ramming, which are said to have destroyed ships' prows and oars, but would have enabled them to work as floating platforms, from which not only projectiles were thrown but also boarding devices of unspecified characteristics. It is mentioned, however, that the ships with greatest height would have had a benefit for these bridges.

Another important element for navigation was that of sails. As far as those are regarded, and as stated by Whitewright, «in terms of sail-plan, two forms occur in the iconography of the ancient Mediterranean», namely the «fully triangular sail» and the «quadrilateral

sail with a short luff»⁷¹⁸. There are several examples presented in the article, amongst which that of the Kelenderis ship, which we will not include due to the late dating of the sgraffito. It seems, however, that the latter would have been predominant: according to Castro et al.⁷¹⁹, «square sails» were «replaced by lateen sails in the Mediterranean during the first half of the 6th century, at least in some types of craft», a change which they state may have been caused by the «desire to improve the vessel's speed, perhaps due to the depression in Western Europe that followed the barbarian invasions, which caused a sharp contraction of commerce and insecurity all over Europe». However, they believe that «both lateen and square rigs coexisted in the Mediterranean throughout the Middle Ages». As far as Whitewright is regarded, «from the Late Bronze Age onwards, the primary sail of the ancient world was the loose-footed, square sail, set from a single mast and furled using a system of brails», a sail that lasts up to the «early 7th century AD», to which is added the «artemon», a «small foresail» which «provided a means to increase the manoeuvrability of sailing vessels by allowing a steerage point»; later, in the 2nd century CE, vessels begin «carrying a rig of two seemingly equally sized square sails». To the square sail one can add the «type of fore-and-aft sail, technologically unrelated to the spritsail», namely the «lateen/settee sails», which were «generally triangular» with «a high peak towards the stern of the vessel»; these seem to have existed since the 2nd century CE⁷²⁰.

1. Historical sources

When one is dealing with historiographical data in regard to this subject, the words of James Bromwich must be taken into account:

«Unfortunately, most written sources, when they mention river boats, are as imprecise as Ausonius. Many names are given, but the meaning is vague: context suggests that even *ratīs*, the word for raft, can just mean a small boat, though *linter* is used more widely in this general way; *navis*, or ship, is even broader, but could also include river vessels.» (Bromwich 2003, 257).

⁷¹⁸ Whitewright 2009.

⁷¹⁹ Castro et al. 2008: 347.

⁷²⁰ Whitewright also examines the positioning of the masts, the sailing rigs and the sprits.

Whether the source is written in Greek or Latin, when observing it through detailed analysis, one will find thousands of generalist mentions of ships with unspecific terminology, such as *navis*, *ναῦς* or *πλοῖον*, but close to no specific phrasing regarding the ships themselves, and even fewer descriptions of their shape and components⁷²¹. For this specific study, we analysed several Ancient sources and gathered these mentions; for the purpose of work economy, only those with specific descriptive excerpts will be included. Through the observation of these sources, scarce as the mentions might be, one may observe somewhat of a continuity of terminology applied to different vessels throughout the centuries.

One of the most notorious differences found amongst ship types in sources is that between aphract and cataphract ships – undecked and decked. The term *ναῦς κατάφρακτος* will appear, for instance, in App. *Mith.* 1.3, when the source is describing matters related to an embassy: twenty decked ships are demanded from Prusias by king Attalus. As described by Lionel Casson, «a cataphract ship was *ipso facto* a ship with a raised deck since the “fencing in” covered the space between the deck and the gunwale below»; these would be distinct from the aphracts which, «though they could have decks at either end, and some decking at gunwale level (...), had no raised deck from which side screening could be hung and were hence “unfenced”»⁷²². This means that there was a reinforcement on warships that could not usually be found amongst those meant only for cargo. When Appian is describing Mithridates’ preparations for the First Mithridatic War, the source does not mention the king as preparing long ships, as one will often find in ancient sources referring to war vessels, but cataphract ships⁷²³: three hundred would have been in Mithridates’ power, and more would have been under construction.

This passage also gives some indication to the great number of skilled officers needed to man these ships, as Mithridates is said to have sent for both «πρωρέας καὶ κυβερνήτας»⁷²⁴, prow commanders and steersmen, from Phoenicia and Egypt, which indicates that the fast building of warships made it difficult for Mithridates to summon his crews amongst his own land. It also implies that, at least according to the Pontic king or his advisors, the most skilled foreign individuals would come from these specific locations, a factor which was possibly allied to their geographical proximity. A new

⁷²¹ The same issue is mentioned by Pitassi (2011, 17).

⁷²² Casson [1971] 1995, 53.

⁷²³ App. *Mith.* 2.13.

⁷²⁴ App. *Mith.* 2.13.

mention to cataphract ships can be found in App. *Mith.* 3.17, where three hundred cataphract ships are mentioned; this comes with a reference to one hundred *δίκροτα*. A *dikrota* is generally described as a ship with two banks of oars, thus a bireme⁷²⁵; the distinction between cataphract ships and *dikrota* seems to suggest that there was a practical difference between both, and that would probably translate into the biremes being aphract ships. Even if their building principle was similar to their larger counterparts, the bireme would not have been considered as a standard decked ship, such as the trireme and quadrireme. The amount of resources required to build a trireme would thus have been significantly higher than that to build a bireme and so would the number of individuals required to fill its crew; but Mithridates still has three times more cataphract ships than biremes. This seems to indicate that the biremes would not have been the main ships utilised in naval conflict during the Mithridatic wars.

Throughout the course of the Mithridatic wars, Mithridates seems to have continually invested in shipbuilding. As verified above, the cataphract typology seems to be predominant during the initial stages of war, with a possible tendency for building large warships; this also seems to be pointed in App. *Mith.* 4.24, during which a sea-fight is described. Mithridates is said to have sailed around on a *Πεντήρης*, thus, a five. No other *penteres* is mentioned during this chapter, and whether this was the most numerous ship remains to be ascertained; however, the commander's flagship seems to have been one of the largest battle ships in use during this time period.

It seems that, at the start of the First Mithridatic War, Rome would have had a fleet stationed close to Byzantium, guarding the entrance and exit of the Euxine sea; such a fleet would have been directed by two officers, Minucius Rufus and Gaius Popilius. The specific ship types belonging to this fleet are not mentioned but described yet again with generalist terms: *νεῶν* (ναῦς) and *στόλος*, the word being used for the fleet itself. According to Woodhouse's English-Greek Dictionary, the word itself translates, more exactly, as an «expedition by sea», with the term *nautikon* being used for specific references to the fleet itself; regardless, even though the meanings are slightly different, the overall purpose is the same: the description of a vast amount of vessels which gather at sea with a specific purpose. Considering that this fleet was meant to be guarding

⁷²⁵ See, for instance, Casson [1971] 1995, 134-35; 141, note 4; Saddington 2007, 208.

entrances and exits between the Mediterranean and the Black Sea, it is likely that it included some sort of warship typology and possibly armed infantry.

There seems to be a similarity between the warships used by both parties. The Rhodians, fighting under their alliance with Rome, would have captured one of the Basileus' ships with one of their own *Δίκροτος*, or biremes; it would have been used to take a merchant ship, which would have been sailing and not moving through the resort to oars. With this episode and Appian's summary of the naval combat (*Ναυμαχία*) that followed one can continue to observe the constitution of Mithridates' fleet, as well as the differences between his own and that of his enemies. Whilst the Rhodian vessels are warships fighting under the traditional fighting system (as rams and ramming are mentioned; *Σκάφη*), it seems that they would have attained significant speed, which may have been a preponderant factor amongst their victories. There are, at least, two occasions in this chapter in which that seems clear: the fact that the Rhodian vessels managed to surround the Mithridatic ships by encircling them (*περιπλεόντων*) and using their rams against them; the other, a mention of a Rhodian *πεντήρους* is also present, one which would have disappeared, and required several of the faster ships to be sent after it.

In spite of the seeming predominance of faster ships among the Rhodian fleet⁷²⁶, the large ship types could also be found, although they may have been in less significant numbers. In Caes. *BCiv.* 3.27, although referring to a subsequent period to that of the Mithridatic wars, there seems to be somewhat of a reference to the diversity within the Rhodian fleet, as it is mentioned that the ill weather would have affected the «*naues Rhodiae*» and shipwrecked sixteen of them, which would have been decked vessels («*ita ut ad unam omnes constratae numero xvi eliderentur et naufragio interirent*»). Whether we are speaking of a predominance of cataphract or aphract ships on the Rhodian side, and in spite of the seemingly larger, well-equipped fleet of Mithridates, the Rhodian fleet was still able to capture one of his *Τριήρης* (yet another specificity of the Mithridatic fleet, which can now account for at least three typologies: the bireme, the trireme and the quinquereme). Nonetheless, the Rhodian success may have been described as greater than it was by this source, considering that, if the enemy fleet was larger, they only managed

⁷²⁶ Something which is also stated in App. *B Civ.* 4.9.70, as the Roman ships would have struggled against the swift Rhodian vessels, having more ease in attacking them by using the floating platform method. The greater numbers on the Roman side would have enabled the fleet to blockade the Rhodian ships and prevent them from fast attack-and-retreat strategies. The Rhodian ships would have attempted to ram the Roman vessels with their prows and sides – a strategy not usually heard of – and retrieved little success, whereas the Roman vessels would have managed to capture three Rhodian ships and sink two (App. *B Civ.* 4.9.71).

to capture one ship, in spite of their technique of circling and ramming. Even during a specific occurrence when the fast ships are sent after the quinquereme (which, if it had gone missing, may have been captured, sunken, turned to the enemy side, amongst other possibilities), the admiral, Demagoras, had to pull back his fleet to protect it from Mithridates' twenty-five ships and was only able to attack later in the day, when the latter were already returning to the main fleet; even so, it was not a completely successful combat, as Demagoras managed to capture two ships, but two were also sunken, depriving the Rhodian fleet from these extra vessels.

App. *Mith.* 4.26 is another passage in which one might observe the balance of strength between the Rhodians and the Mithridatic fleet whilst simultaneously verifying the aftermath of a battle regarding the repurposing of ships. In this passage, triremes and transports (unspecified) are caught under a storm and find themselves close to the Rhodian harbour, which allows the Rhodian fleet to intercept them. The length of time during which this happens is not clear. It seems that the Rhodians would have attacked their enemies whilst they were still reorganising themselves following the aftermath of poor meteorological conditions; but for the Rhodian ships to be able to move themselves, it would probably have meant that the storm would have been over or nearly so, which may have given the enemy fleet some time to reorganise, unless damage had been severe. Considering that some of these would have been oared ships, even through potential disorganisation, they may have been able to set off from the vicinity of the Rhodian harbour; however, if they were to be persecuted by swifter ships, the velocity of oaring would have been inferior and, therefore, insufficient to escape the attack. This debacle would only be settled by knowing exactly which ship types were present on either side, the number of oarsmen and the severity of meteorological conditions, which are unmentioned.

Regardless of the questions raised by Appian, there are three topics which the source seems to mention with relative certainty: some ships would have been rammed, some would have been captured and others burnt. These are three different courses of action and it is not described whether they were interchangeable. Appian does not state whether the Rhodians rammed ships with the purpose of capturing them and reutilising them, or whether the ramming was meant to sink them. The usage of fire engines, whether from the ships themselves or close locations on land, is also not mentioned, although some

ships are said to have been burnt⁷²⁷. Were they burnt through the course of the battle and during the attack, or destroyed afterwards? The number of captured ships does not seem to have been of great significance, judging by the number of 400 captured prisoners, when one considers that a trireme – which would not be the largest ship used during the Mithridatic wars – is usually considered to have an average of 170 rowers. This would be a number correspondent to about three or four ships at most, not more; and however much these ships were expensive in terms of material resources, if one is to consider that Mithridates is said to have had a fleet of over three-hundred ships and more under construction, it does not seem like a substantial loss.

2. Engines

Throughout the 1st century BCE and into the 1st century CE, there are several circumstances in which one may find mentions to engines or devices being used on the ships as a means for added offensive or defensive power. This is the case, for instance, of App. *Mith.* 4.26, the earliest mention of the usage of Sambucas by this source where the Mithridatic wars are regarded. As we observed in chapter I, during the occasion of a siege, Mithridates would have ordered the building of a sambuca, described as an «immense machine for scaling walls»; its considerable size seems to be attested by the fact that it took two ships to hold the engine together. This follows the episode of small confrontations in Rhodes, where triremes and transports are specifically mentioned; however, the source does not specify the ship types utilised for assembling the sambuca. It is not mentioned whether the design of the sambuca would have been altered either, or which way would have been found to counter the weight and make sure that the prow or stern of the ships carrying it did not sink.

The usage of sambucas as devices to climb onto the enemy walls must have meant that the intention was to station the ships on a section of the wall close to the sea. As to the sambuca, it would have moved against an area where a temple of Isis would have been erected, operating with *κριοὶ* and *βέλη* – rams and projectiles – thus making the sambuca

⁷²⁷ As stated by Pitassi (2011, 48-40): «On wooden ships, anything ablaze represented a serious risk. Cooking facilities may or may not have been installed in warships, it is not known, but in merchant ships they were small and carefully lined with tile or brick. There are no references to the use of fire missiles in the Punic Wars, or indeed prior to the Battle of Actium in 31 BC».

more of an attack platform than a device for climbing onto the walls. By using the sambuca, the Pontic army would have been able to grant itself the height to attack enemies within the walls and counter that specific disadvantage; and, if the ships carrying it were to be assembled in a location unable to be reached by foot, guarded by other vessels⁷²⁸, it would be difficult for the Rhodians to disassemble it and counter the constant flow of projectiles and attacks against the wall.

Appian does not mention which sort of rams and missiles would have been used under these circumstances. The ships holding the sambuca would probably not be using their own rams against the wall, as they would be under strain and carrying a heavy load already. These would have been instruments used from within the sambuca itself, thus causing even more imbalance to the ships' weight between attacking and recoiling; it can be added that the method for retracting the rams is not mentioned either. Would the rams be pulled back and forth through human strength alone, or would the ships be moved through the action of oarsmen to direction the sambuca against the wall? The effectiveness of the sambuca can also be argued, if one considers that the same chapter states that the sambuca would have subsided due to its excessive weight. This can be debated, especially when one considers that Appian mentions a vision of Isis launching fire against it: did the sambuca truly collapse due to structural engineering issues, or did the enemy manage to convey a counterattack and, through the usage of another engine, incinerate it? Another possibility is that some of the missiles being thrown from the sambuca could have been on fire, and some accident or mishap happened, or some sort of overheating of the structure.

It seems that the Basileus would have also distributed ladders amongst several ships and stationed them near the wall as well, and that these would also have been used to invade Rhodes. These ships do not seem to have been either of those mentioned above during these circumstances – not triremes nor transports, but *σκάφα*, usually considered to be smaller ship/boat typologies. The process of attack seems to have involved two different stages: whereas the sambuca would have been used to attack and breach the walls, it would have been accompanied by these smaller ship-types carrying soldiers and ladders, so that they could immediately climb the walls after they had been torn down. The collapse of the sambuca would have prevented this, as it is likely there was not enough

⁷²⁸ An information that is not mentioned by the source. See App. *Mith.* 4.26.

time to significantly breach through the walls in order to allow the army's entrance within the city. The effectiveness of a sambuca, particularly during these specific circumstances, is thus something that must be observed in detail – the device wouldn't hold its own weight and it likely caused damage to the ships carrying it and it delayed the process.

Alongside with the sambuca, other types of heavy war engines would be found. App. *Mith.* 11.73 describes an attack during which a tower (πύργος) would have been used against a harbour from which a bridge (Γέφυρα) and would have been projecting some sort of mechanism (μηχανή) against the walls. It seems, in its essence, somewhat like the sambuca, except that a bridge is mentioned instead of a ram. There is no mention of smaller ships accompanying the two quinqueremes carrying the tower, neither of ladders being carried by soldiers. It is likely, however, that this was an attack not against the city walls but against those protecting the harbour, considering that the attackers would have subsequently been sent on ships. Yet again there seems to be a double functionality and moment for this specific mechanism – the first few attempts to take the city having failed, Mithridates would thus have used the bridge to have his men cross. This specific episode of an attack to Cyzicus is very descriptive when it comes to observing not only the attack itself, but also the way to counter these engines. It is mentioned that the ship rams (κριοί) would have been stopped through either ropes or wool, and that pitch would have been poured on the closest vessels to force them to retreat.

During the conflicts between Octavianus/Antonius and Sextus Pompeius, one may yet again observe war machines and towers being used within the Roman fleet. Dio Cass. 49.1.2 describes thick and large vessels⁷²⁹ built in such a way to carry plenty of foot soldiers and towers (Πύργοι), to provide the men greater height so they could fight as if they were on top of a wall («ὕπερδεζίων ἀγωνίζονται»). These would have been built with naval battles in sight, as they were designed to bend their rams (ἔμβολος) backwards upon collision. Thus, the ships carrying the said towers would have simultaneously been carrying these engines and attacking/being attacked by the enemy ships; this would have required for the towers to be safely lodged on the deck, to prevent them becoming detached or falling under such a strain, and also to find some sort of counterweight – if the ram did bend backwards and the tower was placed on the stern, for instance, the weight

⁷²⁹ Dio Cass. 49.1.2: «ὑπέσχητο δ' οὖν αὐτῷ βοηθήσειν. μέγιστον δὲ τῶ τε ὕψει τῶν σκαφῶν καὶ τῇ παχύτητι τῶν ξύλων ἐθάρσει: ὑπερπαχὴ τε γὰρ καὶ ὑπερμεγέθη κατεσκευάσθη, ὥστε ἐπιβάτας τε πλείστον ὅσους ἄγειν»: the passage specifically regards the commander's reliance on the height and sturdiness of the craft, with the ships being thicker and built to a greater height than usual.

imbalance may have been enough to turn the ship, or, at least, to create a significant strain that would have thrown some fighters overboard. The towers would have needed to be secure enough for the men not to fall during the ship's movements, and one may also ask whether the individuals on the towers were heavy infantry or whether this occupied mostly the deck, with archers and projectile throwers being on the towers for added height.

Another instance in which towers are assembled upon tall, sturdy ships is mentioned in Dio Cass. 49.3. Yet again, one will find expressions allusive to the height («τό τε ὕψος τῶν σκαφῶν»), thickness (πάχος) and the side-beams of the ships (ἐπωτίδες), as well as Πύργοι, towers. This specific chapter seems to confirm that the towers would be carrying archers or slingers, as it mentions projectiles being cast from them, whilst iron hooks («καὶ χειρῶν ἐπιβολαῖς σιδηρῶν [made of iron] προσαρτώμενοι») were being used to bring ships together and allow boarding. Both the throwing of projectiles and the usage of grappling hooks would have happened simultaneously, whilst Sextus' ships were attacking the sides and attempting to destroy the areas near the banks of oars, possibly the oars themselves, if at all possible, to prevent the enemy from further movement. It also seems that smaller skiffs would have been nearby, as it is mentioned that the men upon the sunken ships would have easily swum upon these vessels and re-embarked on the larger ones.

Acilius Caninus, a legate, would have sunk a transport ship to block the entrance to the harbour of Oricum, subsequently attaching another vessel to it. On this vessel, a tower would have been assembled, and within the tower there would have been stationed warriors: «nauem onerariam submersam obiecit et huic alteram coniunxit; super quam turrin effectam ad ipsum introitum portus opposuit et militibus conpleuit (...)». The ship would therefore have been utilised as a platform for yet another ship, which would, in its turn, have become somewhat of a wall extension to protect the harbour. The submerged vessel would subsequently have been removed from its place by Gnaeus Pompeius, through the usage of different devices: «submersamque nauem remulco multisque contendens funibus abdixit» (Caes. *BCiv.* 3.40). The second vessel he would have attacked with his own, which would also have been carrying towers, from which *tela* would have been thrown. One may question how one vessel stood atop of the other, and how the enemy fleet would have been able to remove the sunken vessel first, considering

it would have been submerged and under the influence not only of the traction of the water, but also, in theory, of the other vessel's strength.

The fact that towers are more often assembled on large ships does not mean they could not be found amongst other vessels or devices. App. *B Civ.* 4.10.82 mentions that Antonius would have utilised rafts to assemble the towers, which either means that the rafts would have been sturdy floating platforms in order to sustain them, or that the towers would have been smaller than those found amongst the large vessels for the rafts to sustain their weight. How these floating platforms would have been moved is not mentioned; they would have been in the presence of both warships and transports, but it is not specified whether they would have been attached to these through some method, why they wouldn't have been assembled on them in the first place, or whether there would have been rowers on the raft to manage their movement.

Throughout the readings of ancient ship journeys, one will frequently find the mention to nocturnal navigation. How a fleet would have oriented itself through the night, especially when a large number of vessels was involved, is not still entirely certain, but Dio Cass. 49.17.1-2 seems to provide a clue, for it mentions that the flagships («*αἱ στρατηγίδες νηῖς*»⁷³⁰) would carry with them some sort of light that would be put on during nightly dislocations, to allow for the remainder of the fleet to easily follow, as we observed in chapter I. This, however, raises a series of questions, as the specific sort of light is not mentioned, but it would have needed to be strong enough to be seen by, for instance, two or three hundred ships traveling together. App. *B Civ.* 2.13.89 mentions a dual circumstance under which the travel guidance is described both for night and daytime, in which the flagship would have guided the others through a light during periods of darkness and a sign during the day.

Throughout this chapter, there have been several mentions to fleets and the joint dislocation of the *classis*. There are often cases of a few vessels reported as being lost, as is the case of those transporting the cavalry during Caesar's journey to Great Britain; this is also found for the Mediterranean case, one example being present in Caes. *BCiv.* 3.28. Two ships would have been dislocating themselves more slowly, hence being lost from the remainder of the fleet, and thus still navigating during nightfall. This would have led

⁷³⁰ Flor. 2.18.3.9 gives a Latin equivalent for the flagship: «*trecentarum quinquaginta nauium praetoriae nauis*».

to them not knowing which way to take and drifting from the others, anchoring in a different harbour. One may question how these ships would have got lost: if a large fleet is sailing, even under considerable distances, would they have lacked the visibility at sea to observe the allied vessels? Would the captains and commanders not transmit the orders between ships to report as to where they would anchor, but rely on the following of flagships? The specific guidance of a fleet under dislocation is unclear, and if it seems that a vessel could lose itself from the main armada during the day, one may question how it would have been possible, prior to the modern technologies, to dislocate a fleet by night, especially without very specific previous instructions.

There is another point which may be observed: the source states that *«harum altera nauis ccxx e legione tironum sustulerat, altera ex ueterana paulo minus cc. hic cognisci licuit»*; hence, the individuals dislocating themselves within one of these vessels would not have been the well-experimented soldiers, but the younger elements of a legion. It seems that it would not have been one of the smallest ships either, considering how two-hundred and twenty individuals would have been aboard, and that this number probably does not include the necessary crew to man the ship. Whoever was sailing across the other vessel remains unspecified, but one may wonder whether the lack of experience of the men on board would have directly or indirectly influenced the vessel being lost, and whether the most experienced crews would have been sailing with the veteran warriors, rather than the youngest legionaries, hence facilitating the possibility of error during navigation.

One of the few specific descriptions of what may have happened after a ship had been rammed is present in Plut. *Vit. Ant.* 67.3. It seems that a Caesarian vessel would have hit an Antonin flagship (*ναυαρχίς*) with a *χαλκώματι*, a bronze ram; this would have resulted in the vessel swirling round sideways, therefore leading to its subsequent capture. Considering how the Antonin vessels are usually described as being heavy and of a larger size, it seems that they would have struggled to reorient themselves after being rammed, therefore allowing for capture through unspecified methods; as infantry is not mentioned, it is possible that these would have been the usage of grappling hooks.

3. The Trireme and Quinquereme

«In the fifth century B.C., the ship of the line throughout the ancient world was the trireme, and, except for a few centuries of experiment with larger types, it retained this distinction down to the days of the later Roman Empire. (...) The technical name for the ship, in the Roman navy as well as the Greek, was *trieres* “three-fitted”. Precisely what is meant by “three-fitted has given rise to the famed “trireme question”». Casson [1971] 1995, 77.

As mentioned by Casson, the trireme or *trieres* was the most durable vessel in the Ancient Mediterranean, with its usage spreading several centuries. Despite the *liburnas*⁷³¹ being frequently mentioned when it comes to Roman warships, and their frequent consideration as the most widely-used warship amongst the Roman naval wars, when one has the sources in consideration, it seems that the great naval conflicts of the 1st century BCE continued utilising the trireme as their main source of sea-power. These could often be accompanied by even larger ships, the so-called quadriremes and quinqueremes; but the trireme is, generally, the most numerous and widely mentioned across historical sources. One might ask, therefore, what makes the trireme such a long-lasting device – if, as mentioned by Lee, the trireme is born «sometime in the seventh century BCE», becoming the «dominant class of warship» at the «end of the sixth century», we are observing a vessel which has endured nearly seven hundred years as the main war vessel in the Mediterranean⁷³². In spite of its widespread use across time, so far, «no wreck of a trireme has ever been found», which means that, in spite of Lee’s affirmation that «a great deal is known or has been reasonably estimated», we still lack definite archaeological evidence to fully display the precise functionality, and are working, to a great extent, with iconography, which is often not the most reliable method for precise observation of ships, and historical descriptions which lack in extensive detail. According to d’Amato, «the last battle of the *triremes* was fought in 324, at the western corner of the Dardanelles, and lost»⁷³³; which means that, even after they ceased being the main warship in the

⁷³¹ The *liburnae* seem to be more of an Imperial than a Republican vessel; at most, its implementation is Late Republican. Described by Casson as a «fast, two-banked galley adapted from a craft developed among the Liburnians», they are not only seldom mentioned in writings regarding the Republican period, but existed accompanying «triremes, quadriremes and quinqueremes», and apparently one «six». Even in what seems to be the age of the Liburne, the trireme continues to exist. Casson adds that it is possible they were connected to the *lembos*, although the latter term is used in very diversified occasions and therefore the connection is difficult to establish. Casson [1971] 1995, 142-43.

⁷³² Lee 2016, 184.

⁷³³ D’Amato 2016, 53.

Mediterranean, triremes continued in use, and have an actual time span of about one thousand years, going as far as to be used in the *Classis Britannica*⁷³⁴.

What is a trireme? The image of the Olympias is what will frequently be seen as such, but these interpretations might not be so linear⁷³⁵. Casson goes as far as to mention the «trieme» question regarding the matter of naming. «Before the trieme made its appearance, the only ship-types mentioned are the triacontar and pentecontar (...)». If these refer to «the total number of rowers», it is said that «the *trieres* obviously was named on some different basis», as were the «*tetreres*», the «*penteres*», the «*hexeres*» and the «*tessarakonteres*»⁷³⁶. Quoting Thucydides (2.93.2), Casson considers that each rower would pull an oar, and that these oars would be similar in size⁷³⁷. The matter of classification is also brought up by Pitassi, who underlines the fact that the transition from Greek to Latin terms may have derived in some incongruencies which, however, should not keep the researcher from using the terminology⁷³⁸.

Caes. *BCiv.* 2.23 utilises the terminology *trireme constrata* to refer to a decked trireme; it is not a usual case, as the mention of triremes usually does not include such terms, and one may consider it as a singular occurrence, but one may wonder whether there is a different sort of significance, which is that some aphract ship types could have been considered as triremes. This notion is aided by the fact that triremes are generally considered as having been anchored at sea, and not brought to the shoreline; however, in this specific case, the source says that «ad proximum litus trireme constrata», thus, that the ship would have been brought to coast. This would have henceforth allowed for one of his enemy commanders to order the towing of the ship through a rope. Seeing as neither were all trade vessels undecked, nor all warships decked, as confirmed by Caes. *BCiv.* 3.7 («cum Caesar omnino xii naues longas praesidio duxisset, in quibus erant constratae iii»), therefore, from twelve warships sent to patrol the seas, only four of them would have been decked), the possibility remains.

⁷³⁴ As mentioned by D'Amato, according to CIL XIII, 3564.

⁷³⁵ As quoted above, see Tilley 2004.

⁷³⁶ A note worthy of inclusion: as mentioned by Casson, the terminology «*dieres*» does not exist because «no “two-fitted” vessel of fixed specifications ever existed», with «two-level penteconters, two-level triaconters, and other craft rowed in bireme fashion were called *dikrotos* “two-banked”». Casson (1971) 1995, 78.

⁷³⁷ Casson [1971] 1995, 82-84; the lower row would be the thalamites, the mid-row the zygitas and the highest the thranites.

⁷³⁸ Pitassi 2011, 18.

Whether warships would have been brought ashore or not is still a matter of debate. Caes. *BCiv.* 3.15 mentions that Bibulus' fleet would have been banned from the *litora*, therefore being impeded from bringing his fleet to the coastline, even if to find resources. This can be argued in two ways, however, and one may consider that the gathering of firewood or water («*lignandi atque aquandi*») would have been mustered through the usage of smaller vessels, whilst the large warships could have stayed anchored in high sea. Bibulus's ships would also have been of a specific type, as it is mentioned that they would have been covered in leather: «*ut usi tempestatibus ex pellibus, quibus erant tectae naues, nocturnum excipere rorem cogerentur*» (Caes. *BCiv.* 3.15). On the other hand, Caes. *BCiv.* 3.40 mentions warships which would have been close to the shoreline, with four of them being captured and the remainder being burnt. The discussion of whether the triremes could have been brought ashore is still not ended, but if Plut. *Vit. Pomp.* 78 seems to provide some evidence that the trireme would have struggled to approach the shore, especially in specific geographic circumstances, chapter 79 seems to confirm it, as a *Τριήρη* is said to have been far from land, a distance, however, that seems to have enabled those on the shore to hear a loud cry which would have come from the vessel (Plut. *Vit. Pomp.* 79.3 and 80).

Amongst the few iconographical representations of what is believed to have been a trireme is the Nymphaion sgraffito. This work is believed to depict a ship from the Hellenistic period, and the artwork itself may go as far back as the 4th century BCE, considering the «fragments of statues, cult vessels and a sculpted altar»⁷³⁹. The work is, like many others, very deteriorated, but through attentive analysis and investigation, important data has been achieved. This vessel's depiction shares a similarity with what one may find in the galleys of the Pompeii frescoes – there is no depiction of a mast nor a sail. During a battle a ship would have attained significant speed, and the presence of sails would have hampered it severely, either by adding extra speed, if one were to dislocate with a favourable wind, or by diminishing it and forcing the oarsmen to add more human effort. The Nymphaion depiction is strongly believed to have been a trireme and, through reconstruction, one can find several familiar elements: two steering paddles along the stern, what seems to be three banks of horizontal oars, a potential decorative element (the eye-shaped figure along the stern) and what might be a ram, and, also on the prow, what seems to be a spur. Infantry is also observed through the presence of elongated

⁷³⁹ Murray 2001, 250.

shields, but in significantly smaller numbers than one can find in the Pompeii frescoes – only four shields can be clearly attested for.

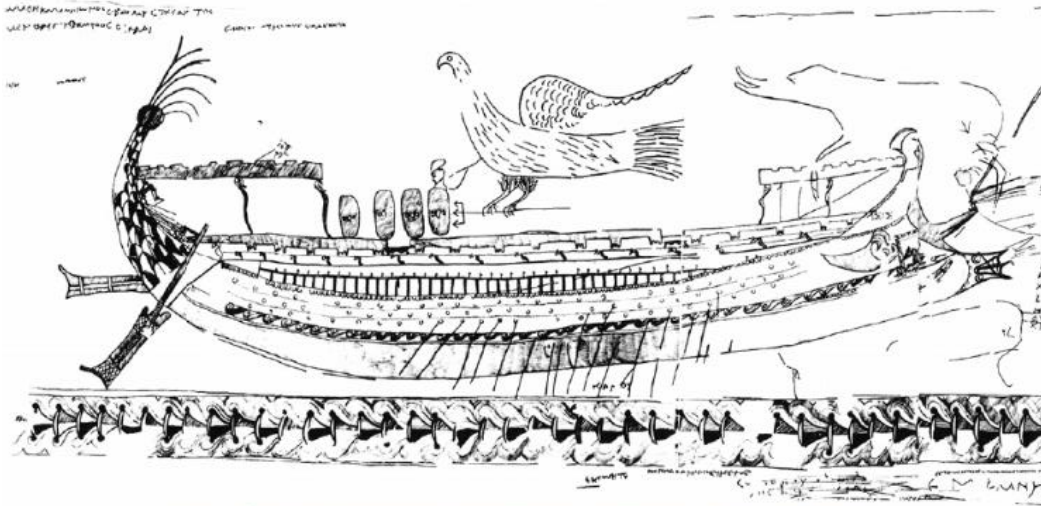


Figure 1. Line drawing of register containing the Isis sgraffito, left side (after Grač, 1987, Abb. 2, p. 92).

Fig. 46. A representation of the Nymphaeion sgraffitto as seen in Murray 2001.

The *Olympias* trireme is one of the few examples of large-scale experimental archaeology, making it pertinent for the results of the trials to be included. During the 1992 experiment, the trireme had a maximum crew of 154 out of 170. Having new «training and coaching methods» in comparison to 1990, and «under short-term pressure to perform», it made a voyage of «156 kilometre (112 nautical mile)» to «Aegina, Corinth, Salamina and return to Poros», during an «11-hour, non-stop row into headwinds reaching 20 knots with higher gusts». The crew rotations were of «40 minutes on, 20 minutes off, the thalamian seats being occupied by those who were resting»⁷⁴⁰. The maximum speed was attained during the 1990 trials (8.9 knots), but it is believed that 8.3 knots are considerably more sustainable and confirmed by GPS tracking. Other factors were ascertained in the 1994 trial, such as the sensitivity of the ship and the rowers («rowers, with a wide range of experience, could reliably identify whenever two people moved across the ship at any point along its length»⁷⁴¹), the speed whilst rowing backwards (4.5 knots, which became 5.6 with a wind of 15 knots) and the time of boarding («using one gangway to board the crew of 130 over the stern from the wharf typically took six minutes

⁷⁴⁰ Lipke et al. 2012, 13. See this article for the full report, which includes the damage that the ship began to present throughout the trials, its specific construction method and, overall, every detail regarding both missions.

⁷⁴¹ Taylor 2012, 52-55.

with people ready to row off in another six to seven minutes»). It can be added that the trials «demonstrated the importance of an *interscalmum* (the oarsman's 'room') of adequate length to allow the full length of oar-stroke and therefore power available from oarsmen»⁷⁴².

The Pompeii frescos will also show the absence of gaps for the oarsmen – whether purposely or not, it cannot be attested – but this seems to differ significantly from a piece found by Charles Lenorman in 1852, currently exhibited in the Acropolis Museum, in Athens, where one can clearly see at least one bank of oarsmen which have full access to an open area. The oars they are holding are visible, and possibly accompanied by others from lower banks of oars, which, however, have smaller gaps between them.

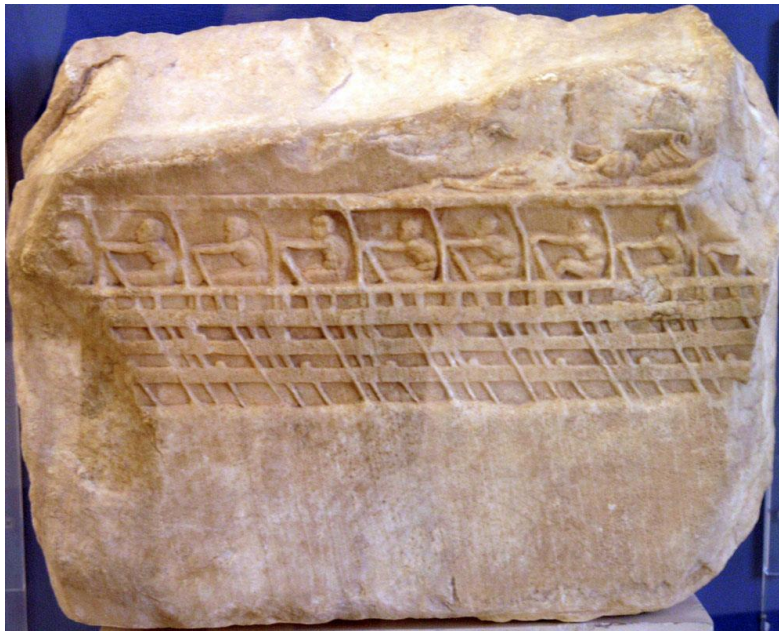


Fig. 47: The Lenormant Trireme Relief⁷⁴³.

As verified above, the trireme was one of the main ships used during the Mithridatic wars, together with smaller and larger typologies. If the trireme is usually seen in its function as warship, however, it seems that this would not have been the only one. Appian describes a moment in which Mithridates' army would have been transported by ship; amongst the mention of transport ships, or *ὀλκάδες*, the soldiers would have also been taken through *τρίηρες*, which means that the Pontic Kingdom would have been using these Hellenistic warships to carry land forces. Nonetheless, these movements are accompanied

⁷⁴² Morrison [1950] 2016, 53. As the *Olympias* is the craft with more information and depictions, we opted for including it rather than other vessels in this study; however, there are other lesser known reconstructions (not to a full scale, usually), some of which are mentioned by Morrison (294-319).

⁷⁴³ https://commons.wikimedia.org/wiki/File:ACMA_Relief_Lenormant.jpg.

by traditional transports, and one might question this specific combination of ship types. It is possible that the transports were mostly used to carry the supplies and equipment whilst the triremes carried the army themselves, or that the triremes were already meant to be undergoing through that dislocation and, the fleet being unable to carry sufficient infantrymen, they would have been accompanied by the remainder in transports. Another hypothesis is that cavalry units were being transported, thus requiring specific types of transport ships to carry over the horses, whereas the warriors would be on the triremes.

Ships in general being a valuable resource, there is a specific reference to repercussions following the loss or mismanagement of a trireme in the case of Mithridates' wrath against Chios. The Mithridatic Wars are a period in which the triremes are still largely at use: Plut. *Vit. Sull.* 22.3 mentions *τριήρεις* as being offered to Sulla by Archelaüs, instead of larger quinqueremes and quadriremes, or smaller biremes. The ships circulating in the Mediterranean during this period seem to have been equipped with bronze: «*δοῦναι ναῦς ἑβδομήκοντα χαλκήρεις μετὰ τῆς οἰκείας παρασκευῆς*» (Plut. *Sull.* 22.5). The idea of bronzed ships is also present in Plut. *Vit. Luc.* 3.9, and it seems that Mithridates' flagship would have been sailed with this sort of equipment («*δείσας ὁ Λαμαγόρας τὸ βάρος [weight] τῆς βασιλικῆς καὶ τὴν τραχύτητα [roughness, ruggedness]. τοῦ χαλκώματος [made of bronze] οὐκ ἐτόλμησε*»). If triremes were in circulation, this does not mean that the quinquereme would not have been in use, as verified in Plut. *Vit. Luc.* 12.2, with the mention of *πεντήρεις*. There is a specific terminology used for brazen beaks, namely *Χαλκέμβολοι*, in Plut. *Vit. Luc.* 37.3. Plutarch also uses the terminology *ἐνήρεις* to signify oared vessels, opposite to those with sails⁷⁴⁴.

If understanding the trireme is a difficult matter, it is not easier to do so for the quinquereme. This vessel seems to have been very in use during the third century BCE, as it is frequently mentioned by Polybius in his account of the First Punic War; but it is not as frequent in this last century of the Republic, when triremes are preponderant. The quinquereme's main use at this point was possibly that of carrying the heavy war engines which were often found in naval combat (as seen, for instance, in App. *Mith.* 11.73). During the Alexandrian Wars fought by Caesar, the ship types against which his army and navy fought are not frequently specified. *BAlex.* 11 mentions the capture of a

⁷⁴⁴ The usage of triremes will also be mentioned during the Sertorian wars, in Plut. *Vit. Sert.* 6.5: «*τριήρων*». It is worthy of mention that these triremes would have been built together with war engines, which possibly means that they were to be used conjointly.

quadrireme and the sinking of several others and the presence of infantry aboard the enemy ships; it seems that these would have been accompanied by *naues onerariae*, as they are mentioned as being part of the fleet with which Caesar returned to Alexandria. It seems that the Alexandrian fleet would have been relying mostly on large ships (*BAlex.* 3), as seen through the mention of quadriremes and quinqueremes, combined with smaller and unspecified ship types (*minores aperta*). Caesar's fleet, instead of being mentioned by the denomination of the ships, is instead referred to through their origins – 9 Rhodian ships, 8 from Pontus, 5 from Lycia, 12 from Asia, and it seems that they would have included quinqueremes and quadriremes as well, together with smaller ships (*«relinquae infra hanc multitudinem et pleraeque apertae»*). In Caesar's case, it is specifically mentioned that some would be used for combat and some would be support ships, a system which has already been observed and that would have been in use amongst the fleet of Alexandria: *«Post hunc ordinem reliquis nauis subsidio distribuit: quae quamque earum sequator et cui subueniat constituit atque imperat. (...) Alexandrini classem (...) in fronte collocant XXII, reliquis subsidiarias in secundo ordine constituent»*. The usage of small support ships is yet again mentioned in *BAlex* 17, as *nauigia minora* and *scaphae* (*«nauigia minora scaphasque»*), *naues constratae* (*«constratis nauibus»*) and *scaphae nauesque/naues longae* (*«scaphis nauibusque (longis nauibus)»*), which are used both for distracting the enemy, guarding the entrances alongside the larger warships.

Together with the large crafts, a fleet would have also included *nauigia* and *scaphae*, therefore smaller ships, equipped with *malleoli ignes*⁷⁴⁵, projectiles which could be lit on fire. It differs from what will be observed later, during the Battle of Actium, in which the projectiles seem to be thrown from the actual warships, instead of the small support skiffs; but it is possible that this remains unspecified or unclear in the recounts of this confrontation. It would be a way to preserve the warships from potential accidents with highly flammable material, although it would difficult the throwing of the projectiles and potentially reduce the possibility of mechanisms being transported (*BAlex* 14). Unmentioned in earlier chapters, *BAlex* 16 states that the Alexandrians would also be using biremes, and that both a quinquereme and a breme would have been captured during battle. It is unclear why the source would have opted to mention the large ship types more frequently, whether it is a matter of stylistic option or the fact that the biremes were less common. Chapter 20 will yet again mention the usage of projectiles from ships

⁷⁴⁵ Text quote: *«malleolis ignibusque»*.

(*lapides* and *fundae*)⁷⁴⁶ only this time they would have been projected from crew which would have left the *naues longa*», yet again not been throw directly from the ships. Both sides are stated as using quadriremes (*BAlex* 25).

Caes. *BCiv.* 3.111 gives a specification as to the bulk of the Pompeian fleet. Amidst fifty warships sent to aid Pompeius, all would have been quinqueremes and quadriremes, accompanied by twenty-two *constratae* which are described as «*quae praesidia causa Alexandriae esse consueuerant*»; therefore, the twenty-two accompanying ships, even though smaller, would have been decked and reutilised from former guard duties in Alexandria.

BAlex 21, aside from the already mentioned usage of skiffs (*scaphae*), will display a route of action for the said vessels which can be observed during Caesar's campaigns in Great Britain, which is that of sending the skiffs in aid of the crew and infantry being transported aboard; whereas Caes. *BAfr.* 44 mentions the presence of triremes. The account of the African wars has scarce specific mentions of ship types (aside from the generalist terms of *naues longae* or *naues onerariae*), with this being the exception, together with the reference to two *penteres* in chapter 62, and Caesar's quinquereme and capture of triremes in chapters 63 and 54. This is likely due to the fact that the early stages of war are mostly of transportation of troops, and not of naval battles; when the conflict approaches later stages, one will find more naval conflict and, therefore, more naval terminology. A similar issue is encountered through the Hispanic Wars and in Octavianus' *Res Gestae*, where the only specific terminology is that of the number of ships captured, amongst which triremes, but most smaller: «*naues cepi seescentas prater XX eas, si quae minores quam triremes fuerunt*».

There is yet another point that can be made regarding Caesar's approach to naval war. When Caesar orders for ships to be built along the river Loire («*in flumine Ligeri*», Caes. *BGall.* 3.91), he orders for long ships to be built, *naues longae*. Thus, we specifically know that Caesar's intention would have been to build warships. As the conflicts escalate and Decimus Brutus is appointed as a commander, however, it seems that a significant part of the Roman fleet would still have been presented, built and furnished by other people: «*classi Gallicisque nauibus, quas ex Pictonibus et Santonis reliquisque pacatis*

⁷⁴⁶ Text quote: «*lapidibus ac fundis*».

regionibus convenire iusserat» (Caes. *BGall.* 3.11.5), therefore including a «Gallic class», and ships equipped by the Pictones and the Santoni tribes.

4. The *hemiolia* and the *myoparos*

Throughout the centuries, and alongside with the trireme, the *hemiolia* will be one of the most frequently mentioned ship-types. Ormerod mentions it as being often associated with piracy, together with the *myoparoi*, although there are also references of them being used in other occasions: they were «employed by Alexander for river work, by Philip V of Macedon, and in the Roman fleets»⁷⁴⁷. Similarly to what happens with the triremes, there are no ancient remains of a *hemiolia* which would enable us to fully understand its design and composition, something mentioned by most of the researchers working on this matter⁷⁴⁸. The one clue resides, as mentioned by Casson, in the name itself⁷⁴⁹: «the adjective *hemiolios* means ‘one and a half’; by analogy with words like trireme, quadrireme and so on, a *hemiolia* (sc. *Naus*) should have a ‘1 ½-fold’ arrangement of the oars». How exactly this disposition was achieved remains an object of discussion.

Casson considers that there is a representation of what would have been a *hemiolia* in a black figure vase. The said representation consists of a ship with two banks of oars, and one can count exactly twelve on the upper deck and six in the lower deck – thus making for a «one and a half» terminology. It seems that the largest row would have been sitting on the upper deck, with no intermediary levels. If this can in fact be considered as a *hemiolia* – and, considering the terminology, it is likely that the hypothesis postulated by Lionel Casson is correct, and that this representation is the closest – it seems that it would have been a type of small warship, with a reduced number of rowers when compared to its larger counterparts, but also including a ram on the prow, and what seems to be a single, square sail. The vase’s handle cuts a full perception of the stern, but one can notice two steering oars being manned by what seems to be a single individual.

⁷⁴⁷ As mentioned by both Ormerod (Ormerod 1997, 29) and Torr (1896, 15), the usage of *hemioliai* as river craft is found in Arrian, *Anab.* 6.1. These ships would have sailed down the river Hydaspes out into the sea.

⁷⁴⁸ Ormerod (1997, 29), Casson [1971] 1995, 14-16 and Torr (1895, 15), for instance.

⁷⁴⁹ Casson 1958.

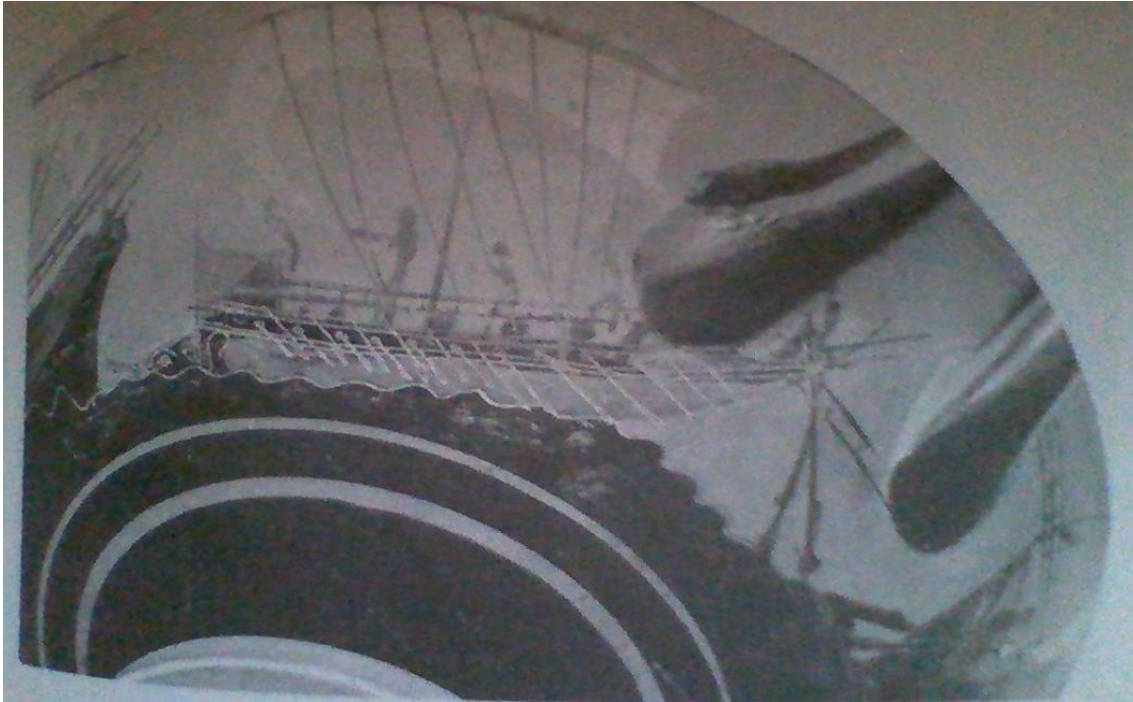


Fig. 48. Hemiolia («second half of 6th B.C.»), as seen in Casson [1971] 1995. Note the two visible rows of oarsmen to the left, the fact that it is a cataphract ship, and the particular shape of the sail, which seems to be a large, square sail that would have two to three people in charge. There is some contrast in this picture, as there are clearly individuals close to the sail's ropes, but there are also oars being used, and there is the idea of movement provided by the ones on the left side of the picture being significantly less extended. The right side of the image only shows one bank of oars.

The idea of carrying an extra bank of rowers, which would not count for total numbers, does not seem to have been exclusive to the *hemioliai*. Wallinga mentions that the *trieres* of the fourth century would have a fourth row with thirty *perineoi*. If Casson's proposition of the *hemiolia* iconography is to be accepted, one can ascertain this ship-type as a two-banked ship, only that a portion of a row would either be reduced in size or only occupied in half. One may thus question the practical interferences of such an option with the ship movement, as it would potentially create some imbalance and significantly diminish the strength of propulsion. According to Casson, there would have been a very significant difference between *hemioliai*, warships and trade vessels, which would have made the former preferred by pirate communities and posteriorly adopted and preferred by other navies, and the detail would reside in the sail. Casson believes that, unlike what happened with regular warships, the *hemiolia* would not require the mast and sail to be stripped off (as can be seen in the image), but could therefore be kept up and thus allowed the pirates to quickly leave their surroundings after successful pillage.

The Roman fleets would have been facing *hemioliai* since, at least, the Mithridatic wars – App. *Mith.* 5.29 mentions Bruttius attacking Metrophanes and sinking both a *πλοῖον*

and a *hemiolia*⁷⁵⁰. This, however, means that the naval commander would have been unable to capture the ships and reutilise them, instead having to rely on sinking them and losing their future potential. At the end of the First Mithridatic War, Mithridates is said to have fitted several pirate ships («Στόλοις» – providing them with proper equipment), although the specific typology of these is not mentioned. If the pirates were using *hemioliai* in this specific circumstance, it seems that these ships would have had a greater capacity in strength than their smaller dimension would have one presume, as they would have been attacking harbours and cities⁷⁵¹. The typologies of ships used by the said pirates also seem to have evolved throughout the war, starting with «ὀλίγοις σκάφεσι καὶ μικροῖς» (small skiffs) and subsequently evolving to «ναυσὶ μεγάλας ἐπέπλεον», ships of greater dimension (App. *Mith.* 14.92). These ships of great dimension, however, seem to not have been exclusively those in the category of *hemioliai* and the *myoparoi*, although they are mentioned as the transitioning vessels; the pirates would then have evolved to the usage of the *δίκροτος* and the *τριήρης* (App. *Mith.* 14.92). The said *hemioliai* would also have been amongst the ships used by Pompeius to fight piracy itself – when the fleet was assembled, amongst the two-hundred and seventy ships under his command, would have been several *hemioliai* (App. *Mith.* 14.94: «νῆες δὲ σὺν ἡμιολίαις»).

The effectiveness of the light, swift ships against larger ones may be observed, for instance, in Flor. 1.41.6.4: when Publius Seruilius was sent against the pirates following the Mithridatic wars, he would have struggled to defeat the «leues et fugaces myoparones» with the «gravi et Martia classe», achieving a victory that was, however, «non incruenta», thus a difficult victory for the Roman fleet. They would also have served as accompanying ships for larger vessels, as verified in *BAlex.* 46, as they are present in the battle between Vatinius and M. Octavius.

Another less common terminology for pirate ships, found in Plut. *Vit. Luc.* 2.3, is that of *μυοπάρων*, to design three ships that would have been included amongst the fleet of Lucullus, together with the *δίκροτος*. It thus seems that Lucullus would have been travelling with biremes and small ship types during the Mithridatic Wars, although they are seldom mentioned, for instance, by Appian, who makes a full account of this conflict.

⁷⁵⁰ From the *hemiolia*, the Rhodian architects could have created a *triemiolia*, a «heavier and larger» ship but with the upper bank designed like that of a *hemiolia*, thus allowing it to engage in confrontation with sails. Casson [1971] 1995, 131.

⁷⁵¹ Mithridates' relation with pirates and piratical vessels will be seen several times along the wars. App. *Mith.* 11.78 mentions that the king would have sailed on a «ληστῶν σκάφος», a skiff manned by pirates.

The terminology will be repeated in Plut. *Vit. Luc.* 13.3, «μυοπάρωνα», although the more frequent allusion to the ships based on their activities («Πειρατικά») is also found, as verified in Plut. *Vit. Pomp.* 24.3. It seems that at some point during the development of the Mediterranean piratical communities profit would have rendered significantly enough to provide for investment in different ship types; Plutarch mentions that the ships would not be merely built accounting for *τάχος* and *κουφότης* (therefore, for being swift and light, allowing for faster dislocations), but to also have included unspecified but well-supplied equipment («ἐξασκέω»), with mentions being made to the usage of adornments in silver on their oars (*ἐπάργυρος*), golden-covered masts (*στυλίδες χρυσέαι*) and purple «iron curtains» («παραπετάσματα ἀλούργη», most likely the outer layers of a ship's coverage).

If this description can be accounted for as real and the piratical communities had, in fact, access to a surplus of resources which allowed them adornments of this nature, one can deduce that, on the one hand, the profit attained through piracy was of a great extent, which probably means that trade, in spite of peril, was still occurring in a regular and steady basis along the Mediterranean, or that the cities they attacked were wealthy enough to provide for it. It can also mean that whoever attained the command of the campaigns against piracy would have great possibilities of profit, seeing how the ships were fitted⁷⁵². Pompeius and his commanders would have benefitted from this at the end of the war, as it is mentioned that he would have received a significant amount of ships, alongside ninety with *χαλκέμβολος*, rams (Plut. *Vit. Pomp.* 28.2). Aside from the adornments, if one is to consider that the ships were, in fact, equipped in such a way, there is once again a mention to pirate craft of unspecified typology to be equipped for combat at sea.

Pompeius' advantageous position regarding naval matters seems to have been a constant throughout the Civil Wars with the Caesarian faction, as observed by the information present in Plut. *Vit. Pomp.* 64.1. Pompeius is presented as having five-hundred warships (*μάχιμοι πεντακόσαιοι*), together with an undetermined but significant number of liburnes (*Λιβυρνική*) and swift vessels (*κατασκοπαί*). In this specific case, one may observe that liburnes are not placed in the same category as warships, but instead considered as a different sector, which seems closest to that of the *κατασκοπαί*, ships often utilised for scouting missions. It thus seems to confirm that, in this specific period, biremes were still

⁷⁵² It seems that the profits would have been of an extent to justify the formation of settlements near the river Taurus, where the treasury would have been concealed. See Plut. *Vit. Pomp.* 28.1.

not the major element in war fleets, but a separate component. Another occasion in which biremes may have played a major role is that of overcoming situations where the harbour has been totally or partially blockaded, and there is a need to have a vessel cross into some barraged section. That may be observed, for instance, in Caes. B *Gall.* 3.40: «*iii biremis subiectis scutulis impulsas uectibus in interiorem portum transduxit*». With the aid of the *scutulae* and *uctes*, thus, some sort of flat platform underneath and crowbars, the biremes would have been transported inside the inner harbour of the city.

During the Civil Wars with Sextus Pompeius, he is mentioned as having utilised pirate vessels to serve on his fleet («*ληστροίσι*»; «*νηεσι*»). These he would have kept in great numbers, and they would have enabled him to attack the coastal lines of the Italian Peninsula and Sicily; however, there is no specific mention of how the vessels would have looked like. As verified, early pirate communities would have relied on smaller ship types, but those that had grown most powerful during the time of his father's campaigns were already using larger vessels, which Pompeius would then have attained by defeating them. The same source says that one of his commanders would have undergone through a piratical lifestyle prior to joining him, namely Menas, which would probably have rendered him well-aware of how to command the ships under Sextus' command. It is also added, in Plut. *Vit. Ant.* 32.3, that the admiral's ship («*στρατηγίδα*») would have been a six («*έξήρης*»), which yet again raises the question regarding ship classification, but could indicate a large vessel. This, however, was of a potentially different design from the trireme; as verified, they are frequently anchored in high sea⁷⁵³, whereas this ship, even though not brought to shore, would have been connected through a bridge, so that it could be embarked (Plut. *Vit. Ant.* 32.3; a mention to Pompeius's «six» is also found in App. *B Civ.* 5.8.71 and 73)⁷⁵⁴.

The *myoparoi*, if not as frequently mentioned throughout the 1st century BCE, is present, at least, during the time of the late republic Civil Wars. During agreements made by both the Caesarian and Antonin factions, Antonius would have exchanged with Octavianus not only warships equipped with rams (*χαλκέμβολοι*), but also twenty *μνοπάρωνες*,

⁷⁵³ App. *B Civ.* 5.12.22, however, mentions that Octavianus' ships would have been stationed in high sea to protect them from Lepidus, who would have intended to set them on fire. The stationing of a fleet away from the shore could, in some cases, have been a preventive measure, rather than a necessity derived from ship design.

⁷⁵⁴ App. *B Civ.* 4.13.106 mentions triremes as being anchored seventy stades from Neapolis.

negotiated, according to the source, by Octavia, Octavianus' sister (Plut. *Vit. Ant.* 35.4). They are in much lower number than the warships.

5. Ships of the Civil Wars

When one observes the period of the civil wars, one will not find many specific nautical references, although there are several mentions to fleets and ships, which will be used throughout the confrontations between Octavianus, Marcus Antonius and Sextus Pompeius, and throughout the later civil wars between the two former. One of the exceptions is found in Cassius Dio's 48.138.1-2, where Saluidienus Rufus, under the command of Octavianus, is said to have ordered the building of ships made of leather or ox hide (*«ἐνδοθεν μὲν ῥάβδοις αὐτὰ κούφαις»*), in the same fashion as those who sailed the ocean (*«κατὰ τοὺς ἐν τῷ ὠκεανῷ πλέοντας ἐκποιῆσαι ἐπεχείρησεν»*). There would have been light rods (*«ἐνδοθεν μὲν ῥάβδοις [rod] αὐτὰ κούφαις [light]»*) inside, and around them the aforementioned ox hide (*«περιτείνω»*). These seem to have been unsuccessful against those of Sextus Pompeius, who is said to have mocked them through a re-enactment of a combat between wooden boats and those made of leather (*Ξύλινος* [of wood, wooden]/*βύρσινα* [leathern]). Issues with Oceanic navigation will yet again be found during the civil wars, as described by Flor. 2.13.2.75-76, as Varus and Didius would have had a naval combat possibly close to the Strait of Gibraltar, and it is mentioned that the fleets would have struggled more to sail within the Ocean than to fight each other.

Attacks would have also been conveyed up the keel of enemy ships, even though it was a structurally sturdier portion. App. *B Civ.* 5.11.107 describes one of such attacks, which would have destroyed all the inferior benches (which yet again points the positioning of rams to the lower portion of a ship); it would also have created significant imbalance on the ship, which, however, did not make the towers assembled upon it shatter or fall, although it would have led to the men fighting on such devices to fall. App. *B Civ.* 5.11.108 mentions a speech of Pompeius in which this commander would have described the enemy vessels as «walls», which seems to go against what is seen within the Caesarian faction in Actium.

When Pompeius, at some point of the civil war, loses all his ships but one (as verified in chapters 73 and 74 of Plut. *Vit. Pomp.*), he then sails to Attalaia. There, it is said that a *τριήρεις* would have been waiting for him. As the trireme is often seen to have been a preferred warship during this period, this seems a natural mention, but one may add that this trireme is said to have been sent from Cilicia. Considering Pompeius' campaign against Cilician piracy and how pirate communities are said to have developed, one may question whether these would still be supporting Pompeius' faction, especially through the construction of warships that could subsequently be used during the Civil Wars. One may also add that, despite the traditional smaller ship types used in piracy, particularly biremes, *hemioliai* and the *myoparos*, considering how they later seem to have developed, it is possible that the trireme, rather than the smaller ship types, became one of the standard ship types for the Cilician pirates. Even as Pompeius lost the civil war and left towards Egypt, he would have made himself transported by using a trireme; in this case, and according to Plut. *Vit. Pomp.* 77, a Seleucian trireme («*Σελευκίδι τριήρει*»); whether this is a specific denomination of a ship type or merely a reference to origin, it is not clear, but he would have been accompanied by other supporters both in warships and merchant (*όλκάδες*).

In former periods of the civil wars, Pompeius would still be mostly relying on triremes, whereas Caesar would be investing in transports. This is verifiable in App. *B Civ.* 2.8.56: as Caesar considers that Pompeius' fleet would have been guarding the seas with its *τριήρεις*, he is said to have decided to seek the crossing of his armies during winter. The matter of winter navigation raises a series of problems, as these ships, which already had to struggle with navigation during primal sailing time, would now have to face the adverse effects of poor weather conditions; however, if Caesar seems to have preferred the risk rather than face Pompeius' triremes, it possibly means that his fleet was ill-equipped to face his enemies. Certain circumstances have been observed where small craft and rowing boats have captured large ships, but these are usually verified to occur in small numbers and by the coastline; in high sea, and against an entire fleet, it is probably unlikely that transports could face the triremes, especially as they would probably be carrying a heavier load, in spite of the presence of the military contingent.

The larger ship-types, even though not as frequently mentioned, will yet again be found in Plut. *Vit. Caes.* 38, with one of the largest ships found in the Pompeian-Caesarian Civil War presented, namely a *δωδεκάσκαλμος*, a twelve-banked ship. The specific disposition

of this ship, or how the oarsmen would have been positioned, is not explained; Caesar is said to have planned a travel along with this ship without anyone's knowledge up to Brundisium, although the sea was being surveyed by enemy vessels. According to Plutarch's recounting of the episode, he is said to have dressed himself as a slave, therefore managing to remain unknown; one may question how it is possible for the enemy vessels or watch posts to have missed a twelve. It is unlikely that the ship would have remained unseen, thus it is likely that this is not a warship, but a transport, and one with somewhat of diplomatic immunity regarding the enemy factions. Another indicator for this possibility is the fact that this vessel seems to have been a hybrid, capable of sailing both on river and at sea.

The ship, equipped with oars, would have been sailing through the river, therefore in regular dislocation method⁷⁵⁵, but there were difficulties crossing the mouth of the river and transitioning from the river into the sea, as verified in Plut. *Vit. Caes.* 38.4: Caesar is said to have made a motivational speech, but it is likely that the κυβερνήτης and the sailors would have been used to crossing into open sea under such circumstances. Pilkington's vision of ships implies that a «twelve» would not be a ship with twelve banks of oars, but one which would involve twelve rowers per line, positioned along three rows of different heights; even if this is to be considered, it would still be a ship of significant dimension. As there is no archaeological evidence for such a vessel, one may question whether this ship, a river craft, could have been a bireme, or even a regular aphract or cataphract vessel with twelve rowers on each board.

The dimensions of a trireme are, in themselves, difficult to define. Plut. *Vit. Ant.* 7.2 mentions that Antonius would have transported eight-hundred horsemen and twenty thousand-foot soldiers; these would have been embarked in ἀκάτια, small vessels which would have been able to surround the τριήρεις. If these warriors were sailing across in small vessels, it means these crafts, which would have been in a significant number, would have represented a great transport capacity, and thus would have been able to overcome however many enemies were stationed within the triremes. Yet again, the lack of specific information, this time regarding numbers, prevents further observation. The following chapter mentions that both types of vessel would have struggled against a

⁷⁵⁵ However, as seen by the *Olympias* report, triremes seem perfectly capable of sailing on a river, under specific conditions.

storm; however, if several triremes were destroyed, both triremes and light vessels were dragged by wind and current towards locations where they struggled to retreat from.

The matter of lightness vs swiftness is not exclusive to these specific Civil Wars, but found in other confrontations of the same nature, amongst which the Sertorian conflicts. It seems that Sertorius, like Pompeius, would have been supported by pirate vessels, namely from Cilicia (Pomp. *Sert.* 7.3: «Κιλισσῶν δὲ ληστρίδων αὐτῷ προσγενομένων»). Whilst these would have been sufficient to attack the island of Pityussa, as stated in the same chapter, the fleet would have struggled to overcome its enemy in naval battle, especially as the wind would have changed and, seeing how the ships were particularly light, the crews would have struggled to control them, with part of them reaching the shore and the remainder being taken to open sea, therefore having to struggle with the adverse effects of waves and gushes of wind.

In Appian's description of the preparations for one of the final battles between Octavianus/Agrippa and Sextus Pompeius (App. *B Civ.* 5.12.18) there are several instruments included; aside from a number of three-hundred vessels on each side, equipped with projectiles and towers (which are described in 5.12.12 as having been of different colours that would have facilitated the distinction amongst different vessels during the most confusing moments of battle, especially as, at a given point, it is described as a single line of six-hundred vessels⁷⁵⁶), there is also a clear description of a «harpago»: «κρίκους ἔχον περὶ κεραίας ἐκατέρας: τῶν δὲ κρίκων εἶχετο τοῦ μὲν ὁ ἄρπαξ, σιδήριον καμπύλον, τοῦ δὲ καλώδια πολλά, μηχαναῖς ἐπισπώμενα τὸν ἄρπαγα, ὅτε τῆς πολέμιας νεὼς ἐκ καταπέλτου λάβοιτο». It is described as a wooden instrument in which have been included iron and rings at each extremity; to one of the rings would have been attached the «harpago» itself, an iron hook or claw, and to the other ropes. These ropes would have been attached to a mechanism, most likely a catapult. The purpose of the harpago would have been to be hurled into the enemy ship through this mechanism, attached to it and then pulled back, to enable its capture.

⁷⁵⁶ During later moments of battle, these towers are said to have been disassembled, although the process in itself is not described. Pitassi (2011, 46) states that the Romans would have been the first to assemble towers on ships with the purpose of making them an offensive device in naval battle. These could be mounted «forward or aft and on the largest ships, probably both. They also appear singly mounted amidships and could be mounted square to the centreline or diagonally to it». These would take six «archers and/or javelinmen» but «not artillery».

This battle would have proceeded in three different stages, on which different instruments would have been used: the initial moments are those of the «καὶ βέλη τὰ μὲν ἐκ μηχανῆς», the projectiles hurled through engines and by hand, amongst which «λίθοι καὶ πυρφόρα καὶ τοξέματα», stones, arrows and fire. The second stage would have been that of the naval battle itself, and it is described as ships ramming each other wherever it would have been most effective, which seems to indicate the different ship-types present. On the last stage, devices such as the «harpago» would have been used, and it is described as having had great success due to the impossibility of releasing it or cutting the long ropes; the source says that the «harpago» had never been used before, however, in spite of the term having been previously mentioned. It is likely that the specific usage given to the iron claw would have been introduced, or at least popularised, in the time of Agrippa, but it is possible that the claw itself would have been utilised before, especially as Appian mentions the enemy would not have been equipped with «scythe-mounted poles», essential to cut the ropes (thus, it was known that attacks from similar devices were already known). Following the usage of the «harpago», the warriors could board the enemy ship and engage in the last stage of fighting (5.12.12).

Even through the new ship types, it seems that there would have been issues with the tides and weather. Oars would have been used to manage to bring the ships back to the shore during the crossing itself; later, plenty of ships would have suffered the ill-effects of the weather because the *ancorae* and the *funes* were not sturdy enough to keep them in place (Caes. *BGall.* 5.10.2-3). The building of new ships is also mentioned by Cassius, with a specific mention of them being transports built for swiftness: «ταχειῶν» (swift) and «κουφίζωσι» (light). Cassius, however, is more specific, saying that these would have been somewhere between the traditional ships of the Mediterranean and the Atlantic ships of burden.

There is a singular case mentioned in Caesar's Civil Wars (Caes. *BCiv.* 2.4). Following a confrontation with the Massilians, these are said to have repaired old ships from their fleet and armed them with new equipment, which is not an unseen circumstance amongst the ancient fleets; what seems to be unusual is when the chapter mentions «navis piscatoriasque adiecerant atque contexerant»: to these larger vessels they would have added fishing boats, which would have been covered and turned into cataphract ships to protect the rowers from projectiles («ut essent ab ictu telorum remiges tuti»). Others would have been armed with war engines («has sagittariis tormentisque conpleuerunt»).

One may question why these fishing boats were being added to the fleet: it is likely that they would have been the easiest resources at hand to transport additional soldiers and the siege engines. This means, however, that they would have necessarily been of a significant size and resistance, as they would have needed to endure the hurling of projectiles from the engines and not collapse or break under the strain. It also means that these ships would have allowed for the easy inclusion of decks, which would have either been withdrawn from other vessels (whether damaged or old) or built *in loco*, therefore adapting what would have been a private vessel of a commercial type into an assistant warship. The repairing of ships is also important to verify and somewhat confirm, as far as historical sources can convey the information, that the pirate ships captured during the Cilician conflict were, in fact, being reutilised. Caes. *BCiv.* 2.23 mentions that Lucius Caesar would have arrived in Clupea with ten *naues longae*, which would have been stationed in Utica following the confrontations with piracy, vessels which Publius Attius would have ordered to be repaired.

Caes. *BCiv.* 3.100 also mentions the covering of small vessels with decks in order to have them accompany the larger warships. This section says that Vatinius, luring some of Laelius' vessels, would have captured a quinquereme and two smaller ships⁷⁵⁷. Caes. *BCiv.* 2.43 mentions yet another typology of small boats, which remain unspecified in their characteristics. During the summoning of merchant vessels, it is said that most of the captains of the *naues onerariae* would have fled, and that only a few *lenunculi* answer to the command. One may question whether these *lenunculi* would have been part of the merchant vessels and what was their dimension, seeing as they are included together with the merchant ships.

6. Last Civil War: The ships of Actium

Even as late as the civil wars between Octavianus and Sextus Pompeius, the trireme would have still been in use. Dio Cass. 49.1.5-6 mentions a trireme manned by slaves (*τριηρίται; δοῦλοι*). Triremes would also have still been in used during the prelude of the battle of Actium (Dio Cass. 50.12.5-8: *Τριήρεις*), as is the transport method of the said triremes from their building locations within a gulf outside into the open sea. Traditionally, it

⁷⁵⁷ «*tectis instructisque scaphis elicuit naues Laelianas atque ex his longius productam unam quinqueremem et minores duas in angustiis portus cepit*».

seems this would have been made using some sort of runaway, but in this particular instance, flayed hides and olive oil would have replaced it (Dio Cass. 50.12.5-8: *βύρσαι νεόδαρτοι, ἔλαιον*). These triremes would have been accompanied by transport ships (*ὀλκάδες*, Dio Cass. 50.13.2). The ships belonging to Antonius' and Cleopatra's fleet are not presented with any specific denomination; it is merely mentioned that some of them would have been burnt, due to the lack of sailors to man them (Dio Cass. 50.15.4). They do have a description: *πάχη* and *μέγεθος* are the adjectives used, thus underlining their size. If Octavianus and Agrippa were relying mostly on triremes, *ὀλκάδες* and transports, this is likely to mean that the ships used by Antonius and Cleopatra would have been even larger, which would possibly signal the presence of quinqueremes. Expressions alluding to strong timber and height⁷⁵⁸ are also present, once again signalling the idea of the Antonine fleet consisting of ships significantly larger in size, when compared to the Caesarian. The Antonines would, similarly to what was found in the Caesarian-Antonian fleets against Sextus, be carrying ranged units: *τοξόται*, archers placed upon *Πύργοι*, towers.

The matter of the greater size of the Antonine fleet is observed yet again in Dio Cass. 50.23.1. According to this chapter, there would be a different scale in the ships of the commanders throughout the late Republic civil wars: Sextus' would have been the smallest, and Octavianus' fleet would have been mostly made of triremes, judging by the fact that Antonius' fleet, said to be made of ships larger in size, would have had ships between *τετρήραι* and *δεκέρεις*, with only a few *τριήρεις*. These very large ships, which seem to have been less frequent throughout the 1st century, appear to have a revival, and may have been useful to transport the *Πύργοι*, towers, which would likely carry the *τοξόται* and the *σφενδονῆται*, archers and slingers. Nonetheless, when Cassius describes the temple of Apollo, which Octavianus would have ordered built to commemorate the battle, he mentions that he would have captured a *Τριήρεις*, a *τετρήρης* and a *δεκέρη*. When one observes pictures of the archaeological remains of the temple, one may see that the rams do have variable sizes; therefore, it seems that Antonius' fleet, although probably predominant in regard to larger vessels, was most likely a heterogeneous fleet, as it also included triremes, rather than exclusively quinqueremes and larger (Dio Cass. 51.1.1.-2).

⁷⁵⁸ Quote from text: «*παχύτης τῶν ξύλων*» (timber) and «*ὕψος*» (height).

Florus gives his account of the Battle of Actium, in which there seems to be a greater degree of specification regarding the size of Octavianus' vessels. This source does not mention quinqueremes nor triremes in the service of Antonius, but only ships from sixes to nines (*«quippe a senis nouenos remorum ordines»*), whereas Octavianus' would go from biremes to sixes (*«Caesaris naues a bini remigum in senos nec amplius ordines creuerant»*). Unlike Cassius, Florus clearly mentions the presence of biremes in Octavianus' fleet. The highly manoeuvrable Caesarian fleet would counter the heavy Antonin vessels, an idea already expressed by the other sources, together with the presence of towers and projectiles (*«ad hoc turribus atque tabulates adleuatae castellorum uel urbium specie»*, Flor. 2.21.11.45-8). The mention of fire being projected against the Antonin ships is also present, together with the ramming of ships, but Florus also mentions the presence of unspecified missiles which may not be the fire-bearing ones referred by Cassius. There is also a specific description of Cleopatra's flagship as being a golden vessel with purple sails (*«fugae regina cum aurea puppe ueloque purpureo in altum dedit»*), which is one of the few written statements of ships presenting dyes and, in this specific case, not the blue/green dye presented in the Pompeii frescos, but another of purple, possibly related to Cleopatra's royal lineage.

In Dio Cass. 50.29, during Antonius' harangue, one may yet again observe the matter of large-sized ships, but this time from the point of view of their disadvantages: potentially, they would be slower, as the height and size would make it difficult for the rowers to move the ships, and harder to steer, considering the greater weight (*Πάχος + ξύλα* – thickness, timber, and *ὕψος*, height + *πάχος*, thickness). There is yet another detail: the mention that whilst these ships would carry foot soldiers, they would be unable to attack the front and the flanks of the enemy ships. In this harangue, it is mentioned that Antonius' fleet would have been planning not to use infantry attacks, but to use the ships to the same effect as walls, stationing them in one place and using the projectiles against the enemy. This, in turn, would allow the smaller vessels in the Caesarian fleet to ram them or use engines against them from afar (*ἐμβολή*, ram, *μηχαναί*, engines, and even *πύρφορα* – fire-bearing – *βέλη* – missiles).

Plutarch, too, will describe the large vessels present in the Antonin fleet (Plut. *Vit. Ant.* 61.1). At least eight-hundred are mentioned as being fit for war (*Μάχιμοι*), amongst which are counted ships with eight and ten banks of oars (*«ὀκτῆρεις πολλαὶ καὶ δεκῆρεις»*); the source mentions that most of these would not have kept enough sailors to work on their

full capacity (Plut. *Vit. Ant.* 62.1), unlike Octavianus' fleet, which, with its smaller, fast ships, would have been manned to its full extent and, therefore, more functional⁷⁵⁹ (Plut. *Vit. Ant.* 62.2: «*Καῖσαρ δὲ οὐ πρὸς ὕψος οὐδὲ ὄγκον ἐπιδεικτικῶς πεπηγυῖαις ναυσίν, εὐστρόφοις δὲ καὶ ταχείαις καὶ πεπληρωμέναις ἀκριβῶς ἐξηρτυμένον*»). The larger ships were at a double disadvantage, therefore, regarding both their speed and the difficulty to find specialised crews to fully man them. The issue, in Antonius' case, seems to have been more deeply related to the matter of on-ship infantry than of the sailing crew itself, as Plut. *Vit. Ant.* 63.1 describes the commander as having equipped his rowers in the same fashion as warriors to display strength, positioning them in a fighting stance, the prow towards (*ἀντίπρωροι*) the enemy. The lack of crews is probably behind the reasons which led Antonius to order the burning of most ships, keeping a total number of thirty, between triremes and tens («*ναῦς πλὴν ἐξήκοντα τῶν Αἰγυπτίων*»; *τριήρης*; *δεκήρης*; a quinquereme is specifically mentioned in 66.5, *πεντήρη*»), carrying heavy infantry (*ὀπλῖται*) and archers (*τοξόται*; Plut. *Vit. Ant.* 64.1).

The issue of speed amidst Ancient ships is also verifiable in Plut. *Vit. Ant.* 64.2, as it seems that the *κυβερνήτης* would have wished to leave the sails behind and is compelled by Antonius to carry them on board. Considering how sails allowed for greater speed during a greater length of time, the relation of this matter with that of a possible escape is debatable, but it is likely that this is related to the presence or absence of ship masts, which, due to their weight, would have rendered the large six and tens too slow to escape their enemies. This seems to somewhat match Plut. *Vit. Ant.* 66.3, where sixty of Cleopatra's ships, positioned on the rear-guard of some of the largest vessels, are said to have raised their sails and attempted to escape. If the pilot was intending for sails to be used, this strengthens the idea of Actium being seen as a retreat, even at the time.

Whilst Cleopatra seems to have kept her own flagship, Antonius, on the other hand, would be dislocating himself between vessels in a small boat (*κωπήρης*), possibly to allow for a swift carry of orders, which were specifically related to their weight: the ships would have been intended to be used as floating platforms, maintaining their position even against attacks (65.3). The same source states that ramming would have been rendered ineffective on both sides: whereas Antonius' ships would have been too heavy and lacked the speed and power to be effective, the Caesarian ships would not ram the enemy vessels through

⁷⁵⁹ Octavianus would have been faced with the struggles of not having enough of a crew to man his fleet, as found in App. *B Civ.* 5.10.88.

their prow, considering how it was protected with bronze, but would not approach the sides either, considering the strong timber and iron used in the construction (τετράγωνα, σίδηροι, Plut. *Vit. Ant.* 66.1-2.). As in other sources, Plutarch also mentions fire missiles, wooden towers and catapult engines being used (πυροβόλοι, καταπέλται, ξύλινοι πύργοι).

During the last civil war of the Republic, specifically during the Battle of Actium, one will find that the vessels in Agrippa and Caesar's fleet (most likely triremes, as verified) would have been «πεφραγμένοι πάντη», armoured all around (Dio Cass. 32.50.2-3). This seems to indicate that the triremes would have some sort of protective reinforcement of an unspecified nature, which, however, would not diminish their combat speed, as they are still referred to as *μικραί* («Μικροτέρας») and *ταχείαι* (Ταχυτέρας), smaller and swifter, easily able to ram the enemy ships and retreat immediately afterwards. The difference in size amongst both fleets seems to have been significant, as Cassius mentions that it would take two or three ships to ram Antonius' vessels. Under these specific circumstances, it seems that the Caesarian fleet would have been engaging in naval combat, as they would have feared the projectiles (stones or arrows, some made of iron: ἄλκη, λίθοι, σιδήρεος, τοξεύματα), whereas Antonius' would have opted for the most traditionally Roman style of using the ships as floating platforms. It also seems that the ramming actions would not have focused exclusively in sinking the enemy ships, but in depriving them of their movement speed, by destroying the oars. The vessels sent by Octavianus in pursuit of Antonius and Cleopatra would have been liburnes, according to Plutarch (Plut. *Vit. Ant.* 67.2), which would have been unable to attack as soon as the Antonin ships turned their prows towards them⁷⁶⁰.

Antonius' fleet would have gone to action before the battle of Actium, and through the statements in Caes. *BCiv.* 3.24 one can yet again observe its large size. Whilst stationed in Brundisium, he would have attempted to protect the smaller boats which would have belonged to his great ships («confisus scaphas nauium magnarum circiter lx cratibus pluteisque...»), whilst stationing two triremes at the harbour. With the smaller vessels he would have succeeded in capturing quadriremes sent by Libo.

⁷⁶⁰ App. *B Civ.* 5.12.111 mentions a liburne being used as a flagship, in which the admiral would have sailed around the armada to exhort crews and warriors. The said liburne would have «lowered the general's ensign, as is customary in times of extreme danger». It thus seems that, although flagships are often seen as being the largest vessel of a fleet, this is not a universal circumstance. The liburnes would have become a «standard member of the Roman fleets from at least the middle of the first B.C.» Casson (1971) 1995, 133.

Antonius' vessels would have been heavy enough to diminish the speed under sail – the towers would have been thrown into the sea, together with other instruments, to make it possible for the fleet's retreat. In the meantime, it appears that Octavianus' fleet would have been unequipped for sailing, which seems to mean that, in these specific circumstances, the oared triremes would have been dislocating themselves with oar power only. Polyaeus *Strat.* 8.20 describes a circumstance under which sails would have been utilised as a stratagem: it is said that, during confrontations with the Carthaginians, a Roman fleet would have consisted of two-hundred triremes; therefore, having a significantly higher number of vessels than the enemy, it would have failed to bring it to give combat. Apparently, this would have been attained through the usage of sails: half of the fleet would have fully extended theirs, in order to hide the vessels which lingered behind. This stratagem, however, raises several questions: did the Carthaginian fleet lack the *naues speculatoriae*, so frequently found in ancient fleets and used for surveillance missions? Were the sails wide enough to hide the vessels behind them, and if so, under a circumstance in which sails would have been fully released, would this not have influenced the speed and the direction of ships according to the wind? Such a stratagem would have required meteorological circumstances that could have permitted it, otherwise it could have revealed itself hazardous for the Roman fleet; having fully sprayed sails could have easily increased speed and thus revealed the line staying behind as well.

During the battle of Actium, as verified in Cassius's report, there seem to have been fire projectiles, as seen in the terminology used to describe the circumstances (*Βέλη*, missile and *πυρφόρα*, fire bearing; *λαμπάδες*», torch; *ἄνθρακες*, charcoal; *πίσσα*, pitch; *φλόξ*, flame). Some of them (the recipients containing charcoal and pitch) would have been hurled with the aid of mechanisms (*ἄκοντιζω*, to hurl a javelin), whilst others would have required manpower to throw at the enemy. It seems that these materials, highly flammable, would have naturally caused great fires which the crew would have attempted to put out, firstly by using the drinkable water (*πότιμος*, *ῥῶον*), and then through the usage of salt water, which, according to the source, would have increased the flames rather than to put out the fire; and as there were not enough buckets, the destruction was difficult to prevent (Dio Cass. 50.34.2-4). It seems that the usage of fire during naval combat may have been prejudicial to both factions, as the sailors on the burning ships would have attempted to detach the burning components and make them hit the enemy fleet, or at least to use grappling hooks to bring them close and either board them or set them afire

as well. This is observable throughout the whole of Cassius's description, and in Dio Cass. 50.35.4.-5, one will observe that the Caesarian faction would have attempted to put out the fire they had lit themselves, so that they could retrieve some bounty from the enemy ships.

The matter of flammable material being carried along ships is debatable but found in several circumstances. Caes. *BCiv.* 3.101 mentions that Cassius would have sent a fleet against Pomponius composed of transports carrying highly combustible materials: *«onerarias naues taeda et pice et stupa reliquisque rebus, quae sunt ad incendia, in Pomponianam classem immisit»*. Through this, he would have managed to attack and burn thirty-five ships, including twenty cataphract types. We are under the presence of vessels carrying flammable materials which would have been designed to burn other vessels; therefore, the ships themselves would have been subjected to the dangers of fire. One may question whether there was any type of protection taken against potential incidents, although this remains unmentioned for most of the circumstances when ships are transporting flammable cargo; it remains to be observed whether the recipients used to transport such materials would have been particularly well-guarded. Assuming that the materials would only turn alight under contact with a flame, it is possible that they would have remained safe until they were actually being used; however, during combat, leaks or the dropping of a burning arrow or javelin, for instance, may have caused destruction amidst their own ship. Caes. *BCiv.* 3.301 continues the description of flammable instruments amongst the vessels, mentioning that *«Cassius secundum nanctus uentum onerarias naues circiter xl preparatas ad incendium immisit»*; one may question what the source considers as «prepared for a fire», especially as it continues by saying that *«et flamma ab utroque cornu comprehensa»*, the fleet would have caught fire and five ships would have been burnt. It seems possible that the ships prepared for burning would have been sent to set the enemy fleet on fire, especially as the chapter proceeds to say that some of the soldiers protecting the ships ashore would have boarded a few of them, capturing two quinqueremes and sinking two triremes. It thus seems that Cassius would have preferred to sacrifice some of his fleet in order to destroy the enemy's, and it is worthy of note that Cassius is not sacrificing warships but transports.

If Octavianus' ships are swifter and lighter than Antonius', it seems that it would not have always been this way for the Caesarian faction. When Agrippa faced Papias, an episode described in App. *B Civ.* 5.11.106, his ships would have been described as βαρεῖαι, rather

heavy; and the ships are said to have had towers both on stern and prow (stem and stern, «νεῶν εἶχον κατὰ τε πρῶραν καὶ κατὰ πρύμναν»). Whereas the Pompeian ships are described as smaller, lighter (βραχεῖαι, «Βραχύτερα») and, therefore, better for flanking actions («ἐξώρων ἐπ' ἀλλήλους οἱ μὲν κατὰ μέτωπον οἱ δ' ἐς περικύκλωσιν»), Agrippa's vessels are said to have been large, heavy and slower (μεγάλοι, «μείζω» βαρεῖαι, «βαρύτερα», βραδεῖαι, «βραδύτερα»), but capable of more harmful attacks and more resistant to those on the enemy side. Thus, whilst the Pompeian fleet was more useful for attacks against the enemy ships' composition (particularly through attacking the oars and their components), Agrippa's fleet would have relied both on ramming the enemy vessels or utilising grappling hooks to attach them and therefore allow for boarding.

This is possibly the only circumstance outside of the First Punic War where there is a mention to a *κόρακες*, a «corvus», a boarding device which seems to have quickly disappeared after its sporadic use in a few naval battles against the Carthaginians. As there is no specific description of this «corvus» and as it is mentioned together with grappling hooks, one may question whether it was, in fact, the same sort of device described over a century before, or whether it is a terminology applied to a different sort of mechanism. Whichever is the case, it seems that it would have been successful to attack vessels but not to overcome their crews, which would have abandoned the ships and entered small skiffs that would have been lingering around the larger vessels. As mentioned by Pitassi, by the time Polybius lived, «the device had been out of use for about a century, long enough for not only him but anyone to whom he could have spoken never to have seen one; nevertheless, he could also have seen written descriptions or pictorial representations long since lost to us»⁷⁶¹.

During the battle between Vatinius and Octavius, even though the former had an inferiority of large warships, it was not hazardous for his success in battle. *BAlex.* 47 mentions that one «*penteres*», two «*triremes*» and eight «*dicrota*» were captured, which makes for eleven warships that could be fully reutilised. Even though biremes are scarcely mentioned during combats, the large number of «*dicrota*» captured by Vatinius may be an indicative as to the proportions of warships in the navy, with a predominance of ships with two banks of oars, and a smaller number of large warships, particularly the very large «*penteres*».

⁷⁶¹ Pitassi 2011, 43.

7. The northern Atlantic ships as stated by the sources

During Caesar's campaigns in Northern Europe, Caesar is said to have confronted himself with several boat and ship-types, not only at sea, but also in fluvial environments. As early as his campaign against the Helvetii, he would have observed this people use rafts to create a bridge of boats (*rates* – Caes. *BGall.* 1.8.4, and again in 1.12.1, during the crossing of the Saone). These skiffs or fluvial ship types are not always described with the same terminology: although *rates* is the most usual, one may also find *lintres* (Caes. *BGall.* 1.53, this time not mentioned as being used for creating bridges), there is also the generalist term *naucula*. River transport is also said to have been utilised by Caesar during land-bound campaigns to transport provisions for the army (*«eo autem frumento quod flumine Arari nauibus subuexerat»*, Caes. *BGall.* 1.16.3). Later, during one of the crossings of the Rhine, *naues* and *rates* are mentioned as having been used simultaneously (Caes. *BGall.* 6.35.6). The usage of boats to form a bridge is also mentioned in Caes. *BCiv.* 1.59, to enable the army to cross the river Hiberus; these are mentioned as *naues* instead of *rates*, which may indicate them having been of a larger dimension⁷⁶².

Aside from these fluvial ship-types, one will encounter the already mentioned Veneti ships. In chapter 3.8.1 of the Gallic Wars, Caesar describes them as having a great number of *naues* – thus, another generalist term – with which they would have *«in Britanniam nauigare consuerunt»*; and they would have excelled in nautical science (*«Scientia atque usu rerum nauticarum ceteros antecedent»*). Why exactly Caesar would have opted for these vessels is debatable: if the Veneti ships seem to have been more capable of enduring the Atlantic tides when compared to their Mediterranean counterparts, the fact is that some hybrid vessels built in the Mediterranean fashion were found in Great Britain, although dated to later periods (the case of County Hall and Blackfriars); and, as mentioned by Beresford, «it thus appears that the shell-first, mortice-and-tenon method of hull construction, which so dominated shipbuilding on the ancient Mediterranean, was also considered sufficiently strong and seaworthy to cope with the weather and seas found

⁷⁶² Rafts would have also been utilised to cross rivers of significant magnitude, such as the Euphrates. Plut. *Vit. Crass.* 19.3 describes Crassus' attempt to cross with his army on vessels referred as *σχεδιαί*; this raft would have been unable to endure a storm. One may question the dimension and design of this sort of river craft, however, not only due to the size of the river in cause, but also because of the mention of an army crossing; it is unlikely that the entirety of the army would have been crossing the river in a raft, unless Crassus was only with a small contingent.

off the Atlantic coasts of northern Europe»⁷⁶³. Perhaps the fact that County Hall was a cargo vessel rather than an army transport gave it an advantage, with the tonnage weight providing a different balance amidst the several forces in charge of keeping the ship steady and afloat. Several ancient sources give us an account of Caesar's encounters with the northern European tribes and seem to have a particular incidence towards the Veneti ships. The Veneti ships are spoken of and described with significantly more detail than any other and seem to subsequently influence the construction of the Roman ships which will carry the army to England⁷⁶⁴.

As reminded by Goodburn, the Blackfriar ships, which are potentially some of the closest to the ones described by Caesar, are distinguished from the Mediterranean types in more than one way: they are «flat floored» and «round bottomed», with heavy builds. But they are not necessarily attached to the other Northern traditions either, which are mostly done in the «clinking building tradition». After the archaeological analysis made in the chapters above, it seems that the Roman-Celtic or Gallo-Roman ship types are those which are most likely the correspondents – or, at least, the direct heirs – of the Veneti ships which the Roman fleet would have encountered and copied. As stated by Grainge, «Caesar's description of the ships of the Veneti and the archaeological evidence that has been associated with them reveal a tradition of ship-building which has been designated Romano-celtic»; and fits plenty of the ships already found above («found the length of the Rhine, in the Netherlands, at St Peter Port, Guernsey, in London and in south Wales»)⁷⁶⁵.

Caesar gives us a very precise description of the Veneti ships, including specific terminology, throughout chapter 13 of book 3. The keels (*carinae*) would have been «*planiores quam nostrarum nauium*», thus flatter, in order to have fewer issues with the shallows and the tides. There are «*prorae admodum erectae atque item puppes*», tall prows and sterns, and the vessels would have been «*factae ex robore*», made of hard

⁷⁶³ Beresford 2013, 119.

⁷⁶⁴ Goodburn 1998, 173.

⁷⁶⁵ Grainge 2002, 19-21. With their «framing-first» construction, «flat-bottomed, keel-less and without post; or full-bodied with a firm bilge and with posts and a plank keel», together with a «mast step, towing and/or sailing, (...) well forward of amidship», and as stated by McGrail and Nayling (2004, 208-9), «some of these features seem to be foreshadowed in Julius Caesar's 1st-century BC description of the ships of the Veneti, a Celtic seafaring people of north-west France (...)», which were «solidly built and had bottoms that were flatter than those of the Roman ships, enabling the Celts to sail closer inshore and to take the ground readily in tidal waters». Hence, «this description raises the possibility that the vessels of the Veneti were forerunners of the Romano-Celtic ships and boats known from excavation».

wood. The *transtra*, or banks for the rowers, have the description of «*ex pedalibus in altitudinem trabibus, confixa clauis ferries*»; tall stands for the feet, secured with iron nails, «*digiti pollicis crassitudine*». The anchors would have had «*funibus ferries catenis reuinctae*» – chains of iron, instead of cables. Built entirely of oak, they would have used leather or other types of animal skin as sails, and the propulsion would have consisted mainly of oars («*ut una celeritatem et pulsu remorum praestaret*»). This is one of the most specific and detailed descriptions of any ship found in the ancient sources, and it is worthy of notice that it is not of a Mediterranean ship, but of a north Atlantic type, which comes to show that these were probably unusual and would have struck the attention of the Romans. They are described as having been well-adapted to endure storms in the North Atlantic, and sturdy in a manner that the Roman ships were unable to damage them through ramming; the height also made it difficult for them to be boarded or projectiles to be cast. The main advantage of these ships resided, however, in the fact that they could easily take refuge in the shoals and shallows during the storms without being stranded, something that the Roman ships were incapable of. Florus does not have such an accurate description as Caesar, merely mentioning that the ships would have been «*rudēs et informes et statim naufragae*». The description of the fleet as being composed of ships «*rudēs et informes*» seems to counter Caesar's more objective account, and Florus adds that they would have been easily destroyed by the *rostra* of the Roman ships, whose main difficulty would be dealing with the shallows (Flor. 1.55.10.5).

The inability of countering the Veneti ship capacity is seen more poignantly in the Battle of the Morbihan Gulf. Even though the Roman fleet had «*circiter CCXX naues paratissimae atque omni genere armorum ornatissimae*», thus two hundred fully-equipped ships (including *turres*, towers – Caes. *B Gall.* 3.14), these were scarcely effective against the height of the enemy ships («*tamen has altitudo puppium ex barbaris nauibus superabat*»), and Brutus believed that little could be done with the *rostra*. Thus, the *falx* is used: «*Falces praeacutae insertae adfixaeque longuriis, non absimili forma muralium falcium*», to cut the *funis* and the *antenna* of the enemy ships.

Cassius Dio's account adds another detail to this episode, which is that Caesar would have been struggling and the battle would have resulted in a poor outcome, had Brutus not reached him with ships from the Mediterranean: «*οἱ ναυσὶν ἐκ τῆς ἑνδοθεῖς θαλάσσης ἦλθεν*» (Dio Cass. 39.40.5). Therefore, if Dio's account is to be believed, despite different ship-types having been built to face the Veneti, the traditional Mediterranean vessels

would also have been present in the battle and essential to success (Dio Cass. 39.40.5). Cassius' description of the ships does not differ from that of Caesar: the Roman fleet had lighter, faster ships (*κοῦφαι*, «*Κουφότερον*», lighter, and *Ταχυναντέω*, faster) against the heavy, large ships of the Veneti, as seen in 39.41. The cutting of sails is also mentioned, with the terminology *κοντοί* being used, together with the *ἰστία*, sail, made of *δερμάτινα*, leather; in Dio Cass. 39.43, the episode of the *falx* is also described, with the severing, *διασχίζω*, of the enemy ship's ropes (*σχοινία*) and sails with *δορυδρέπανον*, a sort of halberd. A different type of vessel is also mentioned, the *δεῖνος*, on the Veneti side and apparently a sort of transport ship. Cassius' narrative differs, however, in what regards the success of the Roman ships in the naval battle itself: the rams would have caused significant damage whilst attacking from the back and sides, swift attacks that would have been followed by equally swift retreats, that usually involved the presence of several Roman ships against a single Veneti vessel. The ramming would have resulted in «*ἀναρρήγνυμι*», the ships being broken, and, according to this source, others would have been set on fire, which would therefore imply flammable materials to have been carried amongst the Roman fleet.

8. The British campaigns

Another yet unspecified matter is that of the ships Caesar would have taken to Great Britain. During the first invasion, it seems that most of them would have been hired from local tribes (Caes. *BGall.* 4.22.1), a majority of them being transports (*nauibis circiter LXXX onerariis*), but also some *naues longae*, warships, and eighteen more *onerariae naues*, which were meant to have been transporting the cavalry and were prevented from crossing. Upon the fleet's arrival in the region, it would have been anchored upon a *sublatis ancoris*, thus close to the shore but not within it (Caes. *BGall.* 4.23.6). This would have been due to the fact of the ships being described as «*propter magnitudinem*», having a great size and thus «*nisi in alto constituit non poterant*» – could only be anchored in the high sea. The difficulties with disembarking have been studied in a previous chapter⁷⁶⁶;

⁷⁶⁶ As observed, one of the main issues of Caesar in the Northern Atlantic was the matter of disembarking. It seems that boarding and disembarking ships anchored in high sea would have been the norm across the early Roman area of influence, but not necessarily common amongst other peoples, judging by *BAlex.* 8: describing Egypt's specificities regarding the shoreline and navigation, the source mentions that boarding

what has not been mentioned is Caesar's description of the said ships. As mentioned, *naues longae* and *onerariae naues* would have been taken, all of them with oars (*remis*, «*remorum motu*» – Caes. *BGall.* 4.25.6), and these ships would have been sturdy enough to carry war engines. It seems, in fact, that the archery and projectiles would have been a key element to drive the enemy away upon disembarking in Great Britain, through *fundae*, *sagittae* and *tormenta*» (also «*inuitato genere tormentorum*», Caes. *BGall.* 4.25.6). The second key factor would have been the usage of *scaphae* and *speculatoriae naues* to aid with the Roman army's disembarking, which means that each of these ships was probably carrying small skiffs alongside them, and that formerly unmentioned *naues speculatoriae*, smaller and unspecified ships used for surveillance missions, would have departed together with the fleet. These are mentioned in several other circumstances, amongst which, for instance, Caesar's crossing to Sicily during the Civil War with Pompeius, in which the terminology used by Florus is that of «*speculatorio nauigio*», which would, like the larger ship types, have a captain (*gubernator*), indicating it would not be a small craft (Flor. 2.13.2.36-37).

During the time of the first invasion, *longae naues* and *onerariae* (Caes. *BGall.* 4.29.1-2) would have been present. Why Caesar would have endeavoured to carry warships to Great Britain is unknown, particularly if the commander was not expecting naval conflicts to occur. It also seems that, despite a former expedition and Caesar's efforts in becoming acquainted with the geography of the location prior to the invasion, the fleet would have struggled with lack of knowledge regarding the tidal changes during the «*luna plena, qui dies a maritimos aestus maximos in Oceano efficere consuevit*» (Caes. *BGall.* 4.29-1.2). Upon encountering a storm, the fleet would have been forced to «*ad ancoras erant deligatae*»: bind together the anchors of the transport ships, to avoid them crashing⁷⁶⁷. This specific storm would have still caused significant damage, particularly regarding *funes* (ropes or cables), *ancorae* (anchors) and *armamenta*, unspecified armament (Caes. *BGall.* 4.29.3). During the reparations that necessarily ensued, the terminology *materia*

ships would have been difficult from *scaphae*, smaller vessels, considering that the attackers would have created entrenchments.

⁷⁶⁷ Another technique utilised to keep ships safe during a storm would have been that of bringing them to the high sea rather than keeping them in coastal areas, in order to avoid crashing against the rocks. One may question whether this technique would have been put to use in harbours, especially in those where plenty of ships would have been stationed simultaneously and could easily collide; it seems, however, that it would have had its own issues, as the rowers would have needed to keep movement in order to avoid the vessels being taken back to the shoreline. See. App. *B Civ.* 5.10.89.

and *aereae* is used, the former referring to the timber and the latter to the metallic components (namely, bronze; Caes. *BGall.* 4.31.2-3).

The design of the ships used in the second expedition is even more difficult to ascertain, particularly as they are said to have been ordered by Caesar, instead of hired. They are described as «*humiliores quam quibus in nostro mari*», thus smaller than those in the Mediterranean; and to enable them to transport «*multitudinem iumentorum*», plenty of mounts, they would have been «*latiores*» (broader). The purpose would have been to increase their swiftness: «*has omnes actuarias imperati fieri, quam ad rem multum humilitas adiuuat*» (Caes. *BGall.* 5.1.1.-3). Little else is mentioned, except that they would have been built with materials coming from Hispania; but it seems that they would have come from different shipyards, as Caes. *BGall.* 5.5.2. mentions that forty ships would have been built by the Meldis and the remainder of them, thus, would have been made elsewhere. Such a large-scale production must have implied the work of many different shipyards in plenty of different locations.

Six hundred of these transports would have been taken, together with twenty-eight warships (Caes. *BGall.* 5.2.2.). The number of transports greatly exceeds that of the warships, which once again seems to show that Caesar was not preparing for war at sea, and makes one wonder the reason for the warships to have been taken at all, and whether their design was the traditional Mediterranean one or an altered type to sustain the tides of the Northern Atlantic. In Caes. *BGall.* 5.8.3-4, the different terminologies will appear yet again: *uectoriae graues nauigia*, thus heavy transport ships, versus the *longae naues*, the long ships; and in Caes. *BGall.* 5.8.6, it is mentioned that *priuatae*, private ships, would also have joined the expedition (thus, ships not ordered by Caesar directly, but that would have been a part of the army). The acquisition of private ships is not foreign to the Roman naval history: Caes. *BCiv.* 1.30 mentions that Cato would have been attempting to acquire new warships from the people of Sicily, whereas Caes. *BCiv.* 1.34 refers to Domitius having acquired «*nauibus actuariis VII, quas Igilii et in cosano a priuatis coactas seruis libertis colonis suis compleuerat*». Not only were these vessels considered as private ships, but the crews employed are also referred to as having a status of being directly connected to Domitius, and not to the city of Rome itself. App. *B Civ.* 5.13.12 also mentions that, from a fleet of six-hundred warships and an unspecified number of «merchant vessels», all the latter would have been sent back to their proprietors, which

means that the transports would have belonged to several private citizens and lent to/hired by the Roman admirals.

The same Domitius would have subsequently attempted to gather further merchant ships (Caes. *BCiv.* 1.36), and the chapter mentions not only what they would have been specifically carrying (*«clavis aut materia atque armamentis»*) but also that those which were deemed as containing insufficient resources would have been reutilized to repair others, something which is also observed in Caesar's campaigns in Britain. Later in the civil wars (Caes. *BCiv.* 1.56), under the command of the same general, there would have been several *minora nauigia* accompanying *naues longae*, and it is unclear whether both or only a specific type would have been carrying the archers. Another usually unmentioned matter is that Domitius would have been carrying with him *coloni pastores* (*«colonis pastoribusque»*), therefore men dedicated to agrarian activities, advancing against Brutus' fleet with this contingent.

Chapter 1.57 of Caesar's Civil Wars offers a very descriptive gathering of the types of weaponry one could find within a Roman armada of this time period. Instruments such as *harpagones*, *pilum*, *tragulae* and *tela* are included; hence, it seems that alongside the grappling hooks, javelins and darts would have been used. There is no reference to whether these would have been flung by machinery or manpower, and whether one or the other would imply a difference in the capacity and the distances from which these could have been hurled. Manpower would have possibly involved the ships being closer together. The usage of engines would also have implied qualified crews to be present, and it seems that, at least during the confrontation with the Massiliots, the Roman navy would have been struggling due to the unskilled rowers, which would have been drawn from transports, rather than being used to warships that probably took more accuracy regarding timing and strength.

If these vessels are more frequently referred to when observing the campaigns in the north Atlantic, it seems that they would have also been used in the Mediterranean. Caesar would have ordered the building of more ships of the same kind (*«naues faciant, cuius generis eum superioribus annis usus Britannia docuerat»*); these are described as having *«carinae ac prima statumina ex leui materia fiebant»*, therefore, lighter timber being used for the keels and the first *statumina*; the rest, *«reliquum corpus nauium uiminibus contextum coriis integebatur»*, thus a construction through a method of «wattle» and

applying animal leather (Caes. *BCiv.* 1.54). These ships would have been utilised in a different context, however, applied in river transport rather than oceanic navigation.

9. Other terminology

Amongst the most widespread ship typologies, which we can identify to some length, there is a significant number of terminology which is used to define vessels in a more generalist manner that makes us struggle regarding its precise identification. The lack of any exact description will cause confusion amongst the researchers who attempt to define that specific sort of ship or boat. One of these, for instance, is the *κέρκουρος*. This relatively rare term can be found, for instance, in App. *Mith.* 1.4, when the source is describing an embassy which Prusias sent to Rome. Where or how the *κέρκουρος* navigated is not mentioned; only that this specific sort of ship would have been used by Prusias to send his ambassador, Menas, together with two-thousand soldiers. One might assume that, considering the circumstances, these were most likely transport ships on which the army and its respective apparel and provisions were carried, but there is no textual evidence to confirm this. The ship types utilised or observed by the Romans in Egypt are even more vague in the Greco-Roman sources, frequently referred to by the generic terms *πλοῖα*, *νῆες*. This includes, for instance, the ships used by Mithridates the Pergamenian to aid Caesar when the Nile was barred by his enemies.

Less developed ship types are mentioned in Flor. 2.43.8.2-4, in a recount of the Balearic wars. They are described as *rates*, thus rafts or small crafts, from which the slingers would attack passing ships – it seems as if there would have been some sort of pirate activity, but it would not be in such a large, organised scale as that found in Cilicia. Therefore, and as seen in Flor. 2.43.8.5-6, they were also seemingly easier to counter, through attacks with *rostra* and with the *pilum*. Other rudimentary vessels are mentioned during Spartacus' rebellion, as the faction would have attempted to cross the Strait into Sicily through «*nauigia (...) ratesque*», rafts in which the *trabes* (beams) would have been connected to the casks with withies («*dolia conexa uirgultis*», Flor 2.8.13)⁷⁶⁸.

The usage of rafts is also mentioned under different circumstances. During the Civil Wars, while Caesar is stationed in Brundisium, he would have ordered the positioning of two

⁷⁶⁸ Casson [1971] 1995, note 6.

rafts of thirty feet each on the harbour's mole (*«rates duplices quoquoersus pedum xxx e regione molis collocabat»*). Caes. *BCiv.* 1.25), kept together through four anchors along their angles; to these he would have attached more rafts covered in soil, protecting them with *«cratibus ac pluteis»*; every fourth one would have had two-story high towers to defend the ships from fire attacks. It seems that these rafts would have been used in a way to construct moving platforms and, to an extent, an additional wall to the harbour's defence, from which engines would be utilised against enemy approaches. This would have been countered by Pompeius' gathering of *naues onerariae*, where he would have mounted turrets with three stories (*«ibi turres cum ternis tabulatis erigebat»*) and fitted them with war engines (*«multis tormentis et omni genere telorum»*); the purpose would have been to destroy the works of Caesar's army. These, however, were likely not in significant numbers, as Caes. *BCiv.* 1.29 mentions that Caesar would have been unable to follow Pompeius due to his lack of ships, which Pompeius would have had in large numbers.

It seems as if one is in the presence of a situation where both sides are using fleets as movable platforms, in this case not merely to transport foot soldiers, but, what is not as commonly found, to make them into walls. The matter of turrets may also indicate some dispute for altitude, as Caesar is said to have ordered the building of towers with two stories (*«turres binorum tabulatorum»*), whereas Pompeius would have countered with an additional one. The size and height of each is not mentioned, however, but if the construction were similar, Pompeius' turrets were likely to be taller than Caesar's. They are specifically not meant to be sailing, as verifiable by the attempts to make them heavy through the usage of soil. The usage of small ship types throughout this specific confrontation in Brundisium will continue throughout the narrative, with *scaphae* and *lintres* being referred to in Caes. *BCiv.* 1.28 as transports for the soldiers alongside the harbour walls, later participating in the capture of two ships described with the term *naues*. As *naues* is usually an indicative of a larger vessel, especially in this specific case, where there are the comparative terms of *scaphae* and *lintres*, it seems that not only larger ships would have been present (although likely kept inside the harbour walls) but also that these smaller skiffs would have enabled the opposing army to capture them.

Amongst other terminology not frequently utilised and unspecific, one may find in Plut. *Vit. Pomp.* 73.3, *«ποτάμιος πλοῖον»*, which would have been a river boat, of which the specific design and characteristics are not described; it is mentioned, however, that it

would take several individuals on it, thus it is unlikely that this would have been a small craft meant for private use, but instead a larger fishing vessel used for river fishing on a larger scale. The same chapter mentions a *φορτηγός*, a transport ship, which would be going off to the sea; considering that the transport ship would have been met with not much afterwards the voyage on the river boat, it is possible that this would have been another of the vessels able to sail through the river and out into the sea. Another terminology used to refer to shipping vessels is found in Plut. *Vit. Pomp.* 78.2, namely *ἄλῖα*, described as a fishing boat and a word also found, for instance, in Arist. *Hist. an.* 533b20 and Diod. Sic. 3.21⁷⁶⁹.

Another term rarely observed throughout ancient sources is that of *πορθμεῖον*, found in Plut. *Vit. Ant.* 26.1. This is described as a type of river craft, in this case decorated lavishly with golden coverage over the stern (*χρυσόπρυμνος*), sails tinged purple (*«τῶν μὲν ἱστίων ἁλουργῶν ἐκπεπετασμένων»*) and oars covered in silver (*«τῆς δὲ εἰρεσίας ἀργυραῖς κόπαις ἀναφερομένης»*). Although this episode is unconnected, this is a very similar description to that of the ships crafted by Cilician pirates during their period of growth, now utilised to describe a ship connected with royalty. This not only emphasises the possible psychological impact and underlying meaning behind the pirates' options in ship decoration, but also shows that, if the descriptions are considered as accurate, the pirate communities of Cilicia would have attained levels of wealth which would, therefore, have enabled them to construct vessels in a similar fashion to that of royalty.

App. *B Civ.* 2.8.56 uses the term *κελήτιον* to address a type of river vessel. It was not likely to be a very small craft, as it is described as having both a *κυβερνήτης* and rowers, but it seems as if this vessel would have been very easily subjected to the ill-effects of the weather. As it approached the mouth of the river, it would have struggled with both wind and waves, which probably means it would have been difficult for it to transition into sea navigation. The descriptions say that the vessel would have been equipped both with oars and sail, therefore being able to return up the river with the aid of sail and wind.

Another terminology not frequently observed is that of the *pontones*. Caes *Civ.* 3.29 mentions this type of vessel as part of the fleet of Antonius, and states that *«quod est genus nauium Gallicarum»*. As its characteristics are not described, it is likely that the

⁷⁶⁹ As mentioned in the Liddel-Scott dictionary, <http://perseus.uchicago.edu/cgi-bin/philologic/getobject.pl?p.3:2.LSJ>.

Roman army would have been well-acquainted with them. In this case, it seems that it was utilised as a transport, being left behind so that the crossing would still be viable for Caesar in case of it being required.

10. The sacred ship

We end this chapter with a different case. App. *B Civ.* 5.1.2 attends to a situation which is not frequently found amongst the narratives surrounding ancient fleets. Cassius Parmesius, during an attempted escape, would have taken a fleet and burnt all the Rhodian ships but thirty, excluding the sacred ship. This chapter raises questions as to the consequences of burning a vessel hired from another city-state, particularly when one observes the trust bonds established between both and their future relationship; it is also another occasion in which the crews, being insufficient to man the vessels, would have driven a commander to abandon a portion of his fleet, destroying it in order that the enemy would be unable to take advantage of it. The unmentioned ship terminology, however, is that of a sacred ship being present, something which is not found amongst other narratives and makes one question whether this would have been a regular part of an ancient fleet or a singular case. The significance of such a ship seems to have been of an extent to prevent the admiral from having it burnt, regardless of the lack of men; its ship type, however, is not mentioned, and if it was not a warship nor a transport, it would have had scarce utility for a period of war. One can question, in fact, whether the sacred ship would have been allowed to participate in combat⁷⁷⁰.

11. Ships in the Poetry of Lucan

Throughout the poetry of Lucan, there will be several mentions of ships and ship components. Words such as *carina/carinae* in several declensions (ex. Luc. 1.402 and 3.43-49 «*Carinas*»; Luc. 501-504, and 616-627 «*carinae*»), *puppe* (Luc. 501-504; «*puppēs*», Luc. 648-650; «*puppibus*», Luc. 3.43-49), *uela* (Luc. 616-627; «*uelis*», Luc.

⁷⁷⁰ App. *B Civ.* 5.10.96 mentions what seems to have been a religious rite to celebrate or engage in the first launching of a fleet: it is described that Octavianus would have ordered the building of altars both along the shoreline, the people observing from within the ships. The priests in charge of the ceremony would have «offered the sacrifice standing at the water's edge» and also carried the offerings in skiffs three times around the fleet, together with the general. A part of the entrails would have been burnt and the other thrown into the sea, whilst the people were chanting. According to Appian, this would have been the ordinary way in which the Romans prepared the launching of a fleet.

3.1), «*rates*» (Luc. 3.1), and «*remis*» (Luc. 3.43-49). These, amongst other relatively generic terms such as *naue*, are a constant along his recount of the Civil War, together with more specific terminology⁷⁷¹. In Luc. 3.514, the expression «*turrigeram*» (*turrigera*) is used to refer to Brutus's ship, which would have been carrying turrets. References to other ship components are also found – the «*transtra*» (Luc. 3.541-546) and the «*rostra*». Luc. 5.420 also has a mention to a specific type of material for sails, namely fine flax/linen, *carbasa*.

Triremes are also mentioned in Latin poetry throughout the first half of the 1st century CE. One may observe, for instance, Lucan 3.525, where the triremes are mentioned together with the *carinae*. Throughout the *Pharsalia* and his retelling of the civil war between Caesar and Pompeius, one will also find the mention to *liburnae*; although the terminology is not as frequently found during the late Republic, it was not unheard of⁷⁷². In this particular verse of Lucan (529), one will find the liburnes mentioned alongside the triremes. Being a naval-dedicated verse, one will also find the mention to a specific type of wood – «*pinus*» – accompanied by the mention to alder wood («*alnos*») in Luc. 556-564.

⁷⁷¹ «Ancient authors, understandably finding little occasion to mention ordinary rafts, speak only of exceptional ones». Casson [1971] 1995, note 2, p. 4.

⁷⁷² Cecil Torr, in one of the earliest investigations regarding the Roman navy, will mention, at least, Appian's Illyrian War, 3; Caes. *BCiv.* 3.5 and 3.9, Horace, epodes, 1, and the mentioned verse of Lucan. The time span in which the authors of these ancient sources lived is of nearly a century, which means there may have been some changes in the design of the said ships, but they were, at least, in use during the early periods. See Torr 1894, 16.

12. Some notes on iconography

The most extensive work regarding ancient ship iconography remains, to this day, that of Lionel Casson. Several of his publications have large compendiums of images that date not only of the Roman era, but of periods far before and after. Given the wide array of images provided by Casson's compendiums, it would not be suitable for the purpose of our work to reproduce them all; we shall select a few as illustrative examples which keep to the coherence of our focus, and will then proceed to a more detailed analysis of the Pompeii frescoes which, although present in Casson's works, are not as explored as mosaics, vases and reliefs.



Fig. 49, described by Casson [1971] 1999 as a «two-banked galley, 2nd-1st B.C.»



Fig. 50. Ibid., described as a «Roman trireme, second half of 1st B.C.»



Figs. 51 and 52, both described as Roman triremes, 1st B.C. to 1st a.D.



This first group of four images, dedicated to Warships, allows for a few different conclusions. There is a representation of a bireme and another of a trireme, which are, as is often the case, out of proportion. One can observe that the bireme has a lowered mast, thus lacking the adaptative qualities of the *hemiolia* and the *myoparoi*. There are several visible warriors, seven shields being perceptible from the observer's perspective, and one of the human figures to the right seems lower than the others, as if climbing from a deck, or sitting to handle the two rudders. The two rows of oars account for twenty-six elements; if there is an equal number to the other side, that would make for fifty-two in total; their shape is elongated and does not have the distinctive subdivision of the external portion that some oars appear to display. There seems to be an eye-figure on the prow, as is the case for many of the other warship representations during this time-period, but one noticeable characteristic is the absence of a ram, indicating that this bireme was not specifically constructed for naval combat, rather to transport troops. This contrasts with the three images of triremes presented. All of them have an attached ram, which is visible through the trident-like image at the ship's prow, and the first image clearly shows what seem to be holes for the oars, rather than larger, open windows.

The decorative elements are not as clear as the eye in the bireme, but there are images discernible in all the triremes. One can see warriors present in all, and in the images of the previous page there are two structures which are not present in the bireme: the stern

of the first image has what seems to be a standard, probably a signalling device to mark the ship, and the other has what may be a turret. One may also add that the figures of the triremes, unlike what is displayed for the bireme, are not wearing helmets, and do not seem to be carrying shields; they are also seemingly sitting down, and one would almost say they could be an upper bank of rowers if, in the second picture, there was not such a significant difference between the location of the oarsmen and that of the human figures; the fact, however, is that they are all sitting and facing against the prow, which makes us question their exact function on board.



Fig. 53, described as a «two-banked Roman galley, probably a quadrireme or larger, second half of 1st B.C.»

This second picture, of what Casson considers a quadrireme, represents a war scene far more clearly than the triremes, on which we do not see warriors (although we do not see sails either). Like one of the triremes it also presents a tower, or what seems to be one, but it seems larger than that of the triremes. One can see soldiers carrying their equipment, and one of them is crossing into the outer part of the ship, whereas another is already entirely on the outside, which seems to indicate a situation of boarding; the tower itself seems empty, and there are no representations of archers or slingers. Another element which is visibly more noticeable in this representation when faced against the triremes and the bireme is the figures or decoration. There seems to be a face, possibly a sculpture, in the same location where the triremes carry drawings or insignias; there is also what seems to be a sea-monster, vaguely resembling a crocodile, where the prominent beam

II. VELAE ET REMI

that intersects the mid-ship is located. One must also notice that these ships are being represented whole, that is, the artists give the idea of movement, but they are not shown as if they were on the water, since, as we have seen through the Olympias, the bottom of these vessels would not be showing (the exception being, perhaps, the quadrireme)⁷⁷³.



Fig. 54, described as the «fore view of a Roman galley, 54-68 A.D.» Side representations are considerably more common than those in which we see the front or the back, which are hampered by perspective.

⁷⁷³ The prominent beam that intersects approximately midway through some of the ancient warships is not something that has been greatly debated, especially when compared to the rams. Some ship representations have it, others do not. It may be a mere part of the structure, but its location on the prow, above the ram, may have some connection, some design to cause structural damage to a ship when ramming, or an aid to destroy lines of oars when opting for this type of attack.



Fig. 55, «Merchant galley approaching a coast under sail and oars, end of 1st B.C.»



Fig. 56, «Merchant galley loaded with amphorae, 2nd or 3rd A.D.»



Fig. 57, «Two coastal craft at the entrance to Rome's harbor, 3rd A.D.»



Fig. 58, «Cargo vessel under full sail, 3rd A.D.»

The group of figures above is mostly representative of cargo vessels, a significant portion of which are dated to later periods. The earliest depiction is dated to the 1st century BCE, and there are actually two vessels rather than one in display, a smaller on the upper left corner with three or four human figures and an undetermined number of oars/ropes, which could possibly represent a towing vessel or a fishing vessel, and the larger merchant ship in full sail (a square sail), with what seem to be several visible oars, showing a case in which sail and oar propulsion are combined. It shows that it may have been possible, raising several questions on the circumstances under which it would have occurred, how and why, to which, in this moment, we have no answer; it does not seem a technique as frequently used for warships, especially under combat situations. The oars also seem to be of considerable size, but it is uncertain whether they would have been used from the top of the deck or inside the vessel (the first seems more likely, however, as the interior would be carrying cargo). One can also notice a detail, which is that the sail seems to have been decorated, somehow, several strips visible along the material.

The representation of two following merchant galleys is very different. In this case, the artists opted to place the amphoras on top, making them visible to the observer and clearly showing the nature of the vessel. Both images show rudders, but the shape of the craft seems different. Whereas the first picture has a shape which would be more closely associated with a warship (the differences between prow and stern, with one being more curved and the other more upright), the second shows what seem to be two crescent-shaped vessels, one with some sort of decorative element on the prow, the other without. The last figure seems a combination of several elements: a square sail, of which the artist attempted to show the texture, together with the triangular top; a crescent shape, which is not as compact in terms of materials across all sections of the ship, with decorative elements at the stern and what may be an oar or a rudder; the human figures are doing activities related to the sail, probably pulling or tackling ropes; the deck has several elements, including a large mast.

Amidst the most well-known iconographical displays of warships are the Pompeii frescos⁷⁷⁴. One can observe situations in which the warship itself in cause is in motion, but there are also situations of actual naval engagement. To an extent, these frescoes present more questions than answers: one of them shows the figure of what seems to be a flat type of warship, which is distinctive from the others by its elongated shape and the rounder appearance of the stern. Through these frescoes it is equally impossible to determine the number of oarsmen and the lines in which they sat: oars are depicted through a square, flat parallelogram, which possibly indicates the idea of movement, cut across through several lighter stripes. There are also two darker lines tinged with a different colour, coming from the stern; whether these are rudder paddles or another device, it is impossible to determine through the painting.

⁷⁷⁴ The practice of painting vessels seems to have existed from very early periods, being mentioned back to the Homeric narratives. As stated by Casson, Homer describes ships in which «the hull was black – either painted, or, more likely, smeared with pitch». Casson [1971] 1995, 45.



Fig. 59: one of the frescoes in Pompeii⁷⁷⁵

The issue with the oars amidst these frescoes seems only increased by the fact that the figures themselves do seem to have several banks of oars set horizontally – although some vessels seem to clearly represent only one, and even this can be debated, there are others where one cannot tell whether there are two or three banks, or whether that is a stylistic effect to indicate movement yet again. If one considers that some of these ships have several banks of oars, one has to contemplate that they all seem to come from the same place, not allowing for several compartments and several floors; if only one bank is being depicted, it seems that these frescoes represent an evolution in the preferred ship type which one will not find in former periods, with the absence of the large warships of the Hellenistic age.

Another factor which seems distinctive amongst the ships represented in these frescoes is the absence of a mast and sails – they seem entirely moved by oar power. They share most, if not all the characteristics of former warships: the elongated bronze rams, what seems to be a «fenced», heavily protected side; but there are no vertical masts depicted in any of the illustrations. All the warships in the Pompeian frescoes depict units of Roman infantry aboard, and they seem to occupy all of the deck, making little room for any other element, but one will not find boarding devices, or any devices whatsoever, considering the absence of towers, and the non-representation of apparatuses such as the *harpax*⁷⁷⁶.

If one is to judge by the large amount of infantry units, it would have seemed that these ships would have been built specifically as floating platforms; however, not only their

⁷⁷⁵ <https://www.flickr.com/photos/mharrsch/1662809783>.

⁷⁷⁶ It is believed that several artillery devices were brought on board, such as catapults and the *harpax* (Pitassi 2011, 48).

design seems to be that of a traditional warship, but one can also find clearly outlined rams in all of them. One thing that the Pompeii frescoes seem to ascertain is the presence of colour. All the warships are represented in varying hues of blue/green, reddish/copper tones and gold. The processes of making dyes were different in this period, and the authors of these frescoes would not have had the same ease to create different colours as those who came after them; nonetheless, it shows that the ancient ships were not a monocoloured bulk.

Raffaella d'Amato denotes Ovidius as a source to observe the «warships of the 1st century BC or early 1st century AD»⁷⁷⁷, specifically the passage in Met. 13. 459-555. Timber, curved «*puppae*», oars; submerged keels along the middle of the ship; cordage («*lina*») and yars («*antemnae*»); their colour, described as «*caeruleus*». The author observes that it is likely the warships of the period were made with a bluish hue, as it is mentioned both during the Punic Wars period all throughout the Imperial period: «The blue (*venetus*) colour was the sacred colour of Neptune, the god of the sea, so probably its use on ships was a holy act in his honour». To confirm this from an archaeological ground, a study such as that applied to the Greek and Roman statues in Berlin would be necessary – and, yet, there is no possibility to confirm whether it would have any results, as these ships have been submerged for a long period. Judging on ancient sources alone, a cerulean tone seems to have been the predominant one amidst these ships, and it is likely that it is related to sea divinities all throughout the Mediterranean; but one may wonder whether there are not two other more immediate factors for its choice. One of them would be the economical: the production of this specific hue may have been faster and less expensive than others, and it is also possible that the materials involved in its production would have allowed not only for a longer-lasting dye, but also to keep the ship's timber from deteriorating too quickly. The other factor may have been that of discretion: although a ship is a large craft and difficult to conceal, the fact is that, with the lowering of sails and a blueish hue, especially during certain meteorological conditions, the cerulean may have been less visible in the distance and, therefore, less likely to attract enemies or pirate ships. In this regard, one may also wonder whether the oars were not also painted.

Nonetheless, one must not disregard the religious factor, for alongside with the colour blue and its association with water entities, «divine elements were strongly present in the

⁷⁷⁷ D'Amato 2015, 20.

decoration of ships»⁷⁷⁸, amongst which the observed «apotropaic eyes», «mainly on the portside and under the *proembolion*», and the shaping of the «prow of the ship» in the «form of a god or a sacred animal». Together with these two elements, «statues of winged victories stood on the foredeck», «earthen pots and small altars» could often be found on the «stern of the warships»⁷⁷⁹, figures of a «Triton or a Dolphin» under the «proembolion». The shipwrecks we find give us very little notion of what one of these vessels must have been during their time of usage, over two-thousand years ago – stripped from colour and their religious elements, they would lead one to believe that ancient warships would be complicated, albeit strict-looking structures. The reality seems to have been considerably different, if one is to observe historical reports, iconography and numismatics, and approaching the reality of Roman ship types is not possible without a combination of all methods.

13. Final reflexions on historical sources: fleets and ship ownership

In this final section on the matter of ships, we shall leave a few reflexions which come in sequence of the first two chapters and connect them, and whose inclusion in Chapter II seemed to us more pertinent than in Chapter I, as they are more directly connected to the ships and fleets themselves than the way commanders used these ships. We shall underline a few points regarding the matters of ship origins, ownership and the size of a Roman fleet, as well as the diversity of Roman ship types and fighting styles.

Throughout this chapter, one observed there are plenty of ship types that can be accounted for in Roman fleets. These were very heterogeneous in nature, regarding the size, number of oarsmen or the way of manning a ship. Cataphract ships seem to prevail, especially when at war; but that does not mean aphract vessels would not have been in use. App. *B Civ.* 2.14.97 mentions Scipio and Afranius moving in aphract vessels through the sea; even if they would not have been as frequently utilised, especially as they have less room for the crucial storage of cereal and drinkable water during the long journeys, they would have been useful during very specific situations, such as a sudden retreat.

In the beginning, most of its ships belonged to others: when Lucullus is sent by Sulla to hire a fleet (App. *Mith.* 8.56), he will bring vessels from Cyprus, Phoenicia, Rhodes and

⁷⁷⁸ D'Amatto 2015, 20.

⁷⁷⁹ This specific case, according to D'Amato, is observable in the «coins of the Fonteia family».

Pamphylia. When peace was made with Mithridates, Sulla demanded several ships from the Pontic king, thus acquiring a fleet which would probably have been built mostly on the Eastern bank of the Mediterranean Sea and within the Black sea. In App. Mith. 11.77, Lucullus will yet again be seen hiring a fleet, this time from the province of Asia, and would have been sailing it together with his admirals (Trirarius and Barba the only ones being named) and succeeding in attacking the enemy by surrounding it in an island⁷⁸⁰. If the Roman fleet is often observed as being hired from different city-states, there are also a few occasions, although less frequent, in which ships are acquired not through hiring nor victories at war (the case of the Mithridatic treaties through which Sulla would have acquired a fleet), but through the invasion of cities through treachery, as is the case of App. *B Civ.* 1.10.89, in which is described an attack to Neapolis which would have granted the Sullan army to acquire the city's triremes.

The fact that the source refers to these ships as the triremes of the city of Neapolis is also significant to observe that, if Rome itself does not produce a fleet – it is a fluvial city, rather than coastal – that does not mean the remainder of the Italian Peninsula would have been inactive. This explains the case, for instance, of the Liburnes and the origins of the name (see, for instance, App. *B Civ.* 2.6.39), and Appian describes them as having been the first ship types the Romans would have encountered through the piratical expeditions. Whether this is accurate or not is difficult to define, but it is likely that the Roman army would have sooner encountered the swift craft from Illyria and Liburnia during their expansion along the Italian Peninsula, rather than the very large warships found amongst the Hellenistic city-states.

If Rhodes is, traditionally, one of Rome's naval allies, this is not a given fact. The association seems at work during the Mithridatic wars and will assist the Pompeian faction several times as well, but this does not seem a perpetual obligation, as Rhodes and Lycia declare they will not provide Cassius nor Brutus with any aid during the civil wars. App. *B Civ.* 4.8.61 mentions that these cities would have provided Dolabella with ships in previous occasions, but that they justify it: the difference resides in the fact that they would not have been equipped for war, but rather for guarding other ships or coastal areas. The fitting of a warship is mentioned several times, although the exact meaning behind

⁷⁸⁰ One may observe, in this episode, what seems to have been a way to signal giving battle, or to challenge the enemy: Lucullus would have sent two ships at once against the enemy, who would have declined the challenge and thus been attacked with projectiles both from the fleet and from the infantry, which would have disembarked on the opposite end of the island.

the sentence is difficult to convey; we often observe warships carrying towers, war engines or projectiles, but the idea of fitting a ship for war is not necessarily correlated to this, as these are not always utilised in naval battle. It is possible that this refers, for instance, to the including of bronze beaks covering the rams, but a guardship would likely include this as well, and it was observed that even smaller vessels were occasionally equipped with bronze protections and rams.

The Roman originality greatly resides upon their preferred fighting method. Although not unequal to naval battles if they proved to be necessary, one can observe, ever since the 3rd century BCE, a tendency to board the enemy ship. This tendency will continue to be observed through the later years of the Republic. During a naval confrontation, Octavianus' soldiers (*όπλιται*) would have been on the deck of the ship (Dio Cass. 48.47.3-5), and although the vessels are described through the ambiguous term *ναῦς*, they are also said to have been «*παχύτεραι*» and «*ύψηλότεραι*»; thicker and higher than those of the enemy, facing them with the *άντίπρωροι*, the prow facing forward. There seem to have been support ships for the wounded as well, a circumstance unmentioned in most other occasions: during the combat, Apollophanes would have removed those unfit for battle and taken them to ships dedicated exclusively to the wounded, whilst taking others with reinforcements. The ship-types in question are also unspecified, but it is more likely that these would have been transports than warships, considering that keeping warships out of battle for the purpose of carrying the infantry may have proved unprofitable in the long run. Yet again, projectiles and the usage of fire against ships is mentioned («*Πύρφορος*», fire bearing, and «*Βέλεσι*», missiles).

Not only did they opt for varied fighting styles, but also had a strong influence of the land units: there are at least two occasions during Caesar's campaigns in which we see ships assigned to the cavalry, the first being that of the eighteen ships left behind during the invasion of Great Britain, and the second in Caes. *B Gall.* 7.60.1, where ships brought from Metiosedum would have been attributed to the Roman *equites*. Ships are, first and foremost, a method for dislocating forces, and if land-transport and river transport are important methods when one observes the land forces, and if coastal transport of troops, particularly along the Italian Peninsula, seems relatively rare regarding ancient sources, it would not have been an odd occurrence. App. *B Civ.* 1.9.77 mentions the transport of soldiers throughout the Italian Peninsula up to Liburnia, so that they would meet Sulla;

these transports would have been going through several harbours in the region in order to collect warriors.

The average size of a fleet could vary significantly depending upon the size of an enterprise and its purpose. App. *B Civ.* 5.11.98 mentions that Lepidus would have sailed from Africa with one-thousand transports and twelve warships, thus showing a circumstance under which the transports prevail (especially as Lepidus was transporting twelve legions and five-hundred Numidian horsemen); at the same time, however, Taurus would have sailed from Tarentum with one-hundred and two ships out of a total of one-hundred and thirty, which is significantly beneath the capacity of Lepidus and, according to the source, is related to the fact that the rowers of twenty-eight ships would have died during the winter⁷⁸¹. Throughout this journey it seems that several ships would have been lost to storms, including a six which would have belonged to Octavianus; the total number of his fleet is not mentioned, but it seems that he would have lost six large ships (it is not specified whether the «six» is included), twenty-six light vessels and several liburnes, which means that the armada would have been superior to 40-50 vessels.

If Caesar crossed to Great Britain with a few dozen ships, App. *B Civ.* 1.9.79 mentions a fleet of one thousand and six hundred vessels traveling from the Piraeus to Patræ and from there to Brundisium. The logistics required to keep all the crew properly fed, together with the need to keep the ships together, even through currents and potential bad weather, seem to have been overcome by this large amount of ships; no losses are reported, although this is not to signify they did not happen, especially as the cases of reported vessels in sources are usually bound to occur when the ones led astray encounter some sort of out-of-ordinary occurrence. This fleet also seems fairly large when compared to the six hundred mentioned in App. *B Civ.* 2.8.49, of which only one hundred would have had Roman crews, considered as being of greater quality than the others. In this count, however, the transports are not included, and are mentioned on the side as «ὁλκάδων καὶ σκευοφόρων»; one can wonder whether the difference in numbers between the two instances resides in the inclusion or exclusion of transport ships in the counting, or whether these were not traditionally included as part of the armada's numbers. It does not mean they are of lesser importance, however, as seen a few chapters ahead, when Caesar is said to have ordered the building of transports, as he was lacking in those and

⁷⁸¹ This seems to underline the difficulties in gathering and training oarsmen, as the change in season would not have allowed for these men to be re-established.

had scarce warships on guard duties (App. *B Civ.* 2.8.54); transports would have been necessary auxiliaries to manage the logistics of a moving armada.

The number of warriors transported by a fleet is always smaller than that of oarsmen and crew, and the usage of infantry or cavalrymen as rowers seems unusual, particularly as it would have required specific training, and these forces would have been needed with their maximum strength in case of finding an enemy. App. *B Civ.* 2.15.102 mentions a *ναυμαχία* in which four thousand *ἐρέται* would have been present, against a total of one thousand rowers; this means that if a ship had two-hundred rowers, there would have been only fifty fighters to accompany them. At times, the warships will be paying assistance to the transports, rather than the other way around, especially when these are dislocating cereal; in one of these circumstances, described in App. *B Civ.* 2.8.54, it is seen that the armies prefer sinking the ships rather than let the cereal fall to enemy hands, which shows the importance of protecting the vessels. A war at sea can also be won without warships, if one manages to control the flow of supplies (App. *B Civ.* 2.8.55).

Even smaller is the fleet of the Pompeian faction following Pompeius' defeat at Pharsalus and his death in Egypt. App. *B Civ.* 2.12.87 mentions that some of his allies would have arrived in Corcyra and found themselves with three-hundred triremes. This fleet, however, is smaller due to it being a portion of a larger armada, which had been left behind; in turn, it would have been divided yet again. To sail with an entire fleet may have been advantageous if one could find the enemy and achieve a victory in which the faction would have been severely deprived of its means, but this possibility is unlikely, as both factions have supporters in different geographical regions. The division of a fleet in several sub-units is likely to be more profitable for most of ancient commanders, as they would have been able to keep supply lines flowing from different regions, control several important settlements and harbours and manage to recover more easily in case of a defeat. If three-hundred triremes at sea seem a relatively small number, it is likely that the four-hundred vessels in which Caesar would have sailed through the Nile would not have been as insignificant (App. *B Civ.* 2.13.90); these were probably not warships, as Caesar seems to have been undergoing as a guest and not as an invader, but one can question the need for four-hundred vessels sailing up the river, as well as the types of ships that would have been sailing.

Another singular characteristic of the Roman fleets is that there seems to be a clear distinction regarding ownership. There are several circumstances in which «private»

ships are mentioned, or in which commanders are said to be travelling as «private individuals»; this seems to create an opposition between those travelling in name of the city-state, as commanders or legates, and individual travelling, which seems to be marked by some sort of an anonymous tendency, as it often occurs when anyone is trying to dislocate without creating awareness. Ship ownership is usually assigned to a determinate foreign city-state (whether it belongs to privates or not, it is not specified in most circumstances) or a commander, and there are no circumstances in which vessels are referred to as «ships of the **city** of Rome». It is also not usual to find ships assigned to city-states in the Italian Peninsula. App. *B Civ.* 4.6.45, however, has a passage which seems *sui generis* under the general outlook of ship ownership, as it is mentioned that an individual would have been travelling on a «*δημοσία τριήρει*», a trireme which would have belonged to the people. This is one of the few circumstances in which there is a clear mention to a ship belonging to the people in the Italian Peninsula, rather than to a private citizen. Which characteristics would have been required for a vessel to belong to the people, or rather, which specific people is this chapter referring to, and why does the vessel not have a private ownership? Would the citizens of a certain city have gathered their resources in order to purchase a vessel? If so, why would this have been a warship, which is usually more expensive and potentially of scarce use to the regular citizen, instead of a transport? Of all ship types, why a trireme rather than a smaller ship type, like a liburna, which it seems the people in the Italian Peninsula may have been better acquainted with?

In App. *B Civ.* 5.10.93, there is also an indication that not only a fleet could be purchased or commissioned by an individual, but the upkeep of the said fleet would have been under his private expense as well. It seems that when Antonius joins Octavianus with three-hundred vessels, he would have struggled with the great expense of that fleet and considered exchanging a portion for some of Octavianus' foot soldiers. Under this occasion, as described in chapter 95, Antonius would have exchanged 120 ships for twenty-thousand legionaries, which seems a significant amount of foot soldiers when regarding the number of vessels. One may question whether ships were, in fact, worth this number of warriors, or whether this exchange was done under the specific circumstances of former treaties and, potentially, the fact that Octavianus needed a fleet and had none. Regarding these numbers, it would seem that one of Antonius' would have

been worth over 165 warriors, which, under certain circumstances, is not enough to fully man them.

There is also the matter of whether these ships would have come fully equipped and with their crews; in this case, the value would have shifted, as we have observed it is often the case that a ship's crew exceeds (doubles or triples) its infantry units. For most of the ships included in this fleet, we do not know the typology, but the source states that at least ten would have been «γαῶς φασήλοις τριηριτικοῖς»: *phaseli* with three banks of oars, which are described as a combination between a war ship and a transport («ἐκ τε φορτίδων νεῶν καὶ μακρῶν»), something that may have been very effective in Octavianus' case, seeing as he had a relatively large land-army and no means to transport it. These ten *phaseli* would have been worth one-thousand individuals of Antonius' choice to be kept as Octavia's security unit, which may indicate specialised men; hence, if one ship would have been worth a quota of 100 individuals, their worth may have been superior, in individual terms, to the legionaries provided for the remainder of the fleet, who may have been new and barely trained recruits. Another mention of vessels of Italian building is found in App. *B Civ.* 5.9.78, where ships built in Ravenna are said to have been brought for war. Even more rare is the one found in chapter 80, where, alongside with the ships brought from Ravenna, it is said that Octavianus would have been expecting new triremes from Rome itself. Not only it is one of the few circumstances under which one sees a warship specified as being built in the Italian peninsula (and a traditionally Hellenistic vessel, rather than a bireme) but it also raises questions regarding these triremes: how many were they, where did the building materials come from, and whether they were, in fact, built in the city of Rome and subsequently transported down the river Tiber into a nearby harbour, or whether this is a generalisation and the triremes were, in fact, built in Ostia or other nearby coastal city. If the triremes were, in fact, built in Rome, there is also the matter of how they were transported down the Tiber, which would have required enough water and depth for a large warship to go through in places farther away from the sea.

Another element which may be mentioned is that, if women are not usually written as being inside ships (with the clear exception of Cleopatra, who was a queen in her own right and had her own flagships in the battle of Actium), they seem to have been able to hire them or pay for them. There are a few mentions of the wives of commanders being the ones to send them ships, or to negotiate the exchange of ships between different

parties. The case of Octavia has already been mentioned; App. *B Civ.* 4.6.48 mentions a commander's wife being the one to convey to him a ship, which would have been carrying currency. This means that women, under certain circumstances, were being allowed not only to pay for ships (whether under the name of their husbands or not, it is not mentioned) but also to make sure they set sail through the hiring of crews, and to determine the cargo which was being transported. This matter comes, yet again, under the premise of ship ownership: women are not referred to as ship owners, but this specific chapter, for instance, does not mention that the ship was hired, rather that the wife of this commander would have arranged for it to be sent to him. Another case of a woman having a major, albeit indirect role in the management of fleets is that of Fulvia, described in App. *B Civ.* 5.6.50. The chapter describes her as having left with cavalry units of three-thousand horsemen, and that she would have embarked at Brundisium with the five warships sent from Macedonia. Fulvia, however, would have travelled accompanied by Plancus, a general, towards Athens. Also in Athens, as described in chapter 5.6.62, would have been Julia. The difference seems to reside in the fact that the fleets would have been escorting these women, rather than being escorted by them; but there is an investment, even if of a small flotilla, in the transport of women related to commanders.

The conditions under which these ancient ships could enter combat were also variable. Even if they were subjected to a certain number of frailties due to their construction, which lacked the modern technologies to make the planks safer, it seems these vessels would have been equipped to withstand not only poor meteorological conditions, but also very strong currents and waves. This is the case found, for instance, in App. *B Civ.* 4.11.85, which is possibly one of the only circumstances in which one will read of a battle being fought along the modern-day Strait of Messina, yet again opposing swift, light ships (on the Pompeian side) and heavier vessels (commanded by Salustienus). The fast vessels seem to prove themselves more capable of resisting against the effects of the strait, whereas the heavy vessels would have struggled with the rudders and been unable to sustain their position. Whether this was mostly due to the ship characteristics or the fact that the Pompeian crews are said to have been better prepared is difficult to say, and it is likely that it was somewhat of a combination of both. Nonetheless, the source says that as soon as Salustienus retreated, Sextus Pompeius would have left as well, not pursuing the enemy vessels and attempting to make them give battle; both fleets would have had

several vessels damaged⁷⁸². The crews themselves would have been very heterogeneous, firstly because the vessels would often be built away from Rome, and secondly because the need to find a crew, or re-establish numbers lost in battle, would have probably driven ancient admirals to contract men from several different locations. These crews would have required training, especially when they were to occupy warships, as verified above; at certain times, the admirals would have needed to gather numbers in whichever way was possible, however, and judging by the constant scarcity and hiring, it seems that there would have been difficulties to fill the rowing benches, which would not usually be fully manned – or at all manned – by slaves⁷⁸³.

14. Some remarks on communication

Communication is essential for the life of a ship's crew, both in modern and ancient times. A quick research will allow one to find a wide array of information on these problematics regarding the 21st century: modern communication systems are highly developed, and navies worldwide can count, nowadays, with several professionals dedicated to this function. As the digital era moves forward, new technologies assume a growing role. The radio/cable system is preponderant. In the case of the British navy, for instance, there are courses that teach how to use the CIS – the electronic communication networks – related to the maintenance of transmitters and receptors⁷⁸⁴. Within the ship itself, communications are also assured through digital and analogic systems, through the so-called ICSS (Integrated Communications Control System)⁷⁸⁵. These digital systems are used together with other communication typologies, especially as the reaction of digital systems at sea is often altered due to electromagnetic interferences. Such is the case of

⁷⁸² Meteorology in itself could condition the way a fleet's elements behaved during long dislocations as well: App. *B Civ.* 4.11.86 mentions that there would have been an escort of triremes, and that the vessels being escorted, having different characteristics and possibly being lighter, would have crossed through them and taken advantage of the wind, therefore not needing the escort.

⁷⁸³ App. *B Civ.* 5.1.2, for instance, mentions the rowers being warriors traveling along the ships, but also slaves, prisoners and people who lived along the coastal areas where the fleet would stop.

⁷⁸⁴ Müller 2010. The three most widespread frequencies are HF, VHF and UHF; the United States use TDL (radio-cable) in the frequencies 11, 16 and 12.

⁷⁸⁵ Regarding the ICSS, see, for instance, the webpage of the Portuguese company EID, which develops ICSS systems to connect the several communication systems within ships. The ICSS systems are used by several countries all over the world, amongst which Portugal, Spain, United Kingdom, Indonesia and Brazil. At http://www.eid.pt/prod/1/iccs_integrated_communications_control_system (1-4-16).

flags, with the existence of national and international codes⁷⁸⁶, the modern systems of optical communication through infrared laser and retroreflective technologies⁷⁸⁷. The new communication systems become even more important from the moment ships have to communicate not only with other vessels, but also with submarines or airplanes.

This brief introduction to modern communication systems has two purposes. Firstly, it will now be easier to observe the difficulties faced in this field over two-thousand years ago; secondly, we intended to demonstrate the ease with which one can find information regarding communication systems of our century, when compared to the same investigation made for periods further back. A quick search allows the researcher to acquire plenty of data, but this abundance does not apply to Ancient times. Most of the physical devices used by sailors of this period did not survive. Statements in ancient sources are scarce, although they do relate mostly to the Roman navy; it is even more difficult to find information for other civilizations. As far as author studies go, these are often more related to the design and capacity of ships than the methods which allow them to exist as a fleet⁷⁸⁸.

In spite of the scarce information found, one can achieve several conclusions. Firstly, Ancient sources themselves acknowledge the importance of knowing the communication signals. As says Vegetius:

«Multa quidem sunt discenda atque obseruanda pugnantibus, siquidem nulla sit neglegentiae uenia ubi de salute certatur; sed inter reliqua nihil magis ad uictoriam proficit quam monitis obtemperare signorum. Nam cum uoce sola inter proeliorum tumultus regi multitudo non possit et cum pro necessitate rerum plura ex tempore iubenda atque facienda sint, antiquus omnium gentium usus inuenit quomodo quod solus dux utile iudicasset per signa totus agnosceret et sequeretur exercitus.» (Veg. 3.5).

Vegetius underlines the fact that, in battle contexts, usually very tumultuous, the warrior must be attentive and understand signals quickly and easily, not only to defend his own life, but also to warrant victory. In certain moments of combat, the commander's voice is no longer enough to give orders, and in that moment the three categories of signalling defined by Vegetius will appear: «vocal» signals («*quae uoce humana pronuntiatur*»), «semi-vocal» (that is, depending on musical instruments: «*per tubam aut cornum aut bucinam*») and «mute» («*aquilae dracones uexilla flammulae tufae pinnae*»), usually

⁷⁸⁶ At http://www.navy.mil/navydata/nav_legacy.asp?id=273: in this website of the American navy, one can observe the international flag communication system (1-4-16). See also <http://www.flaginstitute.org/pdfs/Barrie%20Kent.pdf>.

⁷⁸⁷ At <http://www.onr.navy.mil/en/Media-Center/Fact-Sheets/High-Bandwidth-Communications.aspx>, consultado a 1-4-16.

⁷⁸⁸ As an exception see, for instance, Pitassi's studies (2012, [2009] 2012, 2011).

standards, flags or tufts placed on the helms of the commanders, to facilitate identification⁷⁸⁹. The source also speaks of other types of signals placed in clothing and weaponry carried by commanders, as well as indications through hand signals or whips.

Although Vegetius dedicates himself, in a generalist manner, to the communication means used during land battles, most of these can also be applied to naval contexts, seeing as the communication methods identified in maritime context do not diverge greatly from the source. For this study's context, we shall consider as vocal signals the matters of language and communication on board, as semi-vocal the use of musical instruments, and as mute the use of flags, sails and lights. We shall also add a fourth way of communication: using the ships themselves as vehicles of transmission for greater distances or reconnaissance missions.

Before we begin our analysis of the communication means themselves, we shall make a quick re-approach to the matter of ship speed, to understand the need for celerity in the transmission of orders between the several elements of a ship. It would be important to observe each vessel individually regarding its dimension and skill of rowers, seeing as these influence the speed and, consequently, the maximum possible reaction time to transmit an order; however, as we've seen, experimental archaeology is still scarce in this regard. A ship from the Classical period would have had, at most, three vertical lines of rowers, and increasing the potency of a ship would have meant not added levels, but a greater number of individuals per level, unlike what is frequently shown in pictorial depictions⁷⁹⁰. As it is impossible to know the exact speed attained by each of the ship types we have observed above, especially when we intend to differentiate navigating under sail or oars, we shall return to the case of the *Olympias* once more. As we have observed, the *Olympias* has reached a maximum of 8.9 knots (1992 crew); in terms of acceleration, it reached 7 knots in 32 seconds⁷⁹¹. This means that the *Olympias*, at the height of its capacity, could reach about 3,5 to 4 metres per second, which is a significant number when the speed of a vessel is controlled by rowers. This velocity may have been superior in Ancient ships: crews were trained especially for this end, and the commanders had a better understanding of the working of ancient ships than researchers do nowadays,

⁷⁸⁹ Gouveia Monteiro's translation, note 153.

⁷⁹⁰ Pitassi 2011, 18-36.

⁷⁹¹ Morrison, Coats et Rankov 2000, 262-63; see also Rankov 2012.

as we have, so far, no complete exemplary of a trireme; one may add that it is possible the trireme was not the fastest vessel in antiquity.

There is, however, a factor to take in consideration, which is the weight carried by the ship: ancient warships would have been carrying a substantial number of infantry elements, and a quinquereme of the First Punic War period, for instance, would have had the capacity for 300 oarsmen and 120 warriors, thus 420 men per ship⁷⁹². One must also consider engines such as turrets, the weight they add to the ship and its influence during fast-travelling vessels. However, considering our referred average of 3 to 4 m/s, there is little time to transmit orders. The average reaction time of a young and healthy person is of about 0,15 to 0,45 seconds, which means that each member of the crew would have the capacity to receive and transmit signals in under a minute. However, the path an order would have to take during combat situations, from the deck to the lower levels, could not take longer than a few seconds, to ensure these would have been carried through before the ship lost its chance to attack, got attacked itself or accidentally hit an obstacle.

Following this observation, we proceed with the analysis of the communication means themselves. Before physical devices, one must pay attention to a more immediate component: speech. Out of all means, this is the hardest to study. However, it is possibly to verify that this would have been an area of great frailty in ancient fleets through records found in historical sources. One of them occurs during the Mithridatic Wars (*App. Mith.* 5.25): when Mithridates gets near Rhodes, the inhabitants decide to give battle but, whether because they realised their numeric inferiority or, as the source states, due to feeling apprehensive regarding the manoeuvres of Mithridates, they retreat into the harbour. A period follows of fast, short attacks from Rhodes, which ends in a larger battle that includes ramming⁷⁹³. The episode, which indicates a failure in communication, probably occurred in an advanced moment of the battle, after the formations had become undone and when the confusion would have been greater. That would have prevented the Rhodian fleet from acknowledging the location of one of their ships which, in the meanwhile, had been captured. To understand the situation, they would have sent six of their faster vessels (of an unspecified typology, but possibly small skiffs) commanded by Demagoras; the latter has to retreat, due to Mithridates' intense attacks.

⁷⁹² Polyb. 1.26.

⁷⁹³ Including, especially, triremes and quinqueremes, thus larger war vessels. See *App. Mith.* 5.24.

Then occurs the well-known episode we have found in previous moments. During this disorderly period, while Mithridates would have been sailing around in his quinquereme (that is, as a commander, he kept moving and thus had the possibility to give direct orders), an allied vessel of Chios would have collided with the king's flagship, which would have led him to subsequently punish both pilot and watchman. The visibility conditions are not referred, although it seems unlikely to have had a naval battle under adverse atmospheric conditions during this period, seeing the difficulties that ships faced already during dislocation; if there was good visibility, why would the ships have collided? On the one hand, the source refers to a situation of chaos, which may have worsened the pilot and the watchman's notions of space and time; on the other, it is possible that there would have been a failure in communication. Seeing the great speed that these ships could attain and the disorientation at hand, the orders may not have circulated swiftly enough between pilot and oarsmen.

One can also mention the importance of a crew whilst transmitting orders. The main elements in early periods would have been the steersmen («*kybernetes*» or «*gubernator*»), the watchmen («*prorates/proreta*») and the «*keleustes*»/«*pausarius*»/«*celeusta*», rowing officers. Ancient navies will develop several other officers, but these will continue to have the main functions, and the good communication between the three would have been essential⁷⁹⁴. The «*prorates*» had a particular function: as his place would have been the prow of the ship, he would have been responsible for observing the surroundings and warranting safe navigation, avoiding, for instance, rocks and shallows. The crew of Greco-Roman vessels appears to have organised itself in a relatively similar way throughout the centuries: the orders should circulate between the steersman, the «*symphoniacus*», the watchmen and the oarsmen. There would have been at least two leading figures, the «*prorates*» and the «*prumnetes*», at the prow and stern respectively; the steersman should dedicate himself to assuring the observation of the watchman was considered, whilst the «*symphoniacus*» would have marked the rhythm of the oars. As there were plenty of cataphract ships, the sound signals needed to travel through the whole ship and levels. As the crew of *Olympias* verified, even with the aid of modern sound systems, not only is it difficult to conveniently hear the time markings, but also to keep a rhythm. Sound columns needed to be installed throughout the trireme, which seemed to ease this difficulty significantly, but not completely, and for the time being one can only

⁷⁹⁴ Morton 2001, 185-86; Casson [1971] 1995, 300-302.

question, considering the technological level, how the «*symphoniacus*» made himself heard, especially during combat situations.

Aside from the immediate issue of order transmission, there is also the linguistic question. Armies in ancient times were not frequently homogeneous, and this is especially true with city-states that hire mercenaries. One can observe, for instance, the case of the Carthaginian army, which has, during the First Punic War, warriors coming from the Iberian Peninsula, the Balearic Islands, the Greek city states, Liguria, Campania, together with their Libyan and Numidian contingents⁷⁹⁵. One may question whether these individuals had a common dialect (in case they were experimented warriors and well-travelled mercenaries, it is possible that they had learned at least rudiments of several languages of the Mediterranean basin) or, on the contrary, if they had to resort to the efficiency of simple signalling, consisting of sound signals made through musical instruments or flags. In descriptions such as Polyb. 1.67, independently of signals being or not enough in battle contexts, it seems that linguistic heterogeneity within the army would have created moments of incoherence: the passage describes the great variety of people and languages and the difficulties it created.

Failing to communicate within a ship can be an even greater problem in what regards transmitting information within a fleet. During a battle, dispersion is frequent; during dislocation, distance between vessels can be even more significant. In this case, it is no longer an immediate question of speech or language, but mostly signalling. During the First Mithridatic War, a Roman fleet commanded by Flaccus and Fimbria was divided in two lines. The advanced line was, in great measure, destroyed by the Mithridatic fleet; the ships that were further back were not hit by the attack, but many were lost in a storm. The fleet, divided, departs from Brundisium in different moments, so one can question whether there would have been time for the commanders of ships that stayed behind to be informed of the Mithridatic attack, or if they had no knowledge of it due to the impossibility of warranting communication.

«Signalling and identification equipment consisted of flags and lights»⁷⁹⁶. As mentioned, the communication methods used by ancient ships are not comparable to their modern

⁷⁹⁵ Bagnall 2014, 25: the author considers that the Carthaginian armies are in such a way heterogeneous that each contingent remained isolated from the others due to religious and linguistic differences. See also Polyb. 1.67.

⁷⁹⁶ Casson [1971] 1995, 246.

counterparts. However, excluding digital communication, they use the same outputs: hearing and sight. They are, to an extent, a very simplified version of modern systems. The one which seems more frequently used is that of flags which, in this time period, was far less developed. These were used both in naval context and on land: one can give the example of the Battle of Selasia, where the attack signal used by the Illyrians would have been a linen flag, and the Megalopolitan signal a purple flag⁷⁹⁷. During the Peloponnesian War, Alcibiades would have used the same signal during a naval battle⁷⁹⁸. The purple flag, «*phoinikis*», was often used to initiate attacks⁷⁹⁹. In *De Bello Allexandrino* 45, the commander also uses a flag to communicate to ships when they ought to initiate combat. Lionel Casson states that different messages could have been sent through flags of several colours or through their position on the masts or «*stylis*», the smaller poles carrying identification standards⁸⁰⁰. One can observe, for instance, a situation told by Appian: when the fleets of Antonius and Ahenobarbus cross, a lictor of Antonius would have ordered Ahenobarbus' ship to lower its flag, which indeed happened; Ahenobarbus would have acknowledged Antonius' «*imperium*»⁸⁰¹. Through sources alone, one cannot have an exact vision of how a fleet would be organised in formation, but if this could be agreed beforehand, subsequent changes would have had to be communicated, and that could have happened through flags.

The white flag is acknowledged as a truce signal in the Hague Conventions of 1899 (chapter 3, article 32); this chapter states that the carrier of a white flag has a right to inviolability, unless there is a proven act of treason on his part (article 34)⁸⁰². Although this is one of the most well-known signals world-wide in the 21st century, there are few references to its use in ancient times. It is more frequent to find mentions to olive branches: during the First Punic War, Hecatompylus surrenders to Hanno showing him this sign⁸⁰³, and during the Mithridatic Wars the captives of Heraclea presented themselves in Rome with olive branches as well⁸⁰⁴. But if the white flag was not used in the same situations, it is likely that there would have been similar prototypes. The

⁷⁹⁷ There is an on-going discussing regarding the matter of colours and their correct translation. As this is not the purpose of our work, we point towards Bradley 2009 for more information on the subject.

⁷⁹⁸ Polyb. 2.66.

⁷⁹⁹ Casson [1971] 1995, 247, note 39. Diod. Sic. 13.46.3. Casson also exemplifies with Diod. Sic. 13.77.4. or Polyaeus *Strat.* 1.48.2, in which the purple flag is used to signal the triremes.

⁸⁰⁰ Casson [1971] 1995, 237, note 89; 346, note 9.

⁸⁰¹ App. *B Civ.* 5.

⁸⁰² See http://avalon.law.yale.edu/19th_century/hague02.asp (6-4-2016).

⁸⁰³ Diod. Sic. 24.10.

⁸⁰⁴ Memnon, *History of Heraclea* 24.

aforementioned olive branches appear in sources with the terminology of «*uelamenta*» and are often wrapped in wool⁸⁰⁵. In addition to the «*uelamenta*»; there is also a reference to «*infulae*», white wool cloths⁸⁰⁶. Therefore, in military contexts of Ancient times, white already appears as a sign of surrender. These situations refer to land contexts, however, and there are no specific mentions to the use of any form of white flag in ships. In naval contexts, there are other ways to show surrender. In the 17th century, for instance, the white flag was no longer used by the British and French fleets: the existence of several standards with white backgrounds created ambiguity, unlike the lowering of the ship insignias⁸⁰⁷. Ancient fleets may have sought methods to overcome similar issues, which explains the absence of signalling with white flags.

If, on the one hand, flags and standards are important to establish communication, they are also useful to identify a ship, something which seems more common. One can observe, for instance, Polyaeus' remarks: Cabrias, realising he was about to start a battle against Polis while near Naxos⁸⁰⁸, commands the captains of his triremes to lower the standards, in a way to facilitate a distinction between the enemy fleet and his own. This chapter shows, on one hand, the difficulty of acknowledging fleet members generated in naval contexts, as standards seem insufficient; on the other hand, it is also said to have been a stratagem. By making this acknowledgement impossible to the enemy and sailing without a standard, he would have managed to keep Polis from attacking his own ships, which would have kept sailing; as soon as they found themselves behind the enemy fleet, they could more easily attack it with their rams⁸⁰⁹.

Polyaeus says that Cabrias' stratagem would have granted victory. However, this raises several questions. The reasons that lead Polis to keep from attacking are unclear: perhaps he feared attacking allied ships or a pirate vessel. The period in which the stratagem is successful, thus, in which some confusion is generated, is uncertain, but it seems extensive enough for the Athenian fleet to sail through the enemy one. Equally relevant is a narrative by Tacitus at the end of the Batavian war: as the fleet of Cerealis met the

⁸⁰⁵ Libero 2012, 36.

⁸⁰⁶ Libero 2012, 36. Livy *Per.* 2.39, for instance, mentions priests with peace insignias that go to the enemy field; in 24.30, olive branches and «*uelamenta*». These are not specific naval circumstances, however. One can also observe Tacitus (*Histories* 3.31), where both signs are used at the end of the second battle of Cremona, during the 1st century CE.

⁸⁰⁷ Perrin 1992, 194-95.

⁸⁰⁸ The source does not explain how Cabrias becomes aware of the proximity of enemy ships, however, and it is unknown how the communication between the fleet's lines or within the fleet itself happens.

⁸⁰⁹ Polyaeus *Strat.* 3.11.11.

Roman fleet, the commander would not have been captured, as he would have abandoned the ship during the night and, in spite of not having returned, he would have left the standard raised. The men who captured the ship believed Cerialis was present and only realised their mistake later⁸¹⁰. His conduct seems to have been criticised by his own watchmen, which seems to show that, at least within this fleet, the standard would only be raised when the commander was within the ship.

Sails can also be used for identification purposes. Pliny states that the fleet of Alexander Magnus would have dyed the sails with different colours to facilitate the commanders their task of distinguishing between ships. Purple sails would also have been used by the galley in which Cleopatra sailed to accompany Antonius during the Battle of Actium⁸¹¹. This last case in particular raises doubts. By identifying her ship so obviously, it would be likely that Cleopatra would have attracted enemy commanders, and one may ask whether she would have put herself in such a vulnerable position. Unless all ships within their fleet had their sails dyed purple, which seems to go against the idea of the galley representing her royal status, one may question why an experienced military commander (whether Cleopatra herself or her subordinates) would have allowed easy identification of a flagship.

There are also references to using shields as communication and orientation systems. Xenophon states that heliographic systems would have been used, that is, light signals created through the sunlight's reflexion on the surface of a shield⁸¹². Another example that has been widely studied is the passage of Herodotus about the Battle of Marathon. Investigations disagree on the veracity of this account⁸¹³. One of the problems is that Herodotus mentions the use of a shield but does not specify how it is used, making the theory impossible to prove⁸¹⁴. In fact, there are far fewer references to using shields than there are to flags or sound signals; when one considers light signals of this nature, one must have into account meteorological conditions, although these would also present issues for flags⁸¹⁵. If this method was actually used, it seems to have been residual – in

⁸¹⁰ Tac. *Hist.* 5.22.

⁸¹¹ Plin. *Nat.* 19.5 and Plut. *Ant.* 26. The latter refers silver oars and golden canopies. Parker (2011, 13) speaks of the connotation of sails with the goddess Isis, and states that the colour purple is related to Cleopatra's royal nature.

⁸¹² Xen. *Hell.* 2.1.27.

⁸¹³ Hdt. 6.115.

⁸¹⁴ See, for instance, Lazenby 1993, 73.

⁸¹⁵ Holoka 1997; Gillis 1969; Fink 2014, 117; the latter has a summary of the several historiographic theories surrounding the question.

Herodotus' case, perhaps nearly symbolic, considering the attention that Greek historiography pays to the Battle of Marathon.

Aeneas Tacticus (4th century CE) also mentions several indications for the use of visual cues; although his work is dedicated more particularly to sieges, it has some important additions which may be correlated to naval matters. He states that signals should make anyone on the defending side approaching the city easily recognisable, and that during wartimes, warriors sent from defending cities (whether by land or sea – «*κατὰ γῆν ἢ κατὰ θάλατταν*») should not be moved until there was a prearranged and agreed signal which may allow them to communicate with the garrison, either during the day or the night, to avoid mixing friends for foes (4). The same importance is given to arranged signals in regard to individuals in scouting mission (this chapter indicates the existence of hand signals); guard posts outside of the city (with a particular distinction for the use of fire-signals during the night, by opposition to the signs used during the day; 6); the signals given to harvesters at sunset (which once again might include fire signals, 7)⁸¹⁶. All throughout the source, there is a prevalent idea that not only must there be a combined use of different types of signals to assure that there is no betrayal of the city to its enemies (physical gestures or sounds as well as lights, for instance), that light signals should be used in networks (both along the walls and the outer posts), and that the latter should have a priority use for the guards rather than the citizens during a situation of siege.

Aside from visual signals, there is sound. This can be used to communicate within ships and between ships and the coastline, as well as within the several elements of a ship, whether to give battle orders or mark the rhythm of rowers. Aside from these specific circumstances, sound signals also seem to have been useful outside of combat contexts, to give an information to large groups of individuals. See, for instance, Thuc. 6.32: during the Peloponnesian war and before the Sicilian expedition departed, the sound of a trumpet would have silenced men and signalling the beginning of libations and the «*paean*»,

⁸¹⁶ Other relevant mentions: during a siege situation, if signalled to do so, all the open shops should be closed and the lights put out, and the people should stay home; the prohibition of using light at night while going to sleep, as it was said to have been used in past occurrences to make light signals to the enemy (10); the arrival of messages from the outskirts through signals made by hand or fire (15); a reinforcement of the importance of using fire-signals in outskirt guarding posts (16). In case of there being no suspicion regarding those within a city, lights could be left at the walls, to signal any potential enemy approach throughout the night – the purpose would be to make the message reach the general, and if one light would not suffice, a network system would be put into work (22; see also 26). Another particular mention is in chapter 25, regarding other types of signals to be used during the night (namely sounds or gestures).

recited simultaneously by all present elements. Aside from their role in combat, the trumpets also had a symbolic function.

There are specific denominations for the musicians within the Roman army, which will remain throughout the Imperial period. A Roman ship would transport «*bucinatores*», «*tubicines*» and «*cornicines*», as well as the already mentioned «*symphoniacus*»⁸¹⁷. As far as the military instruments are regarded, one can speak of the «*salpinx*», a bronze tube up to 120 cm long, with a bone component and a bell-shaped format⁸¹⁸. Although this also appears in daily situations, the references to its use mostly appear in military contexts, and they usually appear represented in the hands of warriors, in red-figure ceramics⁸¹⁹. The «*salpinx*» is also used in land confrontation, and Diodorus Siculus speaks of several instances: Dionisius I of Syracuse would have used it during the siege of Motya, to announce the ending of daily battles⁸²⁰; Philip used it to summon the Macedonian army during wars with the Illyrians⁸²¹. Its equivalent Latin term is the «*tuba*», and both «*tuba*» and «*cornu*» would have been used in military context, frequently together; the former often appears to mark the beginning of a battle and the retreat, as well as entering and leaving a camp, whereas the «*cornu*» would have signalled the movements of standard-bearers and the general (thus, as Ziolkowski refers, the «*cornu*» would have been more used to signal the movements of closed formations⁸²²). Aside from the «*tuba*» and the «*cornu*», one can also find the «*litui*» and «*bucinae*»; the way both terms are used in sources raises doubts, leading researchers to question whether there is or there isn't an equivalence between instruments⁸²³.

Ships themselves are one of the most widely used methods to acquire and transmit information in naval means. In spite of Pitassi having written a subchapter in *Roman Warships* exclusively dedicated to the «*naues exploratoriae*» and «*speculatoriae*», the author himself states that one cannot affirm for sure whether there would have been a

⁸¹⁷ Amato 2009, 8-10. Greenough, D'ooget et Daniell 1898, especially the subchapters «The Music (XXXII-XXXIV)» and «The Officers and their Staff» (XXXV).

⁸¹⁸ Nordquist 1996. Krentz 1993, 112.

⁸¹⁹ Bundrick 2005, 42-46.

⁸²⁰ Diod. Sic. 14.52.

⁸²¹ Diod. Sic. 16.4.

⁸²² Ziolkowski 2002. The «*cornu*» wouldn't have been used by the Greeks.

⁸²³ See, for instance, Ziolkowski 2002 or Landels 2009. The «*cornu*» and the «*buccina*» are practically synonyms for Landels (179); Ziolkowski disagrees, stating that they would both be instruments of animal origins but subsequently developed different typologies (the «*cornu*» to address G-shaped instruments and the «*buccina*» for instruments played by «*bucinatores*»).

specialised typology⁸²⁴. It seems more likely that the terminology «*naues speculatoriae*» or «*kataskopos*»⁸²⁵ would have referred to any ship used for reconnaissance missions or fast transmission of information between the fleet. Casson also points the term «*tesserarios*» for the galleys used as «dispatch boats»⁸²⁶. For the period between the 4th and 3rd centuries CE, one can also mention the «*stratitotis*» (a type of trireme)⁸²⁷; during the Hellenistic period and within the light ship types, one can mention the fast and easily manoeuvrable «*lembos*»⁸²⁸, the «*myoparo*», the «*pristis*» and the «*triemiolia*». Casson goes as far as to include the triremes themselves: in far-back periods, when a fleet had a predominance of larger vessels (namely quadriremes and quinqueremes), it would be logical to use a trireme, smaller by comparison, to achieve these tasks. During the Roman imperial period, the *liburna* may have been used, and along these specific warships one can also mention the use of skiffs⁸²⁹. Baika considers that most of these ships would have been aphract, which would have made them lighter and faster.

As we will discuss lighthouses in the following chapter, we will not extensively digress on their characteristics here, but only state several examples in which light signals from lighthouses or towers are used as codes. There is the case of Polyaeus *Strat.* 6.2, in which Alexander of Phere sought information for his operations and created a system of light codes: if the enemy moved their ships, one tower would light up, towards Magnesia; in Magnesia, another tower would light towards Pagasas. According to the chapter, this operation is successful, although there are no more notices in this regard⁸³⁰. The source does not state whether these signals (and they're not classified as smoke) happen during the day or at night. At Euripides' *Helena* (Eur. *Hel.* 1125) there is also a reference to the use of fake light signals to drive enemy ships into the rocks; in this case it may be a literary device and a way to exacerbate a context, as it tells of a single man, Acheus, with a single ship, having destroyed on his own many of the enemy ships. However, it is a fact that the idea of using light signals to deceive was present in the minds of these individuals.

⁸²⁴ Pitassi 2011, chapter 6 (124-28).

⁸²⁵ Other terminologies would be «*phylakides nees*» (guardships), «*phrourides*», «*catascopum*». Baika 2013, 248-49.

⁸²⁶ Casson [1971] 1995, 135.

⁸²⁷ Casson [1971] 1995, 93.

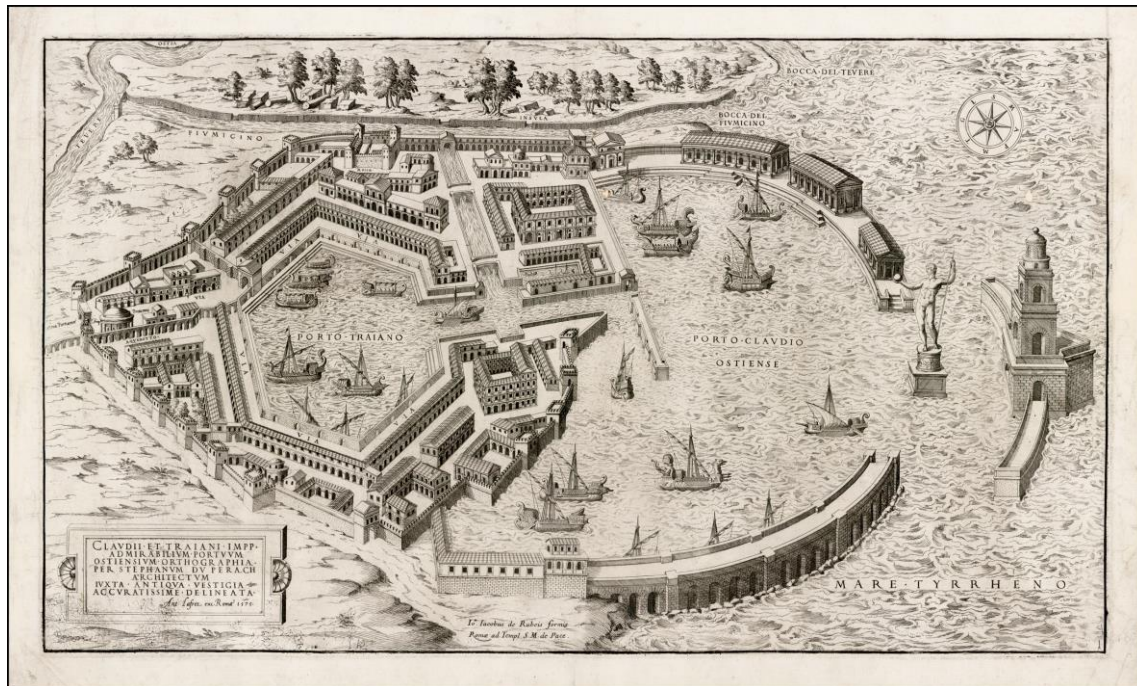
⁸²⁸ Casson [1971] 1995, 126.

⁸²⁹ Ex. Caes. *B Gall.* 4.26. See also Smith 1875, 786; Casson [1971] 1995, 248, note 93. They are also referred to as «*ephokion*» or «*epholkis*», «*akatos*» and «*skaphos*» (gr.).

⁸³⁰ Tuck 2013, 326-36. One may yet again point to Aeneas Tacticus and the set-up of light networks for communication.

III
HARBOURS

III. PORTUS: LIMES TERRAE AC MARIS



Claudii et Traiani Impp Admirabilium Portuum Ostiensium Orthographia Per Stephanum Du Perach Architectum Iuxta Antiqua Vestigia Accuratissima Delineata ... Map of the ancient harbours of Rome, 1575, Antonio Lafreri⁸³¹.

1. Studying ancient harbours: archaeological and epistemological difficulties

When Strabo made his description of the Italian Peninsula, he gave a comparison between the Greeks and the Romans. He stated that the former would have founded beautiful cities, well-defended due to their production, fertility and harbours, whereas the Romans would have built roads, aqueducts, sewers and roads. There seems to be a division between the two civilisations: on the one side there were the Greeks, builders of harbours, making their creations and intervening along the shoreline; on the other, the Romans, who would have created structures along the inland rivers and roads (Strab. 8). It seems that Strabo, whether consciously or not, made a distinction: the Greeks would have been the builders at sea, whereas the Romans would have been engineers on land. Although the exact timing of his writing the *Geography* is still being debated, it is generally accepted that the

⁸³¹ http://avalon.law.yale.edu/19th_century/hague02.asp

work was mostly created in the early decades of the 1st century CE, about the 20th year⁸³². This would mean that even after the death of Octavianus and Rome's naval exploits during the 1st century BCE it would still not be regarded as a sea-power by the entirety of the Mediterranean world, something which is visible in the works of this Greek-born author. However, this is the source's presentation of the matter. We can question whether it was biased, had underlying motivations or was considering mostly the facts occurred further back in History. Was the growing Roman presence at sea accompanied by further investment in assisting infrastructures on land?

In the previous chapters we discussed mobile physical components of the Roman navy, namely ships and the people who commanded them. However, ships and commanders are not always at work. Whether we are discussing river or sea craft, they both require land infrastructures to sustain them, both the shipyards where they are built and maintained and the ship sheds where they are stored, all within the larger defensive structure of a harbour. As mentioned by Lionel Casson, ancient harbours are a subject which still needs a significant deal of investment, and if there are works dedicated to particular locations, there is a growing number of information which is deriving, especially, from «underwater archaeology»⁸³³. The author acknowledged that it would be impossible to treat each harbour in a detailed manner within a single work; a study including all known harbours would certainly require many volumes, and that is not the nature of our investigation. Arthur de Graauw's 6th edition of the catalogue of Ancient Ports and Harbours, published in 2017, has listed, so far, four-thousand three-hundred and forty-two registered sites, which would be impossible to treat in a detailed manner in a single dissertation⁸³⁴. As harbours have an essential connectivity with any navy, both ancient and modern, it seemed appropriate to include them in this study; however, it was necessary to make options. Through specific entries on particular locations, we will attempt to give an insight on some of the port structures of the late Roman Republic and early Imperial Period.

Historical sources have little information to provide on this matter. The many mentions of names and locations are not usually accompanied by elaborate accounts, both regarding

⁸³² On this subject, see Dueck's detailed chapter on past and former views. Dueck herself concludes a date of 18-24 CE. Dueck 2000, 151.

⁸³³ Casson [1971] 1995, 361.

⁸³⁴ https://www.researchgate.net/profile/Arthur_De_Graauw/publication/317759145_Ancient_Ports_and_Harbours_Vol_I_-_List_of_ancient_ports/links/594d01820f7e9bc5c2639260/Ancient-Ports-and-Harbours-Vol-I-List-of-ancient-ports.pdf. See also and Chiara Mauro's <http://www.ancientgreekharbours.com/>, as well as Mauro 2019.

the harbours themselves and the process of building them. One of the few ancient descriptions regarding the construction of a Roman harbour is that of Vitruvius. In Chapter 12 of his fifth book in *De Architectura*, the source gives comprehensive information not only on how to build a harbour, but how to keep ships within during tempests⁸³⁵. According to Vitruvius, the most advantageous harbours and easiest to construct are *«naturaliter si sint bene positi habeantque acroteria siue promunturia procurrentia ex quibus introrsus curvaturae siue uersurae ex loci natura fuerunt conformatae»*: thus, those places which are protected by natural formations, with angles, curvatures and protruding spikes and promontories⁸³⁶. In this type of location, one would have to build *«porticus siue naualia»* and *«porticibus aditus ad emporia turresque ex utraque parte coloncandae»*; two towers protecting the entrance of the harbour, from which *«catenae traduci per machinas possint»*; chains would be attached and directed from one side to the other, and there would have been a good connection to the porticos and the commercial sector⁸³⁷.

On the other hand, under circumstances in which a location was not naturally protected (and the source includes the eventual defence of a river port), it would require more man intervention to create a safe anchorage. Vitruvius describes this in a particularised manner: *«sed erit ex una parte statio tunc ex altera parte structuris siue aggeribus expediantur progressus et ita conformandae portuum conclusiones»*; a construction could be raised near coastal areas by creating a wall towards the sea. This wall would have been made *«uti portentur puluis a regionibus quae sunt a Cumis continuatae ad promunturium Mineruae, isque misceatur, uti in mortario duo ad unum respondeant»*; by utilising a specific powder, found near the region of Cumae up to the promontory of Minerva, that would be called pozzolana. On the chosen location the builders would have assembled *arcae* with *catenae*, *«in aquam demittendae destinandaeque firmiter»*: wooden structures would be constructed underwater, kept together through chains, and the bottom of the

⁸³⁵ *«De opportunitate autem portuum non est praetermittendum sed quibus rationibus tueantur naues in his ab tempestatibus, explicandum»*.

⁸³⁶ In this case we are following Maciel's translation (Maciel 2006).

⁸³⁷ Our study will mostly focus on harbours as an infrastructure where ships are built, repaired and kept; therefore, it will not be deeply dedicated to the commercial potential of a harbour. On this subject, see, for instance, the recent studies by McCann 2017 and Wilson et Bowman 2018. Another point which can be made regards the spatial division within Ancient Harbours, which had different sectors devoted to activities other than those related to the naval sector, as will be verified below through iconographic evidence; this is also mentioned by Bouras, who states that «the number of harbour basins that the city possessed was mentioned as well as the fact that it was <closed> with chains, since the λιμὴν κλειστός is an attribute of a city with naval power (...); the different activities present in harbour spaces are geographically separated». Bouras 2014.

water would have been flattened and cleaned through planks; afterwards, the pozzolana would have been assembled within the structures, together with *caementa*, small stones: *«deinde inter ea extrastilis inferior pars sub aqua exaequanda et purganda»*; *«caementis ex mortario materia mixta, quemadmodum supra scriptum est, ibi congerendum, doneque compleatur structurae spatium, quod fuerit inter arcas»*. Through the mixture mentioned above and other components, the wall would thus be raised from underwater.

Vitruvius also presents alternative methods. Such is the case of *«propter fluctus aut impetus aperti pelagi destinae arcas non potuerint contineret»*, i.e., if the wooden structures could not be sustained against the currents, the harbour would begin its construction from land and into the sea with the aid of sand along the foundation structures. Whenever the pozzolana was unavailable, the harbour walls could be built *«ex caementis calce et harena»*, with the additional use of *«palis ustilatis alneis aut oleagineis configantur et carbonibus compleantur»* (wood hardened by fire), and only then filled with *quadrata saxa*; through sand and wooden pillars, one could advance into the water. This should be made in such a way that towers could be built on top of the harbour walls. Following these steps, the source gives one last indication regarding the building of the *naualia*, which should follow the rules *«his perfectis naualiorum ea erit ratio, ut constituentur spectantia maxime ad septentrionem»*: constructions turned to the north, to protect the vessels from *«cariam, tineam, teredines, reliquaque bestiarum»*, rotting through heat, weevil, amongst other potentially harmful wood diseases. At last, the ship sheds should be built *«aedificia minime sunt materianda propter incendia»*, with minimal wood in order to limit the danger of a fire, and *«sed faciunda ad maximum nauium modum, uti, etsi maiores naues sobductae fuerunt, habeant cum laxamento ibi conlocationem»*, the harbours should be built with no limits to their dimension and according to the maximum size of the ships, in order to allow for easy and vast storage in the dry.

This description only partially corresponds to our knowledge of ancient harbours. How much of it was followed and how much is it an idealization? Two factors seem to be underlined, both related to the same point: a harbour is a defensive, protective structure. Whereas the walls were built to protect the area, the ship sheds were meant to protect the ships, first and foremost, and yet, as we have observed in the previous chapter, there were many different typologies of vessel in use, with different sizes, functions and maintenance needs. This would result in different types of ship sheds as well as harbours. In Vitruvius,

we only observe instructions for those harbours which required significant man intervention; however, this may not necessarily be the norm.

Salomon et al. underline the «multiplicity of harbour types, as well as their synchronicity, diachronicity, and their hierarchies», seeing as «many modalities for ships coming alongside a shoreline could coexist in a similar period and in the same harbour system»⁸³⁸. Navigation was a constant in ancient times, but not all locations had large-scale harbours readily available, and thus different options would have to be taken to provide shelter for different types of ships. An example is in the *Fragmenta* by Diodorus Siculus, where a chapter mentions the differences between what could be done for vessels of different sizes: in the absence of a man-made harbour, stationing a ship would depend on the topography of a region, and if the light boats (*«κουφώτατα τῶν πλοίων»*) could be brought to the shore, the larger often could not, especially if the water was too shallow (Frag. 1). This is the first point that may be argued alongside Vitruvius: the source states that ship sheds had to be abundant to store all ships, but this is an ideal and not necessarily applied, as plenty of ships could be brought to the shore with relative ease. Diodorus does not, however, give us indication as to the storage of these smaller vessels, or whether bringing them to the shore would have been a temporary solution.

As pointed by Oleson, current historiographical discussion regarding Roman harbours is often divided between very detailed reports of archaeological works in specific sites and the analysis of harbours in a perspective with a focus on «social and economical» factors. This statement, published in 1988, illustrates a problem still valid in 2019, and there are few examples of Oleson's suggested focus «on the Roman harbours themselves as centres of technological activity and innovation»⁸³⁹. Thus, it is difficult to answer to the questions posed by information such as that provided by Diodorus, especially when placed beside that given by Vitruvius, and studying ancient harbours nowadays, especially when one wishes to observe them in connectivity to the navy, often provides more questions than answers.

When a ship is stationed in a harbour, it is usually for one of two reasons: it is either unloading cargo or waiting for repair⁸⁴⁰. As stated by Oleson, it was necessary that a harbour provided appropriate lodgings to store ships, which he calls «the largest and most

⁸³⁸ Salomon et al. 2016: 1.

⁸³⁹ Oleson 1988, 147.

⁸⁴⁰ Oleson 1988, 147.

complex machines known to the ancient worlds». Ships fared considerably better when sailing than while awaiting missions on land, where they were subjected to deterioration⁸⁴¹. The sort of materials used in ancient harbours thus had to take in consideration what would be best for preserving the ships, although this factor was possibility not as strongly influential in smaller sites with little or no protection, others with mainly «local» significance rather than insertion in larger complexes, «river harbours» or older stations, either «Bronze Age Near Eastern» or «Classical Greek facilities» which endured and thrived throughout the period of Roman domination⁸⁴².

In spite of the great number of harbour studies mentioned by Lionel Casson, which only seems to grow as new technologies appear, the abundance of Ancient Harbours does not immediately result in fewer difficulties whilst studying the matter. Parker states that ancient Greek and Roman harbours made either of «stone or concrete» can be considered as some of the most remarkable lasting architectonic evidence still observable today; however, he adds that the number of «monuments» which would have been visible and in use in the ancient times is significantly reduced today. According to the author, this is justifiable through the «tectonic instability of the Mediterranean region», the degradation caused by waves, the rebuilds that may have happened through time in places where harbours maintained their use, or their burial inland through «silting»⁸⁴³. The fourth issue is particularly relevant, as many of the large harbours in the Ancient Mediterranean kept their communities through the centuries, and thus significant portions of what may have been ancient structures have probably been reused or buried underneath several centuries of other works. Therefore, there is a significant number of Ancient Harbours that did not reach the 21st century in a state of preservation that will allow for significant conclusions.

Equally an explanation for the absence of material evidence at some locations is a factor we already mentioned in relation to ships and their anchoring. As stated by Parker, it was not always necessary for vessels to have man-made structures to use as harbours, something especially valid in «pre-classical times»; they could be pulled ashore on beaches, a «rock-bound creek or cove», places naturally protected and for which it would be difficult to find archaeological traces nowadays, with the added factor of the changing

⁸⁴¹ One must mention, however, and as verified in chapter II, that ancient ships were always subjected to deterioration, whether on land or at sea; the latter, however, may have been slower, but the timber was always under the danger of the *Teredo Navalis* and other parasites.

⁸⁴² Oleson 1988, 148.

⁸⁴³ Parker 2006, 135.

coastal lines. This does not apply to the larger vessels of later periods, as seen by the development of harbours when ships «became too large to be beached conveniently», but «not till the classical period can one identify the moles, quays, lighthouses, boathouses and warehouses which are the mark of a port». By the late 2nd century BCE, which is the time period in which our study focus begins, harbours would have established themselves as common facilities, but one cannot dismiss the times in which vessels (especially those other than warships, including smaller transport vessels) would not be anchored in a man-made harbour even as late as this chronology⁸⁴⁴.

Lionel Casson elaborated on ancient terminology used to describe the several sectors of these defensive structures, but his descriptions focus mostly on the Greek ship sheds, seeing that «of Roman *naualia* we know very little». The harbour («limen») was provided with «strong moles (*chomata*)» from the beginning of the «Classical Age». It was «equipped with the quays, open sheds, and warehouses needed for a commercial port (*emporion*) or the boathouses and gear sheds for a naval base (*neorion*)», protected by «massive defense towers» and a «town wall», which created a «*limen kleistos* (“closed harbor”)⁸⁴⁵». Although it has been discussed whether the warships were stationed in high sea, in the long run, ideally, a warship would be «kept as dry as possible», thus leading to the creation of «boathouses (*neosoikoi*)» in the «ancient naval base (*neorion* or *neoria* in Greek, *navalia* in Latin)». The term *naualia*, however, can be used in a wider context. In Caes. *BGall.* 5.22, for instance, it is used to describe a temporary ship stationing point, rather than a traditional, close-walled ship shed in a harbour; this improvised station was one in which ships were being kept and also repaired⁸⁴⁶. The usage of the term to describe a temporary naval station also seems present in Liv. 29.35, where it is stated that «uno uallo et naualia castra amplexitur»; both the land fortifications around the camp and the vessels would have been protected by the same lines of defensive palisades. There would also be «gear sheds» to store «the galleys’ lines and canvas».

Therefore, the *naualia* of Lionel Casson’s study are mostly those found within the harbours themselves, as it is in this subject that his chapter focuses, but the word seems to have been used intermittently for naval matters⁸⁴⁷. As far as they are regarded, the

⁸⁴⁴ Parker 2006, 135.

⁸⁴⁵ Casson [1971] 1995, 362-63.

⁸⁴⁶ «*Cingetorix, Carvilius, Taximagulus, Segouax, nuntios mittit atque eis imperat uti coactis omnibus copiis castra naualia de improviso adoriantur atque oppugnent*».

⁸⁴⁷ In the early Middle Ages, Maurus Seruius Honoratus wrote in his comment to the Aeneid, «*navalia enim non esse ναπηγία sed νεώρια*»; the distinction between the two terms seems blurry in the Liddel-Scott

author underlines the well-preserved *naualia* at the Bay of Zea in the Piraeus⁸⁴⁸, made to store triremes, which would have been «partly cut out of bedrock, partly built up with blocks of local stone», and of which the «essential ingredient was a stone slip, ca. 3 m. (9' 10'') wide, on which the ship rested». Following Casson's analysis, the ship sheds themselves would have had a slope with a smooth gradient which led down into the water, flanked by several columns made of stone which, in turn, would have held the roof, made of «wood and tiles»; there would have been lines of columns of different sizes («alternated in height») to permit the application of a «pitched roof», which, in turn, would assure proper air circulation. The «landward end» would have been closed by a wall, made in stone and uninterrupted, and along this wall there would have been «occasional access doors». Ships, «mast, yard, poles, ladders, oars» would have been stored together, the equipment «either alongside or, more likely, in racks overhead»⁸⁴⁹.

dictionary, with the former being described as a «shipbuilder's yard, dockyard», and the latter exclusively as a «dockyard». It seems that Maurus is associating the terminology to the port rather than to shipbuilding, later writing «*navalia demus hoc loco ipsae res navales sunt, id est pix, cera, funes, vela et alia huius modi. 'navalia' dicimus loca ubi naves sunt; sed modo de Graeco transtulit et 'navalia' posuit pro trabibus de quibus naves fiunt: nam Homerus νῆϊον dicit navale lignum*». The «navalia» is thus the location where the ships are, rather than the specific part of a harbour where they are being repaired or built. Even if this is a later source, it indicates that the *naualia* came to be identified as the location where the ships and respective materials were kept, clearly establishing a distinction between those and the shipyards. Serv. A. 11.326.

⁸⁴⁸ For in-depth studies on the Zea ship sheds see, for instance, Pakkanen 2013, who gives an estimate of nearly 200 ships being stored in Zea (58) and is in accordance with the data presented by Casson: «the slight inclination of the Phase 1 slipways certainly follows closely the natural slope of the shoreline of the harbour» (59); there would have been a mixture of bedrock (limestone), building blocks carried from the quarries and timber, most likely carried from Euboea (61). Pakkanen explores all three stages of constructions at Zea; at phase 1, the «slipways could have been constructed in eighteen working days» (63).

⁸⁴⁹ Archaeological evidence at Zea, therefore, does not seem far away from that of Vitruvius: predominant stone use with some timber inclusion and an attempt to keep ships dry and well-ventilated. It must be noted that Vitruvius does not give information regarding the uneven roofs.

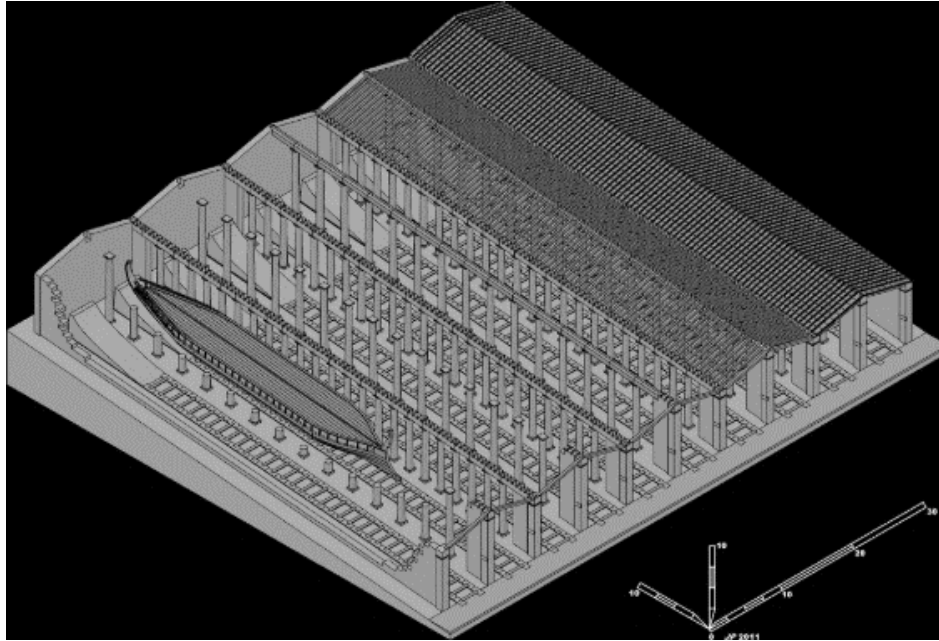


Fig. 60, as seen in Pakkanen 2013, 69, described as an «isometric projection of the three-dimensional digital reconstruction of a ten-slipway Phase 3 shipshed complex at Zea».

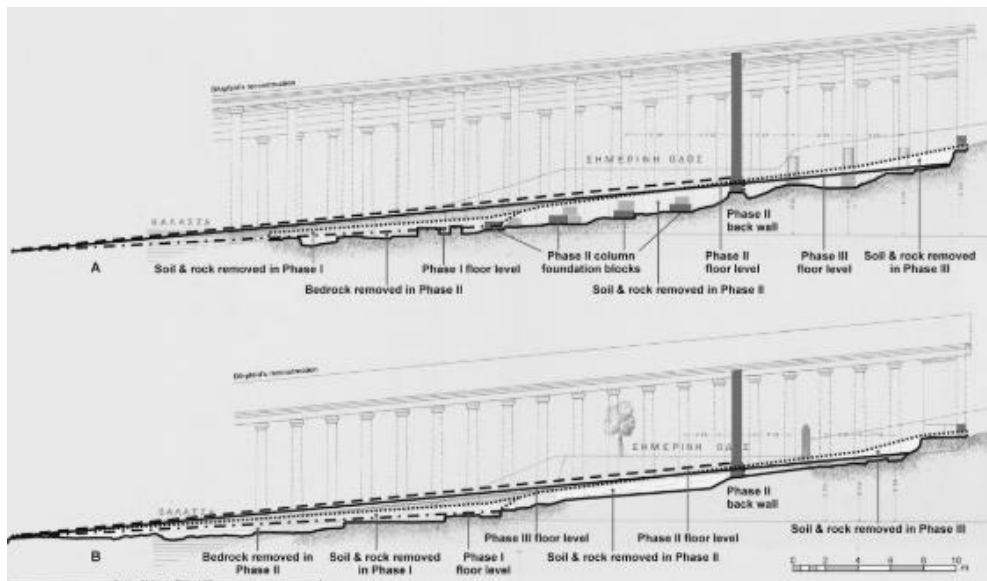


Fig. 61, as seen in Pakkanen 2013, described as a «composite section of the shipsheds at Zea (J. Pakkanen, based on Dragatsis 1885 and Lovén 2011).

In Livy, the *naualia* would have also been the «ship sheds of the war fleet along the left bank of the Tiber», with the original having been «in the lower Campus Martius opposite the Prata Quinctia»⁸⁵⁰. These *naualia* would have developed over time, «as need arose». Livy makes more uses of the word *naualia*, with examples being found, for instance, in

⁸⁵⁰ Richardson 1992, 266.

44.6 («*quae ad Phacum pecunia deposita erat, in mare proiceret, Thessalonicam alterum, ut **naualia** incenderet, misit*»), 44.10 («(...) *Thessalonicae **naualia** iusserat incendi*»), 8.14 («*naues Antiatium partim in **naualia** Romae subductae, partim incensae*») and 45.27, with a mention to the Piraeus in which there is an indication of the harbour being connected to the city in itself: «*Athenas inde plenas quidem et ipsas uetustae famae multa tamen uisenda habentis, arcem, portus, murus Piraeum urbi iugentis, **naualia**, monumenta magnarum imperatorum* (...)». A similar circumstance to 45.27 is found in 37.11, where the two terms, *portus* and *naualia*, will appear: «*classem instructam paratamque in **portu** stare; remigium omne Magnesiam missum; perpaucas naues subductas esse et **naualia** detegi*».

Caes. *BCiv.* 3.112 uses the word *portus*⁸⁵¹, which seems to be a term that designates harbours more explicitly, judging by the fact that it is this word that will later be used to name, for instance, Portus Iulius, Portus Claudius and Portus Tiberinus.

2. The Harbours of Rome

Whether a harbour can be called «Roman», or even how or when in History can a harbour be called «Roman», is a question with nuanced replies. As mentioned in earlier chapters, Rome is, first and foremost, connected to the river rather than the sea; in the early years of its expansion, it develops into the Italian Peninsula, with its first large-scale overseas enterprise only beginning in the mid of the 3rd century BCE, during the 1st Punic War. Under these circumstances and observation, it can thus be considered that actual Roman harbours are in a fairly reduced number, with most having been incorporated into the empire rather than developed by Roman initiative; they are, rather, harbours under Roman influence, which may or may not have received Roman investment along their history. An example of this singular situation is the fact that out of two of the major on-going archaeological works in Roman harbours across the Mediterranean, neither lies within the Italian Peninsula itself: as stated by McCann, these are the ancient harbours of Carthage in Tunisia, which has been excavated since 1970, and Caesarea, Israel. The first one was

⁸⁵¹ «(...) *quod arcis tenebat locum aditusque habebat ad **portum** et ad regia **naualia***»; in this context, «*naualia*» does not stand on its own as a noun, but as part of «*regia naualia*», thus unrelated to its use as «harbour».

incorporated into the Roman overseas empire through conquest and undergone renovation and changes in the following years⁸⁵²; the latter was built in the late 1st century BCE, and even if the region was already under Roman domination, the initiative for its construction was of king Herod, rather than Roman authorities⁸⁵³.

When did Rome begin to develop an interest in harbour infrastructures? As early, or as late, as 341 BCE, during the consulship of C. Plautius and L. Aemilius Mamercinus, there is a conflict with Priuurnum, which resulted in a Roman victory. This led to several cities having to pay war tributes, among which is Antium, which lost several vessels to Rome. These vessels, as mentioned in Liv. 8.14, would have been taken into the *naualia Romae*, which means that some sort of port structure would have existed during this time period; however, it is also said that *partim incensae*, some of the other vessels would have been burnt, resulting in their *rostrae* being taken to the Forum and placed there (thus giving origin to the *Rostra*).

Burning valuable resources may have meant that the Roman *naualia* in the mid-4th century BCE was still not very developed and far from the standards of its Greek counterparts. To destroy such an expensive structure as a warship (as shown in Chapter II) is an option that ought to be analysed, as well as the Roman motivations behind it. The assembling of the bronze rams in the Forum may be an element representative of power and victory; however, they are not an easily attainable instrument, rather one that requires specialised handcraftsmanship to make and economic investment. To have them rendered as a decorative, symbolic element may represent the power of Rome, and have a message of a city so wealthy and with such military prowess that it could afford to erect such monuments without a real deficit, but it may also mean that the city itself did not have the means to sustain all the warships that it gained, and this issue may derive not only from the most immediate problems of a lack of crew, but especially of a lack of harbour infrastructures and ship sheds where they could be stationed. This seems to have some sustain in the mention of the ships being destroyed and burnt, rather than have their timber

⁸⁵² Hurst 2008: 53. «The two man-made harbours result from the excavation of coastal sediments probably at a date close to the end of Carthage's independent existence in the middle of the 2nd century BCE»; afterwards «the Ilot de l'Amirauté at the centre of the Circular harbour became a monumental colonnaded piazza in the later 2nd century AD or later, with a temple and octagonal buildings at its centre»; there is also the hypothesis that «the Ilot was a commercial harbour market place, in which *Annona*-related goods were also handled, and that craft production on the harbourside site was also in the first instance for commercial ends».

⁸⁵³ McCann 1987, 10.

reutilised for other purposes: ship timber is especially chosen and worked for that intent, and the most logical repurposing would be to build other ships or repair existing ones. Whether the issue was lack of space within the harbour or lack of specific structures inside is difficult to know, but it is possible that the reasoning behind this destruction is related to the absence of proper storage for vessels. This would mean, therefore, that as late as the mid-4th century BCE Rome did not have significant investment in port infrastructures on its own, which is in accordance to the one-century distance from its first significant naval exploit.

There is a detail in Dio Cass. 48.49-50 that seems to show the general status of harbours across the Italian Peninsula in the late 1st century BCE. During the later civil wars, there would have been a shipbuilding program initiated by Octavianus and complemented by Agrippa. This program would have resulted in a large number of ships built over two years. The source mentions that, at this time, there would have been a considerable lack of secure places to station this fleet and mentions that most of the peninsula itself would severely lack in man-made harbours. This detail makes for several possible interpretations. The most immediate one seems to be that even if there were several ships circulating in trade routes across the Mediterranean and the Adriatic, these would not have the characteristics that ordinarily command for harbours and ship sheds, or the Italian coastal harbours would have been naturally prepared for them; this is even more true for warships, which, as has been stated above, would have required particular conditions to be kept during the periods of not being in use. Thus, these ships would have been anchoring in unprotected sites⁸⁵⁴.

This apparent lack of harbours also seems to be a reason that justifies an occurrence which was often verified: the occurrence that follows the Roman victory against Priuurnum is not an isolated case and, upon capture, it was not infrequent for enemy vessels to be destroyed and even burnt. Although there is more than one possibility to explain this, the lack of a place to station these ships after the war may have been one of the motivations behind these shipbuilding programs, which would therefore intend to fix an issue which was more Italian than Roman, seeing that not even the harbours in the Roman vicinities

⁸⁵⁴ Which seems contrary to the reinforcement of the harbour of Ostia in the mid-1st century BCE, as will be observed below. Perhaps the strategic importance of Ostia justified what seemed needless in other sites, or perhaps natural harbours had temporary ship sheds made of materials which easily deteriorate or are reused, like timber.

would have provided enough ship sheds⁸⁵⁵. As Rome had been involved in naval confrontations all throughout the earliest half of the 1st century BCE, one cannot state that there would not be any need for naval infrastructures before; however, this seems to be an occasion where there is a sudden increment of the navy, which may not have been verified to such a large and fast scale in early periods. The number of vessels being produced must have been significant enough to justify the following steps of Agrippa, who, seeing that there were not enough support infrastructures to sustain this rapid growth of the Roman fleet, would then implement a harbour construction program. One must notice as well that ships were in fact being built, which means there would have been shipyards, even if improvised; only not plenty of ship sheds and protective walls around anchorages.

The matter of Agrippa's investment in a new harbour is described at length by Cassius. The source itself acknowledges it and goes as far as to dedicate a sentence to justify it, seeing this large enterprise would have had a significant impact which would have lasted to his day. He begins by describing the region: in Cumae, between Misenum and Puteoli, there would have been a geographic area in the shape of a crescent, which would have been surrounded by mountains; this would in turn have formed a natural bay. Along this region there was lake Lucrinus, surrounded by the sea on both edges; on this lake Agrippa would have ordered the building of channels, and it would have been on these that the new harbours would have been produced⁸⁵⁶. Thus, Agrippa would have taken advantage of the natural geography of a region to design a new safe location for the latest ships, which would have been protected from sudden attacks by being retired from the main bay into the man-built channels.

The description will be seen again in Flor. 2.18.3: «*Lucrinus lacus mutatus in portum eique interrupt medio additus est Auernus ut in illa aquarum quiete classis exercitu imaginem belli naualis agitare*». Through the connection of the lakes Lucrinus and

⁸⁵⁵ Perhaps Agrippa's intended construction of a harbour, however, followed different motivations, from a need to create a harbour within greater proximity or the elevation of Rome in naval matters in the eyes of its contemporaries. The Italian Peninsula in itself may have been sufficiently provided, just not for the specific needs of a war fleet in the nearby territories.

⁸⁵⁶ The building of Portus Iulius in 37 BCE would have resulted in a «military harbor» close to the seashore, with a «military shipyard» built «at the base of the narrow crater» and «a canal» which was «dug to connect Lake Avernus via Lake Lucrinus to the harbor and so to the sea». This would have caused significant environmental impact up to Cumae, with «the famous pine forests along the coast of the Tyrrhenian Sea (Gallinariae sylvae)» cut. This harbour would have been in use for «two decades» and «closed under Augustus (27 B.C. – A.D. 14), who rededicated Avernus to cult and religion». See Gröger et al. 2002, 241-43.

Auernus, not only would the ships have gained a harbour, but also safe room in which they could perform war exercises. This matter is seldom mentioned; an ancient warship was an intricate war technology that would have involved training crews⁸⁵⁷, and there are several mentions of them being trained on land to master the oars; however, there are not plenty of references to exercises taking place at sea. This singular mention by Florus may indicate that there would have been other circumstances in which naval war training would have occurred within the enclosed and safer space of a harbour.

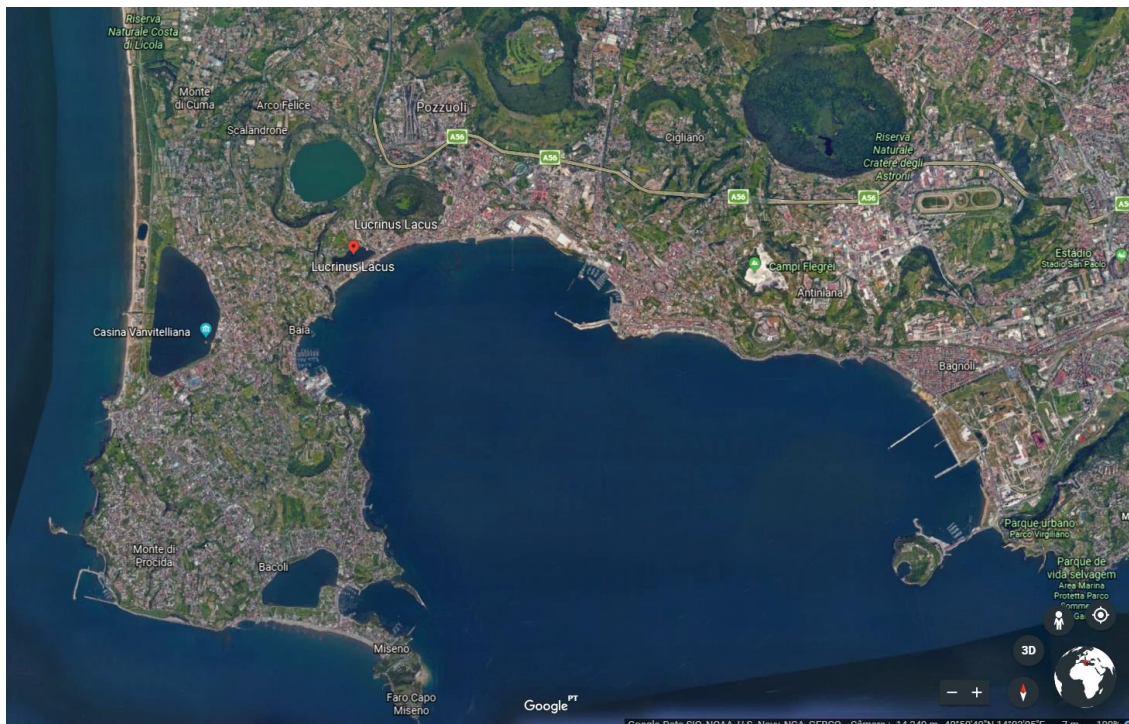


Fig. 62. A Google Earth image of Lake Lucrinus⁸⁵⁸, showing Lake Avernus, modern-day Baiae and Pozzuoli. To the right, the Vulcano Monte Nuovo, and right beneath one can observe the underwater remains of Portus Julius. Lake Lucrinus would have been significantly larger, which, together with Lake Auernus, would have provided good natural protection against attacks; the site itself is already shielded by a small peninsula. The channels are no longer observable⁸⁵⁹.

Amongst several characteristics of the region, one is that it would have been a known location of natural springs; these springs, according to Cassius, would have allowed the

⁸⁵⁷ See, for instance, Polybius' account of the first Roman shipbuilding enterprise in Polyb. 1.21, in which the crews are firstly prepared on land, settled as they would have been within the vessels themselves, together with the flute players (keleustes); these exercises would mostly be used to teach the crew timing techniques for rowing.

⁸⁵⁸ Much diminished from its original size, as seen by the map presented in Grüger et al. 2002, 242.

⁸⁵⁹ On the archaeological sites of Baiae and Portus Julius see, for instance, Russa et al. 2015, which dedicates itself to archaeological materials (namely mortar samples), and Stefanile 2012 on the preservation and archaeological works. What these studies show, above all, is the need for further investigation, especially seeing that attempts at preservation are still relatively recent, with the site only taking partial protected status in 2001 (Stefanile 2012, 30).

local inhabitants to create steam baths within their houses. The steam produced would have been used as a cure for illnesses. Even if the new military harbours were being built to keep the new Roman fleet, one can question whether this would have had a secondary intention of developing the city's flow of visitors for medical purposes⁸⁶⁰. The source makes no mention to the building of any other harbour by Agrippa; if they were built mostly for the purpose of storage, one can question whether the channel openings would have been sufficient to keep the new fleet.

The apparent lack of heavily fortified harbours along the Italian Peninsula, considering the great number of coastal cities which are to be found along the shore, may not be exclusively related to the lack of naval investment on the Roman side; on the contrary, it may indicate a lack of naval exploration of the Italian shores by other city-states. If there was a scarce possibility of warships sailing the Italian coastline, there would not have been a great defensive need to justify the building of heavily walled harbours and shipsheds to store warships⁸⁶¹; the time-frame of the late 1st century BCE, with Sextus Pompeius frequently stationed in Sicily with his fleet, may have been one of the first occasions in which the Italian shores truly felt the need to create defensive sea structures, resulting upon harbour construction programs even after the civil wars with Sextus had reached their end as preventive measures against any such future endeavours by other commanders. The sources do not focus on the Italian Peninsula, however, but only at the new harbours of Rome; but it is possible that these were allied to the increment of walled harbours along the Italian coastline or, at least, that defensive measures were being taken.

The Augustan period will be one of transition and transformation of several structures, and that will also translate itself to harbours. One of the most notorious examples is the Portus Iulius, not only due to the investment in cause, but due to its construction in the shifting chronology between the 1st century BCE and the 1st century CE⁸⁶². Portus Iulius was built as a «military port» and absorbed the fleet formerly stationed in Misenum⁸⁶³. It is one of many cases of harbours built with hydraulic concrete and was one of the targets

⁸⁶⁰ This seems unlikely, as Portus Iulius was only in use for a short period of time, and one cannot dismiss what has been already stated in note 41 regarding the connection of Lake Auernus and religious activities.

⁸⁶¹ Polybius states that Rome would never have had a quinquereme prior to the 1st Punic War, which leads to questioning whether this would also have been true regarding the other Italian city-states. It may be an indication of the lack of harbours and ship sheds.

⁸⁶² Illiano 2017: 379.

⁸⁶³ Illiano 2017: 379.

of the ROMACONS project⁸⁶⁴. Brandon et al., who presented the results of their study in a 2008 article, place the potential dating of this harbour at 37 BCE⁸⁶⁵, which would make its construction contemporary to that of Nisida; the authors state that «a fragment of wood from the formwork» regarding the «pilae» would have «yielded a C14 date of c. 50 BC». This article gives emphasis to a detail that is seldom specified, although it can be observed in several other studies through particular attention to measurements, which is that the «pilae... were not individually or collectively uniform» and that even when they were «clustered together» their sizes would have varied and the measurements of their sides would not have been uniform⁸⁶⁶; the reasoning behind this is still unknown.

Brandon et al. establish a comparison between the harbours of Portus Iulius and Baiae, which seem to have relatively similar dimensions. Baiae, built «around a natural lagoon» in a volcanic area, is one of the several harbours in the area of Napoli which is underwater nowadays. It would have been defined by a «northern mole» 209 metres long and a «southern or port mole» of 232 metres, at a width of 9.5 metres and with a 32-metre-wide channel; the «concrete is at least 2.3 m thick»⁸⁶⁷. In Portus Iulius, one finds moles of «over 220 m long» and «between 20 and 30 m wide with a channel width of 40 m», thus showing that the length of the moles would be similar, whereas the width, both of moles and channels, is significantly larger in Portus Iulius. Through a materials' analysis they were also able to verify the specific components of the mortar, and it seems that it would not only be variable from harbour to harbour, but also within the same harbour: the mortar in Baiae, retrieved from sample 1, is «very variable in consistency and quality», and «in the lower level appears washed out of the micro-aggregate»; whereas samples 4 and 5 from Portus Iulius show a case in which there are both «occasional lime inclusions» and mortar which is «low on lime».

The historical data for harbour construction during the early to mid-first century BCE is considerably less prolific, and it would seem that the development of harbours would not have been something Rome would be investing in (at least not in a large scale like the latter half of the century), but rather something that the city-state would be struggling with and having to fight against. The issues with Cilician pirates were not exclusively

⁸⁶⁴ «(...) established in 2001 to study the development and application of Roman concrete in maritime settings». Brandon et al. 2008: 374.

⁸⁶⁵ Brandon et al. 2008, 375 (apud Scherling's entry in the 1953 *Realencyclopädie der classischen Altertumswissenschaft* and quoting Suet. Aug. 16).

⁸⁶⁶ Brandon et al. 2008: 376.

⁸⁶⁷ A data they achieve from Scognamiglio 2002.

derived from their naval capacity, but also their fortification of several coastal areas. Plut. *Vit. Pomp.* 24.3, for instance, mentions the existence of several fortified harbours (ναύσταθμα) accompanied by beacons (Φρυκτώρια), which may indicate a growth of support land infrastructures during this time period on the side of these communities rather than Rome. This would eventually be accompanied by the capture of four hundred cities (Plut. *Vit. Pomp.* 24.4.4), which would have provided additional support to the fortified ports. Following Pompeius' successful campaign against piracy, and according to Plut. *Pomp.* 49.4, he would have received the command of the λιμένες and ἐμπόρια, both the ports and the trading-posts. Thus, the former pirate fortifications enter the Roman domains, and there is thus a seeming privatisation of harbour organisation, upon which a single individual would be benefitting.

The two larger facilities built during the late 1st century BCE and the early 2nd century CE are both related to Ostia, working as extensions of the early harbour. As mentioned by Salomon et al. (2012), throughout the Roman Empire, Portus became a core sea harbour of Rome, the construction having started in 42 CE during the reign of Claudius; thus, it began three decades after the death of Octavianus. Three kilometres to the North of Ostia and «on the margin of the Tiber», it would later be accompanied by Trajan's addition⁸⁶⁸. Trajan would have engaged in several modifications to Portus Claudius, and although all have occurred in a much later period than that which was proposed for this study, they will be briefly included, considering how they became important centres of the Roman harbour life and were connected to the original Claudian port. According to Goiran et al. (2010), Trajan would have ordered the construction of a «second basin» on the Claudian harbour fifty years after the building of the first harbour, and that not much later a «second hexagonal basin» would have been constructed. This is a close timespan in which one sees several successive improvements, showing that the first would have been deemed insufficient; the motivations, however, may have been several.

The reasoning behind both of these extensions to Ostia was debated even in the Ancient times, with explanations being provided by Cassius Dio, Quintilianus and Tacitus⁸⁶⁹. Dio, for instance, in regard to the Claudian harbour, states that seeing as most of the cereal that entered Rome came from foreign lands, and that the mouth of the Tiber did not have sufficient safe posts to station the transport ships, it would have been deemed necessary

⁸⁶⁸ Salomon et al. 2012: 76.

⁸⁶⁹ As stated by Bellotti et al. 2009: 53.

to build a new harbour, which would be an addition to the existing storages; the latter would be the only elements keeping cereal reserves during the Winter, and ship circulation to Rome would have been impossible during the later season; this would have justified the great costs of the harbour, and the source proceeds in explaining how the construction took place, including that of a beacon tower. These motivations can be questioned, however. The first point to observe is the pointed justification through Winter sailing, or the lack thereof. Winter navigation, if not impossible, was less frequent; in theory, the harbour of Ostia was insufficient to the ships travelling during the greatest sailing season, which would justify the building of the extension, but the source also says that the harbour would have been built due to the lack of supplies throughout the winter, that the construction would be motivated by the fact that no one would wish to take upon late season travelling.

Even if Ostia was too full during the main season, it seems unlikely that it would have been incapable of sustaining the vessels traveling during Winter. One can add that, in the eventuality of the vessels not being able to reach Ostia, they could travel to other harbours in the Napoli region, for instance, and leave their cargo there, which could subsequently be transported to Rome⁸⁷⁰. Why a work of such extent would have been undertaken (rather than, for instance, building more of the smaller intermediate posts across the Italian Peninsula) is not entirely clear, but it is known that the harbour in itself would have involved excavating not only «on the beach» but also the «seafloor», in order to make the basin; it would also have required «drainage» works in the Tiber⁸⁷¹. It is also stated that down to its inauguration it would have struggled with floods (which led to the temporary suspension of works) and a storm during the inauguration itself, which would have «sunk at least 200 ships», plus one-hundred others during a subsequent fire⁸⁷². Portus Claudius thus faced several issues during its construction. The Portus Traianus, on the other hand, is described as having a «more internal and protected basin», with a project that would have been «highly detailed and articulated» and that would have taken around twelve or thirteen years to complete. Whilst the Portus Claudius would have had a beacon, so would the Portus Traianus have included a lighthouse «connected to the Claudian harbour», creating a dual system.

⁸⁷⁰ This, however, would be a slower method and not profitable in the case of an immediate cereal crisis.

⁸⁷¹ Bellotti et al. 2009: 53.

⁸⁷² As stated by Tacitus in his *Annales*, 15, 18; seen in Bellotti 2009: 53.

A matter directly connected to the harbour infrastructure, although not related to the harbour as a safe haven for ships, is, as has been frequently verified, the question of storage. Harbours are also frequently used as trading posts and storage facilities, and both Ostia and Portus Claudius are two examples of some of the largest centres of warehouses, especially in what regards cereal. As mentioned by Rickman, in what regards the timeframe of the «early Roman empire», Ostia and Portus have the largest number of «horrea (storebuildings)»⁸⁷³; it may be added that «the dates of the building of the major horrea at Ostia seem to correlate quite closely either with construction work at the harbour site at Portus, or with major re-arrangements for the shipment of grain for the *annonna*»⁸⁷⁴; both the «Grandi Horrea», the «Horrea di Hortensius» and the «Horrea on the *Semita dei Cippi*» are 1st century BCE constructions. The building of the Claudian harbour, thus accompanied by the creation of several storage infrastructures in Ostia, can be associated with an urge to increase Rome's capacity of providing for itself, and one can now perhaps introduce an attempt at an explanation, which is that the construction of Portus Claudius, together with the expansion of the grain warehouses in Ostia, would not have intended to increase the capacity to receive ships during Winter season, but to increase the ship inflow all year round with a purpose of allowing for extra cereal storage.

Rickman, however, does not dismiss the hypothesis presented by Cassius Dio. The author states that the amount of «storage building» may not be as significant as it is thought, and that the Claudian harbour may have been created mostly to resolve issues directly related to «shipping», making it what he calls a «harbour of refuge» close to the mouth of the river Tiber instead of an actual harbour for Rome to use, a role which would still be performed by Puteoli and partially by Ostia itself⁸⁷⁵; however, this does not explain the words of Cassius Dio, and does not entirely keep with the archaeological findings that attest a growth of storages during this time period. Rickman states that, under these circumstances, the 2nd century CE construction of the harbour of Trajan would have changed circumstances, with what he calls a «deliberate and conscious attempt to concentrate Rome's imports», including those of the *Annona*, by the mouth of the Tiber in a large man-made harbour. Even if the Portus Claudius did not follow the function to

⁸⁷³ Rickman 2002: 353.

⁸⁷⁴ Rickman 2002: 355.

⁸⁷⁵ Rickman 2002: 357.

increase storage as its primary goal, the Portus Traianus seems to have fulfilled the role in its stead.

Boetto et al. have analysed the specific location of the Grandi Horrea within Ostia, to reveal that they would have been located amongst the main land and river connections between Ostia and Rome, «soit au sud, le decumanus maximus, qui prolonge la Via Ostiense, et au nord le Tibre, vers lequel semble principalement orienté l'entrepôt»⁸⁷⁶. Hence, the warehouses were being built in a place with good connectivity to fluvial transport. Seeing the great diversity of typologies of Horrea, the location of the warehouses in Ostia may have a relation to their placement, and this, in turn, to their purpose. As mentioned by Salido Domínguez, rather than immediately replying to these problematics, some studies are focusing on finding answers for the types of cereal in use, how they were stored and kept for long periods of time⁸⁷⁷.

In spite of the distance from the sea, Rome had at least three large coastal harbours, which are well documented by the sources (Portus Iulius, Portus Traianus and Portus Claudius), but they are always accompanied by natural anchorages, of which we have relevant, albeit fewer, examples. Caes. *BCiv.* 2.23⁸⁷⁸ describes a particular case which seems to encounter the presented notions of there being several possible unspecified natural ports which could be used across the Mediterranean, not only for smaller vessels but also for large warships. Although it treats the circumstance of a flight, it states that a *trireme constrata* would have been left «*ad proximum litus*», abandoned by its commander who would subsequently have fled. A similar circumstance will be found in Caes. *BCiv.* 3.6, in which it is said that «*Cerauniorum saxa inter et alia loca periculosa quietam nactus stationem et portus omnes timens*»; since the commander would have feared all the actual harbours, he would have preferred to station his ships in a rocky region, «*ad eum locum qui appellabatur Palaeste, omnibus nauibus ad unam incolumibus milites exposuit*». The fleet would thus have been able not only to reach this rocky promontory but also to have entered it in a safe manner, which suggests that either the ship captains had done it before and knew the region well, or that this sort of option was relatively common.

⁸⁷⁶ Boetto et al. 2016, 184.

⁸⁷⁷ Salido Domínguez 2008: 110.

⁸⁷⁸ Chapter 2.23 also treats Utica as a harbour of growing importance during the late Caesarian-Pompeian civil war: it was possibly from Utica that ten ships would have been sent to Clupea, to be taken over by Lucius Caesar, vessels that would have been «*ex praedonum bello subductas*», built specifically there following the war; in 2.25, Utica will be the place where the *naues onerariae* («*onerariis nauibus*») will have been stationed, «*circiter cc*».

3. Hydraulic Concrete

Even if plenty of harbours were mostly natural and/or took advantage of geographic features, there is enough evidence to show the investment in materials to develop the man-made structures. Among these materials were the «hydraulic, pozzolanic concretes». These appear in the Roman world around the 2nd century BCE, with the chronology of their development roughly matching the main timespan of this work and showing the particular growth of harbours throughout the last century of the Republic. This concrete was resilient and durable to an extent that it has «remained cohesive and intact in the seawater environment for 2,000 years»⁸⁷⁹, and recent studies have analysed samples from several harbours along the Italian coastline, amongst which «the Cosa (PCO.2003), ~60BCE, and Santa Liberata breakwaters (SL.2003, SLI.2004), ~50 BCE», the Port of Claudius («~50 CE») and Egnazia, «on the Adriatic coast near Brindisi, first century BCE»⁸⁸⁰.

These studies are important, as they present the exact composition of these mortars: the essential connecting material would have been the «hydraulic pozzolanic mortar», which would have been made with «lime hydrated with seawater and pumiceous Volcanic ash (...) sometimes augmented with local sands»; the ash used, *Pulvis Puteolanus*, is classified as a «powdery, incoherent, vitric ash pozzolan from the Gulf of Pozzuoli at the northwest sector of the Bay of Naples», a type of material that is used to this day to «enhance the durability of modern maritime concretes»⁸⁸¹. It is relevant to observe that the origins of this pumiceous ash lie precisely within Puteoli, which was one of the Roman harbours developed along these centuries and was connected to the network of the *Portus Tiberinus*. Considering the fact that it was built in a region with high volcanic activity, it suffered from the phenomenon of bradyseismic uplift, which, according to this study, would have influenced the growth of the harbour, and in what regards cereal reserves in Rome, it may have been a factor towards the «high development of the city plan» and thus changed its «lower part»⁸⁸². There are some textual mentions to its birth and growth in Strabo's works, which indicate that there would have been another settlement prior to

⁸⁷⁹ As stated by Jackson et al. 2012.

⁸⁸⁰ This study has also presented results for harbours built during the whole of the 1st century CE and the early half of the 2nd century CE.

⁸⁸¹ Jackson et al. 2012, 53.

⁸⁸² Amato et Gialanella 2013, 138.

Puteoli's development, which would have been used as Cumae's harbour, and that Puteoli itself would only have developed following Hannibal's campaigns⁸⁸³.

Studies regarding hydraulic concrete have ultimately resulted in the «Roman Maritime Concrete Study». This project, which began in 2001, has resulted upon experimental archaeology works, in an attempt to understand how these materials were made and assembled in order to build a Roman harbour. This project was undertaken by the founders, «Brandon, Hohlfelder, and Oleson (...) over 9 days in September 2004, during which they constructed a freestanding, 8-m³ concrete block (...) in the inner harbour of Brindisi, using only materials and tools that would have been available to Roman builders»⁸⁸⁴. The authors explain in depth how they proceeded and why the «wooden formwork» would have been placed, which, «as far as we known (...) was intended principally to contain the mortar and aggregate while they were being placed». This is in accordance to the works of Vitruvius, who, as mentioned above, explains the several processes according to which the walls would be lifted, including the alternative method for circumstances in which the strength of the waves and tides would have rendered the traditional placement of the wooden stacks impossible.

Seeing that, according to the source, the concrete would take at least two months to fully settle, this stage, involving the structure that would hold it in place during that time period, would have been crucial, as a failure to properly keep the concrete in its position would have meant lost time and resources, and could even create difficulties later on, as this material would therefore need to be removed and, as verified, it is very durable. Archaeological remains show that these «vertical pile posts and horizontal cross-beams» would have been «from 0.098 to 0.5 m in the width of the vertical board cladding but a preference for boards wider than 25 m; beams vary from 0.13 to 0.30 on a side». Seeing as the authors were intending to verify «how the formwork affected the placing and settling of the concrete» rather than the «design» itself, they opted for using local timber. Whereas they used «reconstituted, kiln-dried beams (...) and planks», it seems that

⁸⁸³ Hannibal's campaigns in the Italian Peninsula would have been influential in local harbours. The commander would have taken Tarentum, but not the settlement near the actual port; he would have also attained Locri and Croton, which seem to have been of «only minor help». Rome kept control over Rhegium, «which controlled the strait of Messina», as well as the whole island of Sicily, which would have created difficulties for Hannibal's fleet during the campaigns. As Elliott's title suggests, there is a factor of strategy in controlling the Sicilian harbours, especially when it comes to the protection of the Italian Peninsula against foreign incursions. S. Elliott 2017: 21.

⁸⁸⁴ Oleson et al. 2006, 29.

Roman builders would have used «green, unseasoned timber and lumber for marine framework», due to logistics and economy questions.

There seems to have been a two-going way for the process of developing harbours and building materials: as harbours grew, more materials would have been necessary to sustain them and create new constructions; simultaneously, the need for materials from Puteoli would have probably influenced the development of the harbour in itself, as it would have required hand-workers to explore the volcanic ash and crews to man the vessels that would then transport the ash or the concrete along rivers and out into the sea and other harbours. During the latter half of the 1st century BCE, Puteoli, alongside several other coastal areas, seems to have grown enough to be a profitable target for a campaign: when Sextus Pompeius was keeping Sicily under his command, he would have attacked *«Puteolis, Formias, Volturnum, totam denique Campaniam, Pontias et Aenariam, ipsa Tiberini fluminis ora populates est»*; the fleet of Sextus Pompeius seems to have given significant issues to Octavianus and Antonius, and attacks to these harbours would have been noteworthy, especially as Sextus enters the Tiber and attacks within the river itself, revealing a threat to the city of Rome. The impact such an attack would have had in Puteoli is not clear, especially regarding the matter of volcanic ash production to create concrete, but the Campanian coastline seems to have become a region which, in spite of its development, would not have been heavily guarded against seaborne enemies at the time of Sextus Pompeius' attacks.

As mentioned by Oleson et al., the exact location of the appearance of what they call a «great technological advance» is still not known with certainty, but considering the writings of Vitruvius, Strabo and Pliny the Elder⁸⁸⁵, it is believed that this type of concrete did in fact originate in Puteoli, which comes in accordance to the geographic proximity with the main source for volcanic ash. However, one must account for the fact that the earliest known samples of pozzolana derive from Cosa, rather than Puteoli («giving a range of 57 BC to AD 33»⁸⁸⁶). Oleson et al. justify this with the fact that Cosa was not a large-scale «state engineering project» and is located relatively far from the location where «this type of mortar» appears to have first been in use, thus making it possible and «likely» that the «innovation» would have been used in former periods («even if

⁸⁸⁵ Strab. 5.4.6 and Plin *N.H.* 36.166, as quoted by Oleson et al. 2004.

⁸⁸⁶ Oleson et al. 2004, 202.

tentatively, and experimentally») in other locations along the Italian coastline, such as Puteoli itself.

Making a reference to Oleson et al. (2004), the authors present the classification and explanation of Roman materials found in Vitruvius and summarise the terminology. Keeping in mind that there is still a lack of understanding regarding the specific materials, they underline that «these compounds cause the hydraulic mortar to settle slowly, particularly under water, and become extremely hard. This mortar binds together added stone aggregate (*caementa* in Latin), which both adds compressive strength to the mix and reduces the amount of mortar needed»; this would have been called «*opus caementicium*» or «*caementicium*»⁸⁸⁷. The fact that Rome was using this type of material to invest in its harbours is one of the examples on how it grew as a naval power in the later 1st century BCE. If «Roman engineers quickly realized the special suitability of this material for the construction of hydraulic installations, bridge footings and harbour structures», one can acknowledge that there was an interest in long-lasting materials that could be used in infrastructures that had a close contact with water; which shows a growing investment in the Roman naval support.

Taking Keay's example, we have dedicated a piece of this chapter to the port infrastructures of the city of Rome itself, the only ones that can be specifically called a «Roman harbour» if one is to observe them in a strict sense. It was developed «by the early second century AD», with the first terminology being that of the «Portus Tiberinus», described by the author as the «earliest port of Rome»⁸⁸⁸. In the Republican days,

⁸⁸⁷ As stated, for instance, in the *CIL* 1.1793.6 and *Vitr. De Arch.* 6.8.9 (examples from the authors). Oleson et al. 2004, 200.

⁸⁸⁸ Keay 2012, 34. The Portus Tiberinus is said to have been «commissioned in 179 BCE by the censor Marcus Fulvius Nobilior» (as well as «the piers for the Pons Aemilius» (Rice 2018); however, Keay (2012) states that it would have «developed in the narrow space between the Tiber and the Capitoline and Aventine hills from about the sixth century BC», and lack of space would have subsequently led to its growth and the establishment of additional facilities «further south», «from the early second BC (the so-called Emporium»; this complex of about 1.5 km would have formed «the principal area of the river port». Whereas the former began early into the existence of the settlement, it would only be further developed later, firstly in the 2nd century CE, then in the reign of Trajan, with the «raising of the level of the Tiber embankment made necessary by the continual need to protect port areas from flooding». The Emporium, on the other hand, would have been «the principal area for transshipment and storage in later Republican and Imperial Rome», where several warehouses would have been placed. Both these ports are connected to the Transtiberim District, and it is possible that «commodities unloaded along the west bank may have been destined for consumption primarily in the Transtiberim». Rice also speaks of the possibility of a third port between the two, mentioned only in *Livy* 35.10.2 (a «*porticus* outside the Porta Trigemina (location unknown) and an *emporium* (marketplace) beside the Tiber». Cozza and Tucci (2006) recently suggested that what has formerly been interpreted as the «Porticus Aemilia» would have been in fact ship sheds for warships, which Rice says would imply a «harbor basin of equivalent size in front of it, where the ships could be maneuvered in and out of the sheds», but this would have been turned into a «commercial» sector

according to Noli and Franco, «the river-bed path was then different from today's» and navigating the Tiber would have been possible through different processes, as well as the stationing of vessels along the river. The authors meant that the «left banks» along the «fluminis flexus» would have been used to station the *naues onerariae* in a location where the cargo would have been «transported onto the river barges (*naues caudicariae*) which were towed by oxes or slaves from the river banks (preferably the right one) upstream to the Portus Tiberinus in a 2-3 day trip»⁸⁸⁹. This article provides a detailed summary of the information on the Republican Roman harbours, enumerating the evolution in number throughout the 2nd century BCE, firstly with the expansion to Puteoli and later with the creation of Portus. The article also mentions two military stations, namely the harbour in Misenum, «well operational since the time of Augustus», and the base at Centumcellae, a complement to Portus⁸⁹⁰.

It seems that the importance of the Portus Tiberinus can be ascertained back into the Pre-Historic times, and some perspectives present it as one of the important centres to the development of the city. De Gruyter states that despite the fact the «hilltops» allowed for a «secure setting» that enabled a «permanent domestic space» to grow, the most impactful harbour would have been the «natural harbor in the Forum Boarium valley»⁸⁹¹: it was navigable up «to its mouth» and allowed «convenient access» to both the «saline marshes» (thus creating a connection with salt production) and the «wider Mediterranean exchanged networks». This provided Rome with a geographical advantage, which, if it initially kept them away from the maritime developments of the earlier centuries, would not only not be disadvantageous in the long-run, but also provide the city with additional protection and turn it into «an important crossroad for trade and communication in prehistoric central Italy». Even if it is difficult to find precise locations of ancient Roman harbours due to the «over three millennia» of «unbroken human occupation and urban development»⁸⁹², recent works within the Forum Boarium area have shown that Rome's «prehistoric river harbour» would have been able to «operate effectively» even if there

«by the end of the first century BCE». For more on Ancient Trade throughout the Mediterranean, see, for instance, Chic García 2009.

⁸⁸⁹ Noli et Franco 2009: 189-90.

⁸⁹⁰ Noli et Franco 2009: 190-91.

⁸⁹¹ De Gruyter 2016.

⁸⁹² Brock 2016: 4.

was not a significant presence of human-made structures⁸⁹³; this comes to show its importance from early periods.

4. Continuous growth

Following continuous developments of the Roman empire, «the evolution of ancient nautical technology, the growth of the political and economic imperatives for maritime commerce, and the evolving engineering skills for building new harbors or renovating existing ones all peaked», and the new type of concrete is a technological development that will be seen outside of the Italian peninsula. The most well-known example, as mentioned by Oleson et Hohlfelder, is the harbour of Caesarea, which was built in modern-day Israel during the time of king Herod. If this harbour were to follow the same construction methods of Puteoli, it would have required the specific type of ash brought into the concrete of its foundations, which would have implied moving a significant amount of material across the Mediterranean. According to the authors, Herod's «close connections» with Octavianus and Marcus Agrippa would in fact have enabled him to acquire «thousands of tons of raw material», as well as to benefit from «access to the freighters» who would carry the «material to the building site»; thus, if the initiative, in theory, came from Herod, it seems that Rome was also keen on providing for the development of the harbour, as it grants the king easy access to transports and resources⁸⁹⁴.

The harbour of Caesarea is one of those whose construction exactly fits the chronology we proposed for this study. As mentioned by Hohlfelder et al. (1983), the construction would have begun in 22 BCE and finished in 10-9 BCE, still about two decades before the death of Octavianus. This work would have been of considerable value in ancient times, as it would have been «the largest Levantine harbor» and one which showed «a maritime engineering sophistication that can only be called modern». Sebastos would have been the main harbour facility and, according to the descriptions of Josephus, the construction in itself would have struggled with «frequent, heavy storms that plagued that part of the Levantine coast», together with the «sand-laden longshore current» which would easily lead to «erosion and siltation». The fact that there were so many issues with

⁸⁹³ Brock 2016: 4-5.

⁸⁹⁴ Oleson et Hohlfelder 2011, 821.

the location to begin with can lead to questioning why the harbour would have been built in this specific site and is a commendation to ancient engineering. The descriptions themselves state that it would have been «a roughly circular harbor» with two breakwaters, great entrances with towers and statues. The descriptions of Josephus, however, are incomplete, and this has been ascertained by the archaeological studies conducted since 1960, which have revealed, for instance, the existence of an inner harbour, an «extensive breakwater barrier and foundation for the harbour moles»⁸⁹⁵.

Very recent archaeological works have enabled scientists to further understand the composition of the foundations of a Roman harbour. Through the use of new technology, one can now access the «ancient coastal settlements», which are no longer visible, as they are underwater nowadays due to the changes in the «relative sea level» which occurred «over the last millenia»⁸⁹⁶. Mattei et al. have presented a report on the recent works in the Nisida harbour, which lies in the Gulf of Naples, a region that has «been inhabited since the ancient times and shaped by the continued interplay between anthropogenic and volcanic forces»⁸⁹⁷. This is one of the harbours «built in the first century BC» and was «mainly protected by two piers, of which nowadays only some totally submerged witnesses remain, though well-preserved and not buried by recent sediments». This harbour, alongside many others of this time period, was «mainly composed of alignments of pilae – large or tall cubes», which would have been made of the already discussed hydraulic cement⁸⁹⁸. The authors consider the Nisida harbour as having been built circa 37 BC, which may be in conformity (directly or indirectly) with the harbour building program of the later years of this century⁸⁹⁹.

⁸⁹⁵ Built with hydraulic concrete. As the harbour has deteriorated and «it is buried by up to 2 metres of littoral sediments and a thick rubble layer», it has only recently begun to undergo further study, as new technologies emerge to counter these factors. Boyce et al. 2003.

⁸⁹⁶ Mattei et al. 2018.

⁸⁹⁷ Mattei et al. 2018.

⁸⁹⁸ As stated in Mattei 2018: 3, «The pilae made in Roman concrete were grouped together in a single line (sometimes connected by arches, as at the breakwater at Nisida and Puteoli) or in two overlapping rows to form discontinuous breakwaters or sea defences for a shoreline or at the entrance to a harbour. These cubic structures were built on the seabed with the cofferdam technique», which is, as stated by the author, the one described by Vitruvius.

⁸⁹⁹ Not all harbours needed specific man-made devices to assure successful functioning in threatening situations, however. Flor. 1.41.6.10, for instance, mentions a circumstance in which Porcius Cato would have managed to control piracy through closing access to safe harbours, using his ships to this effect: «*sic per omnis aequoris portus sinus latebras recessus promontoria fret paeninsulas quidquid piratarum fuit quadam indagine inclusum est*». This list, which is also relevant to show the variety of landing places for ancient ships, is an example of a naval blockade, which may have been just as effective as walls, especially against smaller hybrid typologies such as the *myoparos* which, as has been observed, were often used by pirate communities.

The study has allowed to verify the dimension of the pilae: «14.3 on the N side; 14.4 m on the E side; 14.5 m on the W side; 14.8 m on the S side; 9.3 m of max height; and 7.1 m in height of the concrete structure». The Nisida harbour study has also allowed the researchers to reach conclusions regarding the evolution of the Napoli bay, on which they verified «the submersion of the maritime structures of Roman age (...) and a coastline retreat of several meters». The pilae were still «in place and in a good conservation», which is a proof of their long durability underwater. These building devices have been object of several studies and there has been a project developed towards building their inventory (Project PILAE), which has verified that at «the region with the maximum concentration of pilae, at a minimum distance from the deposits of pozzolana, in the Gulf of Naples, the documentation is most lacking»⁹⁰⁰.

In the past few years, new technologies have allowed us to have a better understanding of Roman harbours, not only by analysing the physical remains, but also by providing reconstructions of the sites⁹⁰¹. One of those reconstructions is the one presented in a paper by Ivan Ferrari and Aurora Quarta, showing a 3D recreation of the Roman pier of San Cataldo, in Apulia. This resulted from the Portus Lupiae project, and has allied the modern reconstruction techniques with the observation of archaeological data. Through this project, it was possible to observe details such as the construction technique, which allies «two wall curtains in opus quadratum (squared blocks) with squared blocks made of local calcarenite arranged mainly along their length and a core in opus caementicium (Roman concrete made with irregular stones mixed with mortar and brick fragments, but without pozzolana)»⁹⁰². This is thus one of the cases that shows some diversity regarding building materials, which seems, at least partially, directly connected to the availability of certain rocks in the vicinity.

⁹⁰⁰ Stefanile 2015 : 37.

⁹⁰¹ For a study regarding the specific contributions of harbours in the Portuguese coastline, see Blot 2003.

⁹⁰² Ferrari et Quarta 2018.

5. Harbours in Roman life

The matter of harbour property and ownership, the distinction between private and public, is yet again found in App. Mith. 9.63. We have observed a circumstance in which Pompeius has entered a harbour as a private; in this chapter, we will observe what seems to be some sort of harbour ownership reference. When Sulla sent individuals to collect funds, he would have directed his envoys to the cities, which, given the war circumstances, would not have been in condition to pay; they were thus forced to not only borrow from others, but also practiced «δανείζουσιν», usury, of the city infrastructures, amongst which «γυμνάσια ἢ τεῖχος ἢ λιμένα»; the city gymnasiums, walls and harbours, as well as every other possible property with the characteristic of being «Ἀνυμόσιον», of the people. Not only are the city harbours placed in the same stance as the walls surrounding them and all the other structures built for the public benefit, but they are considered as city property themselves, and viable of being rented to others.

Exactly how this would have been processed, the source does not specify, and there are several possibilities. The city could have sold the rights to the harbour taxes or the usage of the shipyards and ship sheds. There is also no mention of the people to whom the harbours would have been rented, nor for how long, or whether there would have been any possibility of the investors buying the rights to a harbour in perpetuity (although this possibility seems unlikely, seeing that the harbour is a city infrastructure). It is possible that these rights were sold to other city-states in regions not as affected by the war, thus contributing for the development of commercial networks. There is such an example, not for the Mithridatic Wars, but for Caesar's invasions of Brittany and Great Britain: Caes. *BGall.* 3.8.1 states, regarding the Veneti, that «huius est ciuitatis longe amplissima auctoritas omnis orae maritimae regionum earum, quod et naues habent Veneti plurimas, quibus in Britanniam nauigare consuerunt, et Scientia atque usu rerum nauticarum ceteros antecedent et in magno impetu maris atque aperto paucis portibus interiectis quos tenent ipsi, omnes fere qui eo mari uti consuerunt habent uectigales»; seeing that the sea would have been difficult to navigate, and that there would have been only a few harbours along the coastline (something that is confirmed by Caes. *BGall.* 3.9.4: «pedestria esse itinera concise aestuariis, nauigationem impeditam propter inscientiam locorum paucitatemque portuum sciebant»), the Veneti would have profited greatly from having rights over them. Whether the Veneti would have built all the infrastructures or simply

settled along the coastline and created cities in safe anchorage sites is not specified, but this is a circumstance under which a source goes further into the matter of harbour ownership and states that a single group of people would have had an economic advantage, as well as a geographic one: there are several mentions to the Veneti knowledge on how to sail the sea and where to find the safe anchorages (examples seen in Caes. *B Gall.* 3.8.6, 3.12.5, 4.20.4, for instance).

App. *B Civ.* 2.15.105 is a passage which gives us some information regarding the formal functioning of a harbour. The chapter describes the entrance of Pompeius in the harbour (νεώρια) of Carteia, after having been defeated in battle. According to Appian, Pompeius would have entered the harbour as *ιδιώτης*, a private individual. This means there would probably have been some sort of control regarding entrances and departures from the harbour; Pompeius, however, is said to have entered in a litter, which is likely the cause of the source saying he entered it as a private, rather than presenting himself publicly, but there is still a distinction between presenting oneself within the harbour as a commander and as a private person. The case for a potential surveillance system, however, would have implied the litter to have been inspected and its occupant not to have been recognised, which is not impossible; one has to consider, nonetheless, the likelihood of Pompeius having been to that harbour already, seeing as he had a fleet stationed there, in which case he would have been easily recognisable. One may also question why he would have entered privately when he had ships in Carteia, since there is no mention to those vessels being seized by the city.

If Roman harbours were created to be safe locations to store ships, they often became attractive centres for the local population to establish themselves and provided sources of livelihood in several ways. We have observed how harbours could generate income through commerce and taxation, but the most immediate practices in which a harbour could create a way of subsistence were through actual activities *in loco*, of which the two most immediate ones were fishing and salt exploration, two pursuits which were often performed together to create preserves. Although our purpose mostly lies with the analysis of Roman harbours as a part of the Roman navy, it seems pertinent to include these details, even if in a smaller section of this chapter, as they were essential parts of life within a Roman harbour.

Marzano (2018) distinguishes the types of fish consumption as a way to show the division of society: «while the former [preserved fish] was part of the diet of a large part of the

population, the latter [fresh fish], by and large, was the reserve of the wealthier strata of society». As the author states herself, this was not universal, and would depend upon several factors; populations living close to the shorelines would possibly have an easier access to fresh fish. Fish (and seafood) in itself would have had a «social value», directed to its price and availability⁹⁰³; whereas preserved fish, which was usually salted, was more easily achievable, and it is one of the activities that gives us an indication of the location and nature of Roman harbours, as «the archaeological evidence for the production of preserved fish products (largely salted), and hence for commercial fishing, is abundant». This is a matter that yet again struggles with the lack of textual evidence, one which is accompanied by equal scarcity of epigraphic resources: «among the corpus of surviving Latin inscriptions from the western Mediterranean, only nine texts refer to fishermen collectively (*pescatores*)», five in Ostia/Portus, others in the river Tiber.

Bombico (2015) observes trading in itself as a way to create fishing networks, particularly along Lusitania, a factor which will become increasingly important during the «middle of the 1st century AD», following the incorporation of «*Britannia* and *Germania Inferior*». The author rebukes the early beliefs in the lack of an Atlantic navigation, which derive especially from the lack of archaeological remains of harbours along part of the Southern Spanish and most of the Portuguese coast⁹⁰⁴. This is a sector in which ancient activities become important to establish the location of ancient harbours: if there is a lack of physical evidence for the structures themselves, there is evidence for the «significant exploitation of marine resources (mainly fish products)», «an interest for estuaries and the influence they had on the development of Lusitania's maritime cities», the plentiful reports «related to transport and circulation of goods by sea along the Atlantic coastline» and «the identification of archaeological remains of ancient navigation». Bombico believes that «Lusitanian fish products» would have been transported through a «homogeneous shipment», which would have been «loaded at the same time in a major port», which in turn would have been located near the shipping region, and that the

⁹⁰³ Marzano 2018.

⁹⁰⁴ See Fabião 2009, who underlines the conjugation of the Atlantic and Mediterranean experiences in the Iberian Peninsula: although the Roman empire was centered around the Mediterranean, it was also enclosed by the Atlantic on its outer limits, and if ancient sources and Roman conquest seem to have focused on the Mediterranean up to a certain period, Rome is established and firmly present around the Atlantic in the 1st century BCE, something which will be enhanced by Caesar's campaigns (57). The author also marks the existence of Atlantic navigation during the Roman period, with a growing number of archaeological records to attest it, including large-scale examples such as lighthouses (66; discussed on the following chapter). See also Blot 2003.

merchandise would have been taken to another major port; she adds that the transporting of these products would be «an additional cargo, stored in the vacant space on board of the ships, thus allowing for the establishment of a free trade».

Bombico's statements and her presentation of several archaeological remains that sustain this theory allow for several conclusions. As the author affirms, in spite of the lack of archaeological evidence, there would have been a need for several large stations in which there would have been a network of several types: the fishing vessels, larger or smaller, which could potentially have storage sites along a port; the salt exploration; the location for salting the fish; and the harbours to allow for these products to be stored and then loaded into transport ships. The loading in large quantities possibly implied technical devices under some circumstances, which did not leave archaeological tracks. The fact that a location is historically known for fishing communities does not immediately follow with it having a harbour, but it is often the case that large-scale fish exploration sites would indicate not only human presence but the development of harbour structures. Even if plenty of these sites could have been natural bays where the Atlantic ships could be dragged on the shore (as we have verified, for instance, for the Veneti-type ships that Caesar uses upon his crossing to Great Britain), it would still be necessary to develop some sort of ship sheds for the larger transports whenever they had to be kept on port for longer periods of time, to protect them from deterioration. This is a concrete case in which the trading routes themselves seem to provide more information than the coastal areas, and through further analysis of shipwrecks⁹⁰⁵ may allow for new discoveries in the field of ancient harbour locations, functions and structural development.

There would be much to say regarding salt exploration, but the nature of this thesis allows only for a short analysis, as it is an activity not directly connected to the Roman navy. As salt could be transported and had its influence, direct or indirect, in the development of commercial networks and sites, it had its importance in the life of a Roman harbour. There are authors who connect the need to explore salt with the growth of Ostia itself: according to Livy, the city would have been founded simultaneously with the opening of «the first salines» on the south bank of the Tiber «to avoid dependence on the Etruscans», although «the north bank salines» would have remained «the more important» and were annexed in 396, becoming «*Salinae Romanae*»; with its expansion, Rome «became the heir to the

⁹⁰⁵ Particularly those, not included in this study, in which the ship itself has deteriorated, leaving only the cargo; our option was to focus on the material aspect of the ships themselves.

salt systems of the Celtic and Hellenistic worlds», amongst which those in «the Hallstatt and Hallen complexes», Lorraine, Essex, Franche Comté, «Portugal, Spain and the Balearic Islands», as well as «the salt lakes of Tarentum and Sicily»⁹⁰⁶. The connection of archaeological and historical sources, however, remains elusive, and «archaeology in Italy has not uncovered any salteries unattested in literary sources and has only confirmed three at most», located in Pompeii and possibly Antium and Puteoli, which produced «salted fish products»⁹⁰⁷; such is not the case of salt exploration in «Magna Grecia», with the activity having begun in harbours such as Cosa long before the Roman arrival, in the 3rd century BCE.

A 2007 study has analysed one of the Corinthian ports and attempted to provide new insights regarding the matters of «life and death». This was achieved through an elaborate analysis of the Kenchreai cemetery, which belonged to «the eastern port of Corinth on the Isthmus». The harbour's prosperity and long-lasting use is attested, among other details, by the large amount of burials found: «12 separate burial areas», which date from the 1st century CE to the 7th, six-hundred years of existence as a large-scale port⁹⁰⁸. If there are evidences for a pre-Roman occupation, these seem to be scarce⁹⁰⁹, which shows that the Roman investment in itself is what would have allowed the harbour to develop and become an attractive centre, with people from several locations across the Mediterranean settling in the surrounding areas⁹¹⁰.

6. Harbours of the Civil Wars

If one wishes to observe Rome's naval history, one must look at the case of Ostia, which is the closest sea-harbour to Rome and, according to Clarke⁹¹¹, must be observed in two different stages: having begun its existence in the early 4th century BCE as an army fortress (a *castrum*), its early function would have been defensive and directed towards ensuring the safety of the mouth of the river Tiber from eventual attacks. Only during the late 4th century BCE would Ostia's functions as a harbour have become more preminent

⁹⁰⁶ Aldshead 1992, 29.

⁹⁰⁷ Curris 1991, 87.

⁹⁰⁸ Rife et al. 2007: 144.

⁹⁰⁹ Rife et al. 2007: 149.

⁹¹⁰ Rife et al. 2007: 176, interpreting the diversity of epigraphic records.

⁹¹¹ Clarke 1991, 267. Noli et Franco 2009: «No news exist about a Roman seaport until the 4th century BC. The port of Ostia, so named for its position at the river mouth (*ostium*), was operational since about 330 BC».

and only by 100 BCE does it receive a city wall, «enclosing about fifty hectares of land testified to its new commercial role». In spite of its distance, Ostia is one of the harbours which the Romans considered as being under their influence from the earliest periods. As stated by Flor. 2.9.21, it would be Rome's «*cliens et alumna urbis Ostia*», and the fact that Ostia began as a defensive post does not take from it being relevant in its function as a harbour since, as we have verified, a harbour's first and foremost function is defensive.

Bellotti et al.⁹¹² refer to both Dionysius of Halicarnassus and Cassius Dio to provide historical sources which explain the evolution of Roman harbours during the transition into the imperial period. As mentioned above, vessels could be taken from Ostia to Rome through «sailing or by being dragged upriver by oxen»; this is mentioned in Dion. Hal. *Ant. Rom.* 3.44, in a sequence of the book which explains the improvements that Marcius, king of Rome, would have provided the city with. There were several physical developments of different natures: the king would have ordered the building of a wall encircling the Aventine hill, and the same would have been done for the Palatine, which would have been further populated; these are both defensive measures, and are considered of lesser importance by the source when compared to the investments on the Tiber and the Sea. King Marcius is considered to have been responsible for the construction of the harbour of Ostia itself: seeing as the Tiber had no trading post which allowed commercial articles (both brought from other places by sea and from Rome itself through the river) to be kept until they were redistributed, and considering the navigability of the river, the absence of such an infrastructure would have been considered wasteful, especially as even the mouth of the river is said to have been navigable with scarce difficulties (it lacked shallow waters, for instance). Considering all these matters, the king would thus have ordered the building of the city of Ostia, which would have been protected by walls from the very beginning.

Dionysius of Halicarnassus' chapter on the formation and foundation of Ostia provides us with several points that can be analysed in order to better understand how the first functional man-made sea harbour in the region would have come to be⁹¹³. His testimony is of particular importance, seeing as he is a 1st century BCE author, whose lifespan would have caught the near entirety of the latter half of this century, and thus corresponds to an

⁹¹² Bellotti et al. 2009.

⁹¹³ According to note 6 of Stöger (2011), the first to attribute the foundation of Ostia to Ancus Marcius would have been Ennius (*Ann.* II, fr22), followed by Livy (33.9) and Cicero (*De Rep.* 2.5 and 2.33); also, a mention to Meiggs 1973, 16-17.

earlier transitional period into the empire. The last statement of chapter 44, for instance, is of particular relevance, as it states that the building of Ostia would have allowed Rome to develop a two-sided perspective: «*οὐ μόνον ἡπειρωτὶν, ἀλλὰ καὶ θαλαττίαν*», a city both on land and sea. Through this outlook, Ostia, from its foundation, can be considered as a Roman harbour even if it does not lie in the city of Rome, seeing as it would have been created to serve the city and allow the development of commerce, more of a colony than an ally. In 1973, Russel Meiggs⁹¹⁴ was one of the first to explicitly address Ostia as the «first Roman colony», founded by the fourth king of Rome, Ancus Marcius; this would have led to the city's engaging in commemoration during the «first half of the second century A.D.», which would have resulted, for instance, in CIL XIV 4338, presented by the author on a footnote: «A[NCO] | MAR[CIO] | REG[I] | QUART[O A R[OMUL[O] | QUI A[B URBB C[ONDI]T[A | PRI]MUM COLONI[AM | – DEDUX[IT]».

The reign of Ancus Marcius is often pointed as between 641 and 617 BCE, which would mean that Ostia had existed as a harbour since the 7th century BCE⁹¹⁵. Is this sustainable by physical evidence? In archaeological terms, a 2011 study on ancient Ostia has stated that «so far no archaeological evidence has been retrieved which could support such early dates for the foundation of the city», with the «earliest settlement» being Castrum, a «rectangular military structure (195 x 125.7 metres) with four gates, built with large tufa blocks»; this structure is dated to «300-275 BC»⁹¹⁶ and has been linked to a «series of 'Coloniae Maritimae' which were established along the Tyrrhenian coast», a process which would have begun in the second half of the 4th century BCE, two-hundred years after the alleged foundation of Ostia by the king. If the foundation date is subjected to several doubts⁹¹⁷, what seems more certain is that the city gains importance in 267 BCE, when one of the «*quaestores classici*» would have become stationed in the city and thus made it into a «naval base». During the 1st century CE, Ostia would have developed its «own local government»⁹¹⁸, but, as stated by Meiggs, even though there is «clear evidence

⁹¹⁴ Meiggs 1973.

⁹¹⁵ Cornell 1995, 120; Daguet-Gagey 2014, 60, note 12, a footnote which gives several perspectives on the dating for the reign of Ancus Marcius.

⁹¹⁶ Stöger 2011, iii.

⁹¹⁷ Although there is a lack of archaeological evidence for a man-made harbour in the 7th century BCE, the notion of Ostia being used as a harbour in itself in far-back periods cannot be dismissed: it may have been one of the natural harbours which were often in use before infrastructures were added, which would later give rise to the legend of Ancus Marcius and the foundation of Ostia, an adulteration of the fact the site would have been a coastal anchorage for early settlements and populations. There is also the said theory presented by Meiggs (1973) of the original harbour being elsewhere.

⁹¹⁸ Stöger 2011, iii.

of the establishment of a Roman settlement in the fourth century», the «literary authorities» do not mention it⁹¹⁹, and the author declares that if there is no evidence for the early Ostia having been founded in the 7th century, one cannot dismiss the hypothesis of «the natural site for an earlier settlement [being] elsewhere»⁹²⁰. One may add the fact that ancient sources seem to attempt to display Rome's relation to the sea from early periods and question whether this is an attempted glorification of the city's history or residual collective memories of a remote past.

As an attractive naval centre, Ostia was bound to be attacked. An action against this harbour would have been meaningful to the Romans, as it was, from an early period, one of its largest naval stations; an attack which came from a Roman himself would be even more marking. It seems that Gaius Marius would have been one of the commanders to seize the port during the early 1st century BCE; *Plut. Vit. Mar.* 42.1 states that Marius would have attempted to control the transport of supplies throughout the Tiber and into Rome, not only by attacking the transport ships but also by taking control of Ostia. This would not have been a military action in itself, as the city is said to have surrendered to him⁹²¹, but one amongst several proceedings of attacking coastal cities. Ostia is mentioned as being the last of these cities to have been taken by Marius, and one can question why, rather than taking one of the main sources of supplies (Ostia is the only city to be named by the source, which underlines its relevance in this context⁹²²), the commander would have opted to control smaller or less developed harbours first. Following Marius's attack, Meiggs states that Ostia's «prosperity» would have suffered significantly due to the «plundering», and probably resulted upon the building of the walls enclosing the city in the following centuries⁹²³, indicating somewhat of a preventive measure against future attacks.

It was only with Octavianus and his successors that the city received monumental buildings: «the civic Forum with a new temple of Roma and Augustus and the theatre with its own forum». During the mid-1st century CE and under Claudius, it received a «protected port», which improved the situation of «debris [which] constantly blocked the

⁹¹⁹ Meiggs 1973, 18.

⁹²⁰ Meiggs 1973, 19.

⁹²¹ This can be questioned, as the source also states that there would have been actions of plundering and killing several individuals.

⁹²² Whether it is actual military relevance or symbolic remains to be ascertained.

⁹²³ Meiggs 1973, 34.

passage of large boats into the mouth of the river»⁹²⁴. This comes to show that Ostia was under Roman investment and development for at least four centuries, undergoing several stages; and that only in the centuries following the First Punic War did it become a centre of growing interest to justify its expansion as a protected harbour. It does not signify that naval matters were not occurring in Ostia, as seen by the fact that it was being used as a defensive centre for the mouth of the Tiber; however, it was probably not of a significant dimension to be considered a large naval base, and only later would it develop in a way to allow for receiving large numbers of commercial vessels⁹²⁵. This makes Ostia particularly relevant towards this study, as it is one of the harbours that seems to have undergone its major developments «between the 1st c. BCE and the 2nd c. CE»⁹²⁶.

In spite of the growth of Ostia and Caesar's campaigns, it is difficult to present with certainty the period in which the Roman investment in large-scale naval infrastructures began, particularly when one wishes to observe the Italian Peninsula. Livy mentions that Marcus Aemilius Lepidus would have put efforts towards several constructions, amongst which a *porticus* close to the *naualia*, but as to whether this has any practical implication or is mostly a decorative element is unspecified (40.51). The evidence seems to grow more certain as one approaches the end of the Republic. Aside from Ostia and the Roman *naualia* found along the Tiber, and as the Roman needs for harbour infrastructures grow, there will be further investment in their construction, of which one of the most notorious physical evidence is the Portus, «the maritime port of Imperial Rome», located «some 30 km to the southwest of Rome, and just under 3 km to the North of Ostia at the mouth of the Tiber». Seeing the proximity between Portus and Ostia, one can easily sustain the growth of naval traffic towards the city of Rome, as 3 km is within walking distance. However, Portus is, as mentioned, an imperial port. As stated by Keay, Rome is geographically situated away from the sea, and therefore it was amongst the city's «major achievements» the creation and development of a harbour «infrastructure» that allowed for shipments from the Mediterranean to reach the city and provide for the local

⁹²⁴ Clarke 1991, 267. According to the author, Ostia would have grown further during the late 1st / early 2nd centuries CE, with the «building of a second, more effective harbor by Trajan». Even as Ostia grew, some of the major Mediterranean routes were still not bound to it until this time period, as seen by the fact that before these investments «the grain fleet of Alexandria» would have disembarked in Pozzuoli.

⁹²⁵ Both Ostia and Rome had their own *naualia*. As discussed above, the terminology can address either a generalist naval station (even if temporary or improvised) or specific locations, and «from republican through imperial times, the *naualia* were a prominent feature of Ostia's landscape», having been restored by Publius Lucilius Gamala «during the middle or late second century CE», an inscription record which is confirmed by archaeological research. Boin 2013, 53-54.

⁹²⁶ Ferréol et al. 2018, 266.

inhabitants, in what he calls a «piecemeal process extended between the fourth century BC and the earlier second century AD⁹²⁷». There is growth and building, but it is distributed throughout a very long period, and it seems that the greater investment is seemingly more sustainable and justifiable throughout the late 1st century BCE, in spite of the antiquity of some harbours like Ostia.

In spite of the slow growth, Ostia is accompanied by other important naval stations even in earlier periods. Brundisium is one of the most commonly mentioned harbours in ancient sources, especially when one is observing military matters. Together with Tarento, it seems to have been a part of dislocation networks within the Italian Peninsula in itself: as stated by Carreras et Soto, a significant part of «contact within the Italian Peninsula» was made through maritime ways, with the harbour of Aterno («in central Adriatic») being an area of good communications, as well as «Brundisium and Tarent» (although the latter had what they call «a lack of accessibility inland»)⁹²⁸. But if Brundisium is not only one of the most mentioned harbours, and also potentially one of the most used, especially during the Civil Wars, there are scarce descriptions of it from ancient sources. One exception is found in App. *B Civ.* 5.6.56, in which the city is described as being situated in a peninsula that would have formed a «*μηννοειδὲς λιμένι*», a crescent-shaped harbour, thus evidencing that this would probably have begun as a natural port and developed into a full-scale walled harbour in later years, as it already had natural defensive advantages.



Fig. 63. The harbour of Brindisi in modern times. One can observe it retained its protected shape and the current subdivision between several sectors of the outer harbour (including the two modern cutwaters) and the inner harbour, smaller and more sheltered. Nearby, the Lago di Cillarese; ancient sources do not mention channel connections in the same pattern as that of Lakes Auernus and Lucrinus, but this could potentially have been used as a location for ship storage, even without channel construction.

⁹²⁷ Keay 2012, 33.

⁹²⁸ Carreras et Soto 2013: 9.

What would seem a scarce description brought by Appian is one of the rarest found regarding the harbour during the Civil Wars. Some authors mention it regarding previous periods, but reading through them we will find several inconsistencies. Polybius, for instance, mentions it during his description of Rhegium and Tarentum, stating that, aside from the latter, that part of the Italian Peninsula would not have any safe harbours, thus obliging sailors coming from Sicily or Greece to go through Tarentum. He adds that this would have been of particular importance during the Hannibalic Wars, since Brundisium did not yet exist, but, as has been noticed by Shuckburgh back in the 19th century⁹²⁹, Brundisium is already mentioned by Herodotus (4.99) together with Tarentum, which means it must have existed long before, and Livy (*Periochai* 19) states that Fregenae and Brundisium would have been founded in 244 BCE. Brundisium is also mentioned several times by Pliny the Elder in his *Natural History*. Chapter 2.106 states that the harbour would have had a natural spring of water that would always remain in good condition, which would have made it a very valuable asset to have at sea; this is a fact that is not mentioned by the authors making war descriptions, but may be another contributing factor to the importance of Brundisium as a central harbour during the wars. From a commercial standpoint, Pliny makes several mentions to the Brundisian Oysters, which would have been exported to other regions (9.79 and 32.21: the oysters would have been taken from Brundisium to the Lake Lucrinus to give them a different flavour), as well as mirrors (33.45, 34.48), which means that trade would have had considerable influence in the harbour's development.

The complete capacity of Brundisium is still to be ascertained. In his *Civil Wars* (App. *B Civ.* 1.9.79) Appian describes a situation during which Sulla would have been sailing with a considerable fleet. Not only do we have access to the potential route (from Piraeus to Patrae and then from Patrae to Brundisium) but there is also a textual mention of Sulla travelling with one-thousand and six-hundred ships. This is a very large number of vessels, especially when one considers texts such as *BAlex.* 9, which mention that harbours like Alexandria would hold about one-hundred ships, perhaps a little more; it would take a harbour sixteen times as large to fit the entirety of Sulla's fleet.

If Alexandria was one of the largest harbours in ancient times, one can hardly account for Brundisium having had the capacity to fit the entirety of Sulla's fleet, which necessarily

⁹²⁹ As seen in note 1 of Shuckburgh's translation.

implies that only a very small portion of it would have been actually stationed in Brundisium. This is not specified in the chapter, and we do not know where the majority of vessels would have been kept, whether in other large posts along the Italian Peninsula or the smaller intermediary supporting posts along the sea, or even whether the smaller ships would have been kept within natural harbours. The only subsequent mention is that the people of Brundisium would have received Sulla and did not attempt to keep him from the city, for which they would have been rewarded with the removal of custom taxes⁹³⁰. Whether the people of the city decided not to fight due to the very large size of the fleet (if so, one may ask why they were given benefits later on, as Sulla could have imposed himself by force) or whether they had guardships stationed and removed them to allow Sulla's fractioned fleet into the harbour (which would thus justify the later reward; there may also have been a contribution regarding the process of storing the ships) is also unknown. Nonetheless, one has to account for the possibility of not all vessels being kept within the ship sheds, and plenty of them remaining on the outside of a harbour in patrol duties. It seems to be the case found in App. *B Civ.* 2.12.87, where Cato is said to have remained in Corcyra with three-hundred triremes. This is a far smaller fleet than that of Sulla, but it is still possibly a far too large number to be all kept within the ship sheds, and thus it is likely that some vessels would be kept on the water, or even that there would be turns taken in which ships were undergoing repair works and kept in dry sheds.

There is plenty of textual evidence on the importance of the harbour of Brundisium for setting sail with warships, and the location seems to have attained particular importance during the Civil Wars, both between Julius Caesar and Pompeius and between Octavianus and Antonius. Flor. 2.13.2 mentions a situation in which Brundisium could have been key to putting an end to the first of these civil wars, had Julius Caesar been able to enclose Pompeius' vessels within the harbour. Through an unspecified manoeuvre, however, the latter is said to have fled by night: *«sed ille per obsessi claustra portus nocturna fuga*

⁹³⁰ There seems to have been a development of custom taxes early into the development of trade (whether maritime or not) and circulation, and from the fourth century BCE there is an increase, which would have led to traders carrying, «in addition to the money for the purchase or from the sale of goods», «coin for travel expenses, harbour dues, road tolls (in some contexts) and, importantly, to pay custom duties» (Howgego 1995, 94). Howgego gives an example of what would have been the revenues of this taxation: it seems that Rhodes, during the Hellenistic period, would have had «annual harbour revenues» of 150 000 drachmas, at least up until «Rome declared Delos a free port in 167 BC». One can question whether the later policies of harbour construction wouldn't have had this sort of income source in mind as well, for even if «charges were generally low in antiquity», they would have provided a steady influx regardless; as Rome continues to expand itself throughout the Mediterranean, it may have seemed a profitable investment to increase the number of harbours to create income through taxation.

euasit». Whether this was a true «*fuga*» can be discussed, as Pompeius is said to have left through the «*claustra portus*», and thus there does not seem to have been any sort of restriction to the departure of the fleet. As it was a station frequently being used during this period, it would also serve as a location to place troops: the same chapter of Florus mentions that part of the army would have been left in Brundisium under the command of Antonius, due to the fact that the fleet would have been lacking in enough transports («*cum pars exercitus ob inopiam nauium cum Antonio relictis Brundisii moram facerat*»); a similar occurrence is observed in *BAlex.* 44, when one can observe that from the moment a fleet increase is possible, soldiers which had been left in Brundisium would have been transported to Greece and Illyricum («*His adiunctis nauibus longis et numero classis aucto militibus ueteranis impositis quorum magnam copiam habebat ex omnibus legionibus qui numero aegrorum relictis erant Brundisi, cum exercitus in Graeciam transportaret, profectus est in Illyricum*»).

One of the advantages of Brundisium seems to have been the navigability⁹³¹. Even if it is known that the Mediterranean was not entirely closed during Winter⁹³² and that ships were still sailing throughout harsher meteorological conditions, the travels were less frequent and there would have been greater hazards. Belov, basing himself in *Veget. Mil.* 4.32, states that «it is known from textual sources that navigation in the Mediterranean officially occurred during the period from May 27 to September 14», and that although one cannot consider these dates as absolute limits, it can overall be accepted that the larger portion of maritime navigation would have occurred during the aforementioned period⁹³³.

⁹³¹ Plut. *Vit. Crass.* 17.1 states that Crassus would have come to Brundisium and departed from this harbour with his fleet. The results would have been hazardous, as the weather would have caused for several vessels to be lost, but it shows that it would not have been impossible and that this harbour was still being preferred even during Winter season. Dio Cass. 50.11 similarly displays the importance of the harbour during the period of the last civil war. This chapter shows that it was from Brundisium that Octavianus set sail towards Actium, with the route going through Corcyra («*Κερκύρας*»), soon having to return due to a storm. Brundisium thus served as a place for the gathering, preparation and stationing of the warships during the latter half of the 1st century BCE.

⁹³² On this subject see, for instance, Tammuz, who recalls Vegetius' and Hesiod's divisions by comparison to sources through History. Historical sources seem to show that in pre-Roman times there would have been four open sea-routes circulating between Greece, Asia Minor, Egypt and Phoenicia, with no evidence for sailing in January and February; however, when compared to other sources, one can verify that winter navigation still occurred, except in January, due to the opposition between coastal and open-sea navigation, the former considered by the text as «impossible in winter» (Tammuz 2005). Beresford (2013) speaks of navigation from late January (39; 41-42, speaking not only of the *Nauigium Isidis*, on which there is no consensus regarding the date, but also the festival in Ostia dedicated to the Dioscuri, «in hope that the twin brothers would bring calm to the seas», celebrated in January 27).

⁹³³ Belov bases this upon Arnaud's 2012 work, which makes statements regarding ancient navigation knowledge; on the wind: «Les Anciens savaient déjà très bien décrire les grands systèmes de vents qu'ils ont qualifiés "d'étesiens", de secteur est entre le sud de la Sardaigne et la Bétique, de secteur nord-ouest en méditerranée centro-orientale et en mer Égée, où le meltem pouvait devenir un problème» (113-14); on

Another evidence of Winter navigation, including Winter campaigns, is in Plut. *Vit. Caes.* 37.3, in which it is mentioned that Caesar's army would have crossed the Jonian Sea during Winter and engaged, first and foremost, in taking the coastal cities of Oricum and Apollonia. These would have provided the Roman army with new naval bases, which could then be used to station a portion of the army whilst the remainder was being retrieved from Brundisium. Under Julius Caesar's command, and considering the continuous lack of vessels in his Mediterranean fleet (especially during the Civil War period), harbours will reveal themselves important ground to keep the flow of transportation going. Apollonia itself, of which mostly ruins remain, was built «on an extended hill overlooking the river Aous». In Ancient times, it would have been an important location «because it gave access only to the turbulent tribes of Illyria and Macedonia. Italians traveling to Greece or to the Middle East found it easier and safer to make their way by sea from Brundisium»; thus, it would have remained a second to travelling from the latter at least until the late 2nd century BCE, when «the Via Egnatia was built», connecting «Dyrrachium and Apollonia»⁹³⁴.

The well-known episode of Julius Caesar traveling by night and under cover occurs between the harbours of Apollonia and Brundisium and is described in Plut. *Vit. Caes.* 38. This chapter provides further information regarding the navigability of the seas in the region, inclusively during the late Winter season. The sea is mentioned as being filled by enemy vessels, which thus seems to be another evidence that, in spite of the notion of Winter being a perilous moment to navigate, navigation was still on-going, especially seeing as this is a period of war and it would require vigilance. This departure is said to have begun through the river Aoüs, which thus allows one to question whether there would have been intermediary river posts within Dyrrachium before the vessels reached the mouth of the river; it seems that the navigability along the Aoüs would also have been influenced by sea-coming winds, which would thus justify the creation of smaller protective ports.

It would seem that the construction projects of the latter half of the 1st century BCE began a few decades before these were actually put to practice, and by different people from

winter navigation: «Il est traditionnel d'opposer une saison de mer ouverte et une saison de mer fermée, Ces deux notons, étrangers au monde grec, mais fondamentales au monde romain, n'ont jamais défini des interdictions; tout au plus une norme statistique et une approche de la gestion du risque. (...) Il convient donc de nuance, à défaut de la rejeter absolument, l'idée d'une interruption totale du trafic maritime en hiver». Thus, even if the amount of sailing vessels would diminish, navigation would not absolutely cease.

⁹³⁴ Everitt 2006.

those who then came to achieve them. Plut. *Vit. Caes.* 58 describes Caesar's plans in the long-run, and one can observe that plenty of these would have included intervention along the coastlines, not only in the Italian Peninsula, but also further into the Roman area of influence. The first stage of his plans would have been to campaign against Parthia and, following the conquest of Parthia, to take his army through the Euxine sea through Hyrcania, the Caspian Sea and the Caucasus to invade Scythia. All of these seem land campaigns, but the fact is that most of them would involve sea-crossing and travelling along the sea, which would possibly be facilitated if the Roman army had safe harbours where it could remain to restock and regain strength and logistic capacity.

Later, Caesar would have been intending works of significant dimension, namely, to dig the isthmus of Corinth, with an individual named Anienus having been put in charge; meanwhile, there would have been a purpose to change the flow of the Tiber towards Circeium through a channel so it would reach the coast at Terracina. These two measures are mostly related to the matter of communications: as will be seen below, the isthmus was still in use during the Augustan period and was one of the main ways through which one could communicate between both sides of the Peloponnesian Peninsula; a channel across the isthmus may have eased navigation. The purpose of deviating the Tiber from its original course would also have been related to the matter of facilitating navigation, in this case to enable further future prosperity of commerce, as a way to protect the transport ships; it is therefore possible that more intermediate stations along the river would have been intended to create maintenance posts for these ships.

Caesar's last intended planification would have been directed towards protective measures rather than the facilitating of transport: the project would have been to create protections around the shoreline close to Rome (through *χώματα*), taking measures to facilitate the anchorage round Ostia⁹³⁵ and to subsequently develop the infrastructures around the city through the building of new harbours and places of safe docking (Plut. *Vit. Caes.* 58.5: «*λιμένας ἐμποιήσασθαι καὶ ναύλοχα πρὸς τοσαύτην ἀξιόπιστα ναυτιλίαν*»). According to the source, these measures would have already been in preparation during Caesar's life, which can mean that, to an extent, Caesar was one of the individuals

⁹³⁵ Anchoring at Ostia seems to have been problematic. Strabo describes it as having no harbour, which would have been caused by the accumulation of deposits brought by the river Tiber; it would thus have been deemed as a difficult and even perilous post for anchorage, something which would not have deterred the arriving vessels, made lighter by small transport ships which would circulate around the mouth of the river to take up portions of their cargo. Together with Ostia, Strabo states that Antium would also be harbourless, even if it was a maritime city which would have engaged in naval activity (Strab. 5.3).

responsible, albeit indirectly, for the change in policy of coastal development during the latter half of the 1st century BCE.

During Gnaeus Pompeius' early career, he is often said to make his way towards/transported his army to Brundisium. Plut. *Vit. Pom.* 27.1 mentions the commander having parted from the main fraction of his fleet, which would have been sent to Brundisium whilst he made way for «*Τυρρηνίας*»; later, Plut. *Vit. Pom.* 62.2 mentions the commander having taken hold of the harbour, on which he would have found «*πλοίων εὐπορήσας*», plenty of unspecified ships, stationed. It is not stipulated whether Pompeius would have taken hold of the city for its geographic advantages or to control the large number of ships stationed there, but this may be an indication of the size of the harbour during this time period, as the commander is said to have travelled between Brundisium and Dyrrachium with the consuls and a large number of soldiers, which would thus require a significant number of transports. The number of ships in itself, however, is insufficient to determine the size of Brundisium: not only could the vessels have made several trips between both harbours (although this remains unmentioned in the chapter), but it is later revealed that Scipio and Gnaeus, Pompeius' father-in-law and son respectively, would have been put in charge of attaining a larger fleet, which means that the ships in Brundisium would not have been sufficient for Pompeius' devices.

Both Brundisium and Dyrrachium seem to attain a significant role during the civil war between Pompeius and Julius Caesar⁹³⁶. There were circumstances in which the cities had to take a party and align themselves with either faction. As mentioned above, Pompeius took hold of Brundisium and benefitted from the ships already stationed there; during this time frame, in which Caesar would have taken over the city of Rome, Pompeius would have strengthened the fortifications in Brundisium by creating trenches around the harbour and placing spikes along the interior, whilst also leaving a force of soldiers to defend it. These temporary protections seem to have been built very quickly and their purpose is likely to have been the safeguarding of Pompeius and his army during their stay, rather than doing so in the long run; Plut. *Vit. Pomp.* 62.2-4 states that three days

⁹³⁶ Not only Pompeius would have taken Brundisium and attempted to keep it from Caesar's army. Plut. *Vit. Ant.* describes a situation in which Caesar, after having sailed across the Jonian Sea (departing from Brundisium yet again), would have found himself under difficulties as the harbour would have been under the control of Libo following Caesar's absence. This would have been crucial enough to lead Antonius to attack the harbour with warships and small craft. It is not specified whether Antonius intended to engage in a naval blockade or an actual attack to Brundisium, but, according to the source, whichever plan he had would not have come to term, as Libo would have sent his own men against him.

after the whole of the army (including the city guards) would have embarked and sailed to Dyrrachium. When Caesar reached Brundisium, he would have avoided having issues with the newly built protections because the inhabitants of the city would have warned him about them. This shows, therefore, that even if Brundisium tolerated Pompeius' presence, it would have remained, at least, neutral, since Caesar was benefitted with information that protected his forces.

Another such instance is found in Plut. *Vit. Ant.* 35.1, yet again regarding Brundisium, but for the period of the Civil Wars between Antonius and Octavianus. It seems that the former would have sailed towards Brundisium with his fleet and that the inhabitants would have refused to receive him. This allows for several conclusions. Firstly, that Brundisium would have had the capacity to protect itself against large fleets, although it is not explained whether this protection would mostly derive from the walled infrastructures around the city, from guard vessels stationed at the entrance of the harbour (or within it, although this would diminish the harbour's capacity for receiving other ships) or from a force of foot soldiers stationed both in the city and its walls. This seems to differ from the situation under which Pompeius found himself, seeing as he is said to have stationed his own men guarding the walls, and one can ask whether the city had suffered substantial changes in defensive structures during the few decades that separate both occasions, and whether these changes would have been motivated by the city of Rome itself or initiatives taken by Brundisium.

One can also state that once more it seems that Brundisium takes the Caesarian faction: during Pompeius' stay, the city seemed to lack resources to go against his intervention, as he would have commanded the citizens to abstain from intervention and remain within their households, possibly as a way to avoid popular unsettlement; however, the city reveals Pompeius' defensive protection structures to Julius Caesar as soon as he is nearby and Pompeius has left. Later, Brundisium had the capacity to entirely decline entry to Antonius, who was then forced to sail to Tarentum. Thus, there seems to be somewhat of an allegiance between Brundisium and the Caesarian faction, although the specific motivations are not entirely clear; it is possible that Octavianus himself would have stationed his troops in Brundisium to permit its defence, but that does not explain the matter of vessels, seeing as Antonius would have been sailing with three-hundred ships and Octavianus, during this time period, would have had less significant numbers of warships; Antonius could therefore use his naval force to attack the inferior fleet of

Octavianus outside the harbour or create a blockade. The diplomatic intervention of Octavia is said to have spared further aggressive measures during this particular circumstance, which would have led to both the land army and the fleet peacefully remaining in Tarentum⁹³⁷.

Brundisium will also be a station for Julius Caesar in a later period of the civil wars. In early January of the year 48 BCE, whilst Pompeius would have been towards Dyrrachium⁹³⁸, Caesar would have gathered forces in Brundisium, which once again serves as a protecting centre for a commander, in the case Calenus. During this relatively short time frame, Caesar would have informed Calenus that *«quibus et certior factus portus litoraue omnia classibus aduersariorum teneri»*: since all the harbours and shoreline would have been taken by the enemy fleet, Calenus would have necessarily needed to stay in Brundisium. The strategic importance of this harbour would have been such that Caesar's *Civil Wars* mention the same passage twice: that Libo, when leaving from Oricum and towards Brundisium, would have opted for *«insulamque quae contra portum Brundisium est occupauit»*, occupying the island in front of the harbour, because, according to the source, *«quod praestaret arbitrabatur unum locum, qua necessaries nostris erat egressus, quam omnia litora ac portus custodia clausus tueri»*. The specific location of Brundisium would have been crucial during the Caesar-Pompeius civil war, and it would have considered vital to defend it as it would have been the one location through which troops would have passed; this would have taken a commander to keep the focus of his troops in Brundisium, rather than protecting *«quam omnia litora ac portus custodia clausos tueri»* instead. Such undertakings are again mentioned in Caes. *BCiv.* 3.100, in which D. Laelius is mentioned as having occupied the same island as Libo; from this harbour there would have been a supply flow coming from Corcyra and Dyrrachium, which would have kept this commander stationed.

An observation that may be made through the analysis of harbours in Ancient sources is that, if they are usually lacking in precise descriptions of their planification and numbers, they seem to be profitable in using them to recreate ancient sea-routes. Caes. *BCiv.* 1.24, for instance, mentions an occasion in which Pompeius would have travelled from Luceria

⁹³⁷ Plut. *Ant.* 62.2 mentions a circumstance under which the Caesarian fleet would have been divided between Brundisium and Tarentum. One can ask whether any of these harbours was insufficient to hold all vessels, especially when observing that, during the former presented case, the vessels are said to have remained off the coast, which probably implied they were anchored and not protected by the harbour.

⁹³⁸ According to the pre-Julian calendar, as seen in Grillo 2012, 176.

to Canusium and from Canusium to Brundisium. Later in Caes. *BCiv.* 1.25, however, it is stated that part of the army would have travelled directly from Corfinium to the island of Sicily. In this chapter there is also a mention to the specific importance of Brundisium in the geostrategic thought of a Roman commander: whilst the Roman consuls would have been in Dyrrachium, Pompeius would have stayed in Brundisium with part of his army, allegedly *«obtinendine Brundisi causa ibi remanisset, quo facilius omne Hadriaticum mare ex ultimis Italiae partibus regionibusque Graeciae in potestate haberet posset»* or due to the fact that *«inopia nauium ibi restituisset»*; the source itself reckons that it remains unclear whether Pompeius would have remained due to a lack of ships or to control the sea, but it is nonetheless an indication that Brundisium could be seen as a location from which the Adriatic sea could be controlled. Pompeius subsequently suffered a blockade in the harbour of Brundisium, which seems to indicate that the second hypothesis is the most likely, since the commander could have countered this blockade by naval attacks if he had enough resources.

Caesar describes the blockade with relative extension, which is not a very common occurrence in ancient sources:

«quorum operum haec erat ratio: qua fauces erant angustissimae portus, moles atque aggerem ab utraque parte litoris iaciebat, quod his locis erat uadosum mare. Longius progressos, cum agger altiore aqua contineri non posset, rates duplices quoquoversus pedum xxx e regione molis collocabat. Has terra atque aggere integebat, ne aditus atque incursus ad defendendum impediretur; a fronte atque ab utroque latere cratibus ac pluteis protegebat; in quarta quaque earum turres binorum tabulatorum excitabat, quo commodius ab impetu nauium incendiisque defenderet».
(Caes. *BCiv.* 1.25).

In locations where the sea was shallower, he would have ordered the site to be blocked through the construction of *fauces* and other devices, which, however, could not be held together in regions where the sea was deeper. To overcome this difficulty, he would have used *«rates duplices»*, two smaller boats, which would have been placed *«pedum XXX e regione molis»*; once these were secured, more would have been placed next to them, filled with soil and including other protections, such as *«latere cratibus ac pluteis»*; *«in quarta quaque earum turres binorum tabulatorum excitabat»*. The harbour was thus surrounded, and ships could not enter nor exit; the structures used to close the harbour would have been very similar to those observed in similar land sieges, a tendency which is often observed in the Roman navy. We have frequently observed situations in which the ships are used as floating platforms and, in this case, they seem to become so again, not to engage in battles at sea but to create a functional barricade. One also has to be attentive to the idea of *rates* being used and the size of these *rates*, seeing as they would

have had to cover a significant part of the harbour and also keep hold of the siege towers, something which will also be observed in Pompeius' faction when he sets to counter this by sending several «*naues magnas onerarias*» which he had brought from Brundisium, several of them transporting turrets.

Appian's 3.2.10 mentions Octavianus having travelled to Lupiae rather than Brundisium following the murder of Julius Caesar. The following chapter seems to give important information regarding not only the centrality of the harbour as a location to gather war resources, but also as a place of status. According to Appian, after Octavianus entered the details of what had happened to Julius Caesar, instead of taking advice and renouncing his adoption by the latter (as well as the inheritance) he would have travelled to Brundisium and stationed himself there: the army would have come to him, he would have engaged in sacrifices and transformed Brundisium into the centre of his campaign, to which tributes and currency would have been brought to him. When Octavianus is attempting to avoid being recognised, he avoids the harbour; however, when he desires to enter public life as the adoptive son of Julius Caesar, Brundisium is the first location he enters, which seems to mark a symbolic moment and the distance between the private and the public, the transformation from Octavianus to Gaius Julius Caesar, the commander's adoptive son and heir.

Brundisium, as has been shown above, is a place for gathering, but it may have assumed other roles in this regard that may not seem immediately clear. App. *B Civ.* 5.9.78 mentions a gathering between Octavianus and Antonius in Brundisium, with the intention of preparing and planning the war. As a place from which there were frequent departures towards several points of the Mediterranean, Brundisium would have assumed an important situation as the location where the campaigns were organised, thus making it, although indirectly, a central military station of Roman command, a station that may have been assumed by other harbours from which there were constant departures to war, as is the case of Puteoli (mentioned in the same chapter).

During this last period of the civil war, most of the harbours being used for the Roman fleet were in Greek territory. If the sea port of Corcyra seems to have been unable to fully provide for the fleet, this seems to have been an issue which would have been found further along the campaign, giving substance to the authors who state that there would have been plenty of natural, non-fortified harbours in use. Following the occupation of Corcyra, Octavianus would have felt the necessity to fortify his position between

Nicopolis and the Ambracian gulf by building walls towards the harbour of Comarus. There is also a mention to a possible technological intervention in the moving of the vessels, which, however, the source cannot confirm: Dio Cass. 50.12 states that the Caesarian triremes would have been taken from the sea to this gulf through these fortifications, using «*βύρσαις νεοδάρτοις*» and «*έλαιον*» (hides and olive oil). Cassius himself states that he finds this to be highly unlikely; however, he does mention the «*όλκός*»⁹³⁹.

In Cassius Dio (50.11-14) one finds a detailed description of the movement of the army right before the Battle of Actium. It appears that Octavianus would have set towards Corcyra (departing, yet again, from Brundisium), but, finding several difficulties, amongst which some meteorological, and following the developments of war, he would have returned to Brundisium and gathered his army, once again departing for Corcyra. There is an implication of the latter being taken through ships, but the process is not specified and there are more questions raised than answered. The city would not have been guarded by soldiers the moment of this attack, although the cause is not justified: it is only mentioned that the harbour was abandoned. The passage shows not only a military presence in the harbour of Corcyra (not explaining, however, how it would be processed), which may have been a regular occurrence in most harbours of more significant dimensions, but also that the ships themselves would have been important in the successful taking of the harbour. Seeing as it was not being guarded, it is possible that this is a mention to the vessels just entering it and taking shelter upon it, rather than there having been any sort of confrontation. The other question is that the ships in the Caesarian fleet would have been stationed in a fluvial harbour connected to the sea following their entrance in Corcyra. This was known as «*λιμένα τὸν γλυκὺν*», literally a harbour of

⁹³⁹ Some harbours were complex structures, and the principle of taking the vessels from the main harbour into a smaller, more protected location, as shown, for instance, by Agrippa's construction of the channels, was taken to higher proportions in harbours like Corynth. The Diolkos, an engine that would have dedicated itself to transport ships across the Corinthian Isthmus, is an example of this principle. Defining the Diolkos, however, is a matter which must be subjected to further interpretation. There are statements for it being «a slipway for hauling military ships and commercial vessels and cargoes from one sea to another» in «classical, Roman, and Byzantine authors», but there is scant textual evidence prior to their writings of the Diolkos having ever been such: as mentioned by Pettegrew, «the only ancient writer to apply the term to Corinthia, the geographer Strabo, used it as a toponym to denote the narrowest district or area of the Isthmus where the constriction of the neck was greatest» (quoting Strab. 8.2.1, 8.6.4 and 8.6.22; Pettegrew 2016a, 6-9). First and foremost, it seems that the diolkos, which, in fact, seems to have existed, would have been a road, which to Pettegrew is «an expression of the growth of the Isthmian district in the classical period», when «pavements were added to the trans-Isthmus road to facilitate the movement of goods and people from the Corinthian Gulf to Corinth's important meeting place and eastern emporium on the Isthmus» (Pettegrew 2016b, 60).

«sweet» (fresh) water, which means that the vessels would have been dislocated further into the mouth of the river. It is in this location that Octavianus is said to have created his *ναύσταθμον* in preparation to depart towards Actium. The fact that the ships were taken into the river is possibly an indicative that the Corcyran harbour did not have enough conditions to receive them, whether this was a matter of size, natural constrictions or the need to defend the ships from any potential incursion.

7. Other harbours in the Italian Peninsula: Strabo's accounts

Aside from the larger, well-known harbours which are frequently mentioned due to their importance for the Civil Wars, there are other lesser known ports which, in Ancient Sources, are mostly (and often exclusively) known through the works of Strabo. One of these cases is described by the source in Strab. 5.222. During his description of the shoreline of Tyrrhenia, he states that it would have gone from Ostia to Luna. Luna, he states, would have been a coastal city dedicated to Selene, the Moon, and the source describes it as not having been a very large city but as having a large and beautiful harbour, which had several port subdivisions within. These ports would have had natural characteristics that facilitated their creation and protection, such as them being surrounded by mountains and by marble quarries, which possibly were an incentive for commerce. The fact that Luna had several ports within is not an odd occurrence, as we have observed, as there are several circumstances in which a main harbour is connected to smaller ports, but this is one of the few occurrences in which a city is named for its harbour and seemingly less developed than the latter, which seems to be a signal of the importance of Luna as a harbour within the coastal region. However, and in spite of Strabo's detailed description, Luna does not seem to have been a relevant military harbour, as it is not mentioned by the sources for most of the large military campaigns.

There is archaeological evidence for Luna's location. It has been traced to the «boundary between the lower Magra Valley and the Apuo-Versilia plain», a location which has indications of communities since «2500 BP», but only began to grow upon the foundation of a Roman colony, *Luna*, in «177 BC (2127 BP)»⁹⁴⁰. But there is an issue with the coastal area: as of 2012, it is still not possible for archaeology to trace the existence of any type

⁹⁴⁰ Bini et al. 2012, 38.

of harbour components⁹⁴¹. This raises a conflict with the source, as Strabo clearly states their existence and goes as far as to affirm that the harbour would have continued to subsist after the city had become devoid of inhabitants. Bini et al. suggest that «stratigraphic and chronologic evidence from the examined cores testifies that around 2200 BP, when the city of *Luna* was founded, environmental conditions in the area close to the city walls were not favourable for a harbour». They consider that «the lagoon west of the city (*Seccagna*)» would have been the most propitious location to build a harbour, and that there would have been issues with sedimentation which would have been related with the decline of the city itself, «which occurred only a few centuries after its foundation»; this also seems to contradict the source, which states that the city would have been abandoned due to a siege rather than any actual issues with the geography and topography of the region. One can question the discrepancies: perhaps the city was already in the process of being abandoned when it was attacked, which would have accelerated the process; perhaps the city was attacked first and, considering the difficulties which it would have been facing before, it was never repopulated. Perhaps the siege did not happen, and it was Strabo's explanation for a phenomenon which remained out of their understanding. The lack of evidence for a harbour is what seems more difficult to explain, as the source clearly states that the city would have declined whereas the harbour continued to exist.

There seem to be several cases throughout Thyrrenia in which the harbours are better developed than the cities attached to them. Another example presented by Strabo in the same chapter is Poplonium, a city that would have endured a siege; it seems that it would have become deserted by his time aside from scarce population and temples, but the harbour nearby, which would include two installations for ships, would have had a larger demographic basis. An analysis of the case of Poplonium leads to several conclusions. Firstly, that there seems to be a separation between the city and its harbour in terms of administration, since the source distinguishes them, even if they seem to belong to the same complex; this is a similar case to what is verified between Rome and Ostia or Athens and the Piraeus. They are simultaneously separated and attached: they are used to create a comparison between one and the other in terms of population, but in this case, there is not a specific name provided for the harbour and its city. The source also seems to point a potential reason for the abandonment of the site, namely the fact that Poplonium had

⁹⁴¹ Bini et al. 2012, 38.

endured a siege; whereas the city itself became devoid of population, the harbour continued to exist. During the siege of the Piraeus, we observed that the city of Athens seems to have struggled considerably more due to logistical issues than the Piraeus itself, and this seems to be another set of evidence for the greater survival capacity of harbours during sieges when compared to cities further inland. Strabo follows with the affirmation that Poplonium would have been the only ancient Tyrrhenian city located by the sea, which seems to conjoin city and harbour yet again, and states that the region itself would have been mostly devoid of harbours because the first settlers would have avoided them or at most created defensive stations in order to protect themselves from ship raids rather than actual harbours. This seems to bring somewhat of a contradiction, at least in the long run: whereas coastal cities are more prone to being attacked, they are also seemingly more resilient against sieges, as they will often have grain supplies that inland cities lack.

There also seem to have been islands which would have connected with the Poplonium routes. Strabo mentions at least three: Sardo, Cynus and Aethalia, which would have been the closest to the Italian shores and the most navigable. There would have been commercial movement between these islands, which indicates there would have been developed ports or larger harbours, one of which was named Portus Argous, after the ship of the Argonauts, yet another indication of the symbolic/mythologic connotation of ancient harbours. This is seen yet again not much further ahead, when Strabo mentions the existence of a Harbour of Heracles after the city of Cossa, not too far from this region. The use of small islands along the coastline to provide additional help for sailing vessels would have created safe intermediary posts which could provide shelter during difficult meteorological situations, and this could also be provided by smaller cities along the coast: Strabo mentions four stations between Cossa and Ostia, namely Grauisca, Pyrgi, Alsium and Fregenae, and one cannot dismiss the possibility of these having served similar functions to those of the islands.

Another factor which is mentioned by Strabo regarding the region of Tyrrhenia is the matter of lakes. As we observed in Chapter II, throughout Roman Europe, we can find several archaeological remains of boats and larger vessels along the lakes, especially in the region of Switzerland; these are, as a matter of fact, some of the locations where one can most often find preserved vessels. According to Strabo, Tyrrhenia would have prospered also because of its large number of lakes, not only because they would have provided plenty of fish and some materials, but also because they would have been

navigable. The smaller lake craft would probably not need as much of a safe station to be sheltered when not in use, and could potentially be dragged on land, but we know from archaeological remains that some of these vessels attained significant sizes, and thus we can pose the question on whether these Tyrrhenian lakes, together with the other larger lakes across Europe, had port infrastructures to receive these boats, or even shipyards and ship sheds. We know, for instance, that there would have been anchor sites along the Italian rivers, as the source states that there would have been anchoring places between Antium and Circaeum, at the River Storae, followed by a smaller anchorage site near Circaeum; neither of these are said to have belonged to a city, so we can question whether there would have been small communities surrounding these inland port stations.

We have observed that there is a great scarcity of harbours along the Italian shoreline up to the mid-1st century BCE, which thus results in a harbour-building program during the latter half of the century. The reasons for this scarcity are not entirely clear, especially not in ancient sources, but Strabo seems to present some possibilities. We have introduced above some of his potential explanations for this along Tyrrhenia, related to defensive questions and the existence of lakes; he also provides one regarding Latium itself. According to Strabo, even if the region in general would have been fertile, the coastline areas would have struggled, given that some would have been constituted by marshes or were mountainous. This would have been a justification for the lack of harbour cities: not only would the sites be difficult to use as anchor places, but they would have also had to struggle with fertility issues and become greatly dependent on the importation of grain.

We have observed that Brundisium would have been one of the Roman harbours connected to the Via Appia, and Strabo states that it would have been also one of the few. The exceptions would have been Tarracina, Formiae, Minturnae, Sinuessa and Taras, which makes for a total of six harbours reached by the Via Appia, out of a very extensive shoreline; however, the road itself seems to have had somewhat of an interconnectivity to the navigable channels, as Strabo mentions there would have been a connection between Tarracina and Rome with a ship towed by a mule. As the stretch does not seem to have been considerably large, it is likely it did not have the need for any sort of support in-between, but there must have been some structures close to Tarracina and at the end of the channel upon which people could exchange their travel to the Via Appia: as the ship was towed, for instance, it would have required several changes of the mule throughout

the day, and it is likely that there would have been someone, whether privately or in the name of city, making profit from this method.

If Strabo distinguishes Greeks and Romans by their dedication (or lack thereof) to the construction of harbours *vs* roads, there is, nonetheless, an acknowledgement of the importance of the said roads in connecting the harbours. The source states that the Appian Way would have connected the cities by the coastline until Sinuessa, which indicates there would have been an interest to construct a land connection between the cities by the sea, and one can question whether this would have been due to the lack of safe ports or navigable routes, or whether there would have been other intentions, such as facilitating the transport of goods to the locations where they could be connected to other inland roads, or even the serving of military purposes, since, as we have observed in chapters I and II, the army often marches with transport ships carrying supplies alongside. The other roads mentioned by Strabo also seem to be connected to naval transports: the Valerian way, for instance, which would have begun at Tibur, would therefore be close to the navigable Anio, a river which would create a connection to quarries; the source itself states that the produce of this quarry would have been transported by river.

Further along the Italian coastline, Strabo describes another fortified location, giving some details regarding its nature. This comes in a succession of several coastal cities, some of which are connected to ancient harbours: through his notice of the Picentine, he acknowledges a number of cities and respective harbours which seems to exceed significantly those found along Latium. Amongst them are Ancona, which he describes as a Greek city founded by people of Syracuse, a fertile location which would be connected to a harbour; then, Auxumum, which he describes as being relatively close to the sea, thus seeming to indicate that this would have been a station located further along the interior, and possibly an intermediary site of connectivity. To Auxumum follow Septempeda, Pneuventia, Potentia and Firmum Picenum; of all these, only the latter is mentioned as having a harbour, which receives the name of Castellum. This seems to be a case like that of Luna and its harbour, yet again, a case in which a city and a port are considered both as technically separated but belonging to the same complex; the harbour is seen as belonging to the main city, which is located further inland and possibly provides a safe location against sea incursions, but it is also self-sufficient.

This self-sufficiency can be seen in the question of naming the harbour. Whereas some remain unnamed by the source, therefore not allowing us to understand whether it would

have shared the city's name or have its own (as is the case of Luna), others deviate from the original nomenclature (Castellum). Strabo states that the city of Adria would have had a port by the river Matrinus, and that this would have received its name from the river. In the case of Castellum, it seems that the new name attributed to the harbour is mostly connected to its function or the fortifications surrounding it; in the case of Adria's harbour, it was a matter of geographic nomenclature. Whether this has a direct connection to the degree of fortification of a harbour is difficult to ascertain, but we have seen several cases of harbours which were not named in function of their location; this means, therefore, that there must be other factors determining whether the topography or geography give the name to a port, and one may question whether these are part of elusive historical or archaeological knowledge or a coincidence. If the nomenclature, or the reason for its existence, seems difficult to understand, we can, however, verify details regarding the harbour's situation in itself: this would have been a fluvial port, one of the few cases in which there is a specific notice of such a location. Although little is mentioned by the source, if this location belonged, in fact, to Adria, there are several possible conclusions that may be reached: either Adria felt the necessity to have a connection to fluvial circulation and, as such, devised to create the harbour itself, or the city had existed before this necessity arose, and Adria either incorporated or subjugated the location, whether directly or through the imposition of tax.

The question surrounding fluvial harbours seems even more elusive than their coastal counterparts. As we've seen above, inland cities that found a necessity for closer contact with river flows could have created or taken settlements by the river banks, which, presumably, would have been smaller or had less defensive/offensive capacity than the inland location, as they were developed as posts rather than large settlements. Further along the same chapter, Strabo mentions another of such river harbours, one that seems inserted in a larger network: after naming several coastal cities (Corfinium, Sulmon, Maruuium, Teate and Aternum), he would have focused in the one which, in spite of its sea-bound location, would have been named after a river. Aternum is described as being a small-sized harbour; however, due to its location, it would have been able to connect the inland cities to the sea and the navigation within river Aternus, making it a central station between land and sea, much to the similarity of Ostia (whose name is connected to its geographical situation, rather than any fortifications).

The matter of the property of Aternum is what seems to distinguish it: if, in theory, it would have belonged to the Vestini, it would have been also used by the Peligni and the Marrucini. Strabo does not enter details on this state of affairs, however, and we do not know whether the latter would have had access to it through the payment of a tax, or whether all these peoples would have contributed collectively to the maintenance and upkeep of the harbour, so that they could all use it. As harbours received ships coming from all regions, we can also question the meaning of Strabo when he states that it would have been used by several specific people, as this possibly indicates more than the exclusive use as landing station, and rather the place where ships would be kept in sheds, whether because they were not in use or awaiting repairs. The ships kept in Aternum would likely be of very varied natures: as it connected the river and the sea, it possibly stored both fluvial and coastal craft, and even, potentially, some hybrid vessels that could sail up the river but also go a few miles into the sea. The relationship between the Peligni, the Marrucini and this harbour must have gone beyond it being an intermediary station, and there must have been ships belonging to these peoples stationed in Aternum's ship sheds, although we do not know the distribution. Would each city have their own shipsheds built within the harbour or, on the contrary, would there have been a common instalment that all could use, provided the fees were paid? Were there shipyards in Aternum? If so, did they belong to the harbour, its mother-city or the other frequenters?

8. Three notable cases: Alexandria, the Piraeus, and the Sicilian shores

Another harbour which revealed itself of importance to the Roman fleet, although not Roman itself, was the ancient harbour of Alexandria. The region seems to have several natural advantages. *BAlex.* 9 mentions a fleet that, in spite of being kept from the shore by the *Euro*, would not have struggled in the impossibility of reaching a harbour, as «sed loca sunt egregia omni illa regione ad tenendas ancoras»; most of the locations would have provided the fleet with safe natural harbours. Later, in chapter 12, the source seems to give an idea of the considerable amount of warships that the Alexandrian harbour could hold: «ac tametsi amplius CX nauibus longis in portu naualibusque amiserant», one hundred and ten long ships, thus warships, that would have been attacked and destroyed in the harbour. Even though these are the destroyed vessels rather than a total number,

and despite the lack of a mention to how many ships it could hold in total, it ascertains that it could keep at least over a hundred.

The strong surveillance of the harbours along North Africa and through the Nile would have encompassed issues to the Roman fleets on occasion, as seen in Caes. *BAfr.* 3, in which «nam neque ullum portum terrae Africae quo classes decurrerent pro certo tutum ab hostium praesidio fore suspicabatur»; with all the harbours undergoing vigilance, the ships would have needed to keep away from the coastline. A harbour blockade can be effective against fleets in two ways: by either keeping the vessels trapped within, thus facilitating any eventual attacks and cutting the supply flow, or by imposing a fleet to remain at sea, keeping it away from fresh provisions, making any eventual repairs more difficult and, under certain circumstances, forcing the vessels to retreat to a harbour further away, thus allowing not only eventual attacks during this dislocation, but also worsening the question of supplies on-board. Preventive measures against this type of circumstance are observed, for instance, in Caes. *BAfr.* 21, in which «Caesar classis circum insulas portusque disposuit quo tutius commeatus supportari posset»; the threat to his fleet would have taken Caesar to station vessels in several harbours to allow for the supplies to reach them safely. During war periods, which are rather the norm during Ancient times, nourishment and war apparel would often be transported by ship, and harbours would thus become logistical centres for the preservation of war supplies, making their protection an essential measure.

Another instance of the defensive action of the Alexandrian fleet may be found in Plut. *Vit. Luc.* 2.5. This seems to be less evident: the chapter states that when Lucullus was attacked by pirate ships he would have found himself in a precarious situation and lost most of his vessels, and thus would have turned towards Alexandria, from which several ships would have come to greet him, as they would to a Basileus («ὥσπερ εἰώθει βασιλεῖ καταπλέοντι»). One can question whether this greeting was, in fact, one that was complimentary to Lucullus, or something of a different nature, namely a usual verification by the Alexandrian fleet of who was approaching, or even a case in which it would have been responsible to drive away the pirate vessels which could still be relatively close to those of Lucullus.

The Alexandrian harbour would have been supported by a network of ports throughout the Nile. *BAlex.* 13 states that «erant omnibus ostiis Nili custodiae exigendi portorii causa dispositae naues ueteres erant in occultis regiae naualibus quibus multis annis ad

nauigandum non erant usi». This part of the chapter thus allows for two conclusions: the first, that the several entrances of the river would have been guarded and that there would have been some kind of taxation. Second, that this region would have had hidden naval stations where vessels would be stored for many years. These would not have been reused to build new ships nor kept in circulation, and one can question how they found themselves stored in hidden dockyards belonging to the pharaohs; who was in charge of the maintenance, for instance, which would imply individuals guarding ships that were not in use for very long periods. What seems unlikely is that Rome would have had similar issues and thus similar structures, since, as verified throughout this chapter, Rome seldom found itself in a position to keep the vessels it acquired due to the lack of harbours, let alone to be able to keep older vessels in needed space.

Alexander Belov has been studying the ancient harbour of Alexandria. In 2015, the author published a chapter which attempted a comparison between the archaeological data and the ancient authors. It begins by observing the works of Strabo, who would have visited Alexandria and not only described the harbour but stated the advantages of the Great Harbour in comparison to the remainder, something which Belov justifies by it being «situated in the central and richest part of the city, in direct proximity to the imperial residences and major public buildings (Strab. 17.1.6-9)⁹⁴²»; the author also underlines Caesar's account of having burnt «50 quadriremes and quinqueremes as well as another 22 vessels during the Alexandrian War of 48-47 BC (Caes. *BCiv.* 3.111-112)», showing the substantial number of large crafts which the harbour could protect. The harbour of Alexandria would have been protected from the «northwestern wind» through several piers⁹⁴³.

Alongside Alexandria, it is worth including a brief mention to the Piraeus, which, even if not a Roman harbour, was subjected to Roman military actions during the early 1st century BCE. We have mentioned Sulla's attack of the harbour in Chapter I of this work; Appian's description, in App. *Mith.* 5.30, gives a relatively detailed account of the harbour itself. The Piraeus would have been developed by Pericles during the Peloponnesian war, and it is described as having «ὄψος δ' ἦν τὰ τεῖχη πήξεων τεσσαράκοντα μάλιστα», a wall forty-feet high, built with «καὶ εἴργαστο ἐκ λίθου μεγάλου τε καὶ τετραγώνου», great square stones. The fact that Sulla's first attempt at attacking the Piraeus failed and he had to

⁹⁴² Belov 2015, 47.

⁹⁴³ Belov 2015, 48.

retreat speaks for the magnitude of the harbour, and the commander would have ordered the building of a vast array of siege engines in order to attack its walls⁹⁴⁴, which shows that it would not have been an easy structure to undermine and that it would likely be well-guarded. There is even a mention, in App. *Mith.* 5.31, of espionage works in which Athenian slaves would have provided Sulla's army with information regarding the Athenian plans; whether it is a truthful report by Appian or a fictional episode, it comes to illustrate the fact that the source is underlining a siege of large proportions against a harbour of great magnitude.

Throughout most of the duration of the siege, it seems that the Roman army would have struggled far more than the defenders of the harbour. If Archelaus is said to have sent for reinforcements from Chalcis (amidst other unspecified locations) and ordered the building of siege towers as well, the source states that the Piraeus would have sent supplies to Athens itself. As we observed in chapter I, Sulla was focusing on the Piraeus more than Athens, and yet it still seems that the harbour is faring better against the Roman invasion, since the occupants are in condition to send supplies (App. *Mith.* 5.34); there must have been some sort of logistics flow entering the Piraeus, or some stored grain for the eventuality of enemy attacks; there is also the possibility of considering the constant flow of commerce into the harbour, which would possibly have led to several stocks of merchandise to be stored in harbour reserves, ready to be taken to other locations inland and sold; these would have helped keep the harbour while under Sulla's siege. Archelaus also seems to have conditions to counter Sulla's attacks through ladders and towers by building more towers of his own when it was necessary, which shows that the Piraeus also had additional resources stored that permitted the building of war engines. Chapter 5.35 continues to show the importance of the Piraeus in providing supplies to Athens; the source does not speak of any occasion between the two in which food supply convoys would have been circulating, but it is possible that successful logistics operations of smaller scale would have been occurring. Nonetheless, the source states that the new attempt at sending supplies to Athens would once again have been uncovered by the Sullan army, which may indicate otherwise, seeing as the Roman army looks prepared and well-informed regarding these movements.

⁹⁴⁴ «τέχνη μὲν δὴ καὶ παρασκευὴ πᾶσα αὐτῷ καὶ σίδηρος καὶ καταπέλται, καὶ εἴ τι τοιοντότροπον ἄλλο, ἐκ Θηβῶν ἐκομίζετο» (App. *Mith.* 5.30, regarding the use of siege engines such as catapults, which would have been provided by the city of Thebes).

Sulla's attempted attacks on the Piraeus would not only have required war engines but also an earth mound to allow for their use (App. *Mith.* 5.36, for instance). There seem to have been several works of terrain alteration on both sides, seeing that Archelaus managed to have the mound destroyed without having the Roman army notice it; although at first the procedure may not seem explicit, it is soon after understood when Appian states that the Romans would have attacked the Piraeus in a like manner, namely by digging tunnels. These tunnels would have had to be of considerable width and height: on the one hand, they allowed the defenders of the Piraeus to carry away some earth from beneath the mound, although it is not clarified how it would not have collapsed earlier. It could possibly be due to the nature of the soil used, which would likely be more compact and sustain itself on its own for a while; as it was meant to be used to place heavy war engines, it is not likely that it would have been a simple pile of soil, seeing that it would have succumbed or become unsteady and made the engines sink or slide, deeming it useless (the mound was likely strengthened). On the other hand, when the Romans began digging their own tunnels, they would have encountered the defenders of the Piraeus, and Appian says there would have been a fight despite the darkness of the tunnel. This specific detail can lead to several questions, the first and foremost being how the soldiers would have been able to fight in the dark, narrow and potentially unstable atmosphere of the tunnels.

Whilst we have observed that the tunnels needed to have substantial sizes, we do not know, for instance, how the piles of dug earth would have been discarded, and how the Roman army could have done so without alerting the enemy. The darkness could easily be solved through the use of torches or lamps, which would likely have been taken there regardless to enable the works, but we do not know whether there would have been much room for the men to move without collapsing onto a wall or the ceiling; and if the tunnels needed to have been relatively stable to withstand such actions, we are not told how they would have been kept standing either. The mention of the diggers finding each other is also problematic in another way, in which it seems to imply that there would have been one single location in which a tunnel could have been dug; we do not know whether this was due to natural characteristics of the terrain. There is also the fact that they are all said to have been carrying weapons, which means that they already believed they would have found enemies on their way, since carrying heavy weaponry would have delayed the process and added a struggle to the works. One may also question how Sulla was able to

recreate the mound so quickly after the works of the Piraeus' defenders, seeing that the ground would have needed stability; he is mentioned to have soon sent the war engines yet again and they would quickly have been able to sink the walls, allowing the destruction of one of Archelaus' towers, the assemblage of ladders and a large-scale attack to the city.

The problems seem to continue as we advance our observation of Appian's account. The same chapter 5.36 explains how Sulla's army would have destroyed large portions of the walls at once, and this gives us an account of the structure of the walls themselves. They would have been constituted by wooden frames which were then covered in stone, and the Roman army would have achieved the destruction of the latter and subsequently filled the inner wooden structure with flammable materials, which would have then been set on fire. We must consider, however, that these are the walls surrounding the citadel around the Piraeus, not the actual harbour cutwaters, which would have been partially submerged. The entrance through the harbour in itself, however, seems to have been impossible for Sulla, who would have attempted a land-bound approach which, if difficult, would have been more within his means.

As we have verified in Chapter I, at this stage it is said that Sulla had no ships, and since the harbour itself was completely fortified, he was unable to take the harbour through this enclosure. Perhaps this is indicative to how the Piraeus managed to endure the struggle of a siege for such a long time, as the likelihood of there being Roman patrol ships at the entrance of the harbour was small; however, this raises a new question. If the Piraeus had ships and the Roman army did not, how was the Roman army receiving supplies? If they arrived by ship, which would have been likely given the location, the ships within the Piraeus could have attempted to cut the supply lines before they reached the shore. It would thus seem that either Sulla had the means to attack any potential ships leaving the Piraeus, or the Piraeus did not have the naval means to attack Roman supply carriers; there is also the hypothesis of the Roman army attaining its supplies through other ways, which does not explain how or why the ships of the Piraeus would have been kept from engaging in any sort of activity, if they were at all.

Sulla's large-scale attack would still not have been completely successful, as he does retreat, after having caused considerable damage to the harbour; Archelaus proceeds to order reparations, which indicates, yet again, a relative abundance of building materials within the Piraeus. This hasty re-building of the harbour walls also presents another

information regarding their new, improvised structure, as they are said to have been moist and thus more easily prone to being attacked and destroyed, rather than the sturdy walls that preceded them; it is also mentioned that the walls of the Piraeus would have been built in the shape of a crescent, something which we have often verified for other harbour constructions. Even this attack would have been unsuccessful, and only at this point does Sulla turn towards the city of Athens and temporarily abandons the siege of the Piraeus. This was already a lengthy siege, and the fact is that Sulla would sooner take Athens than its harbour; as Athens was having a greater struggle with supplies, the city would have become weakened before the Piraeus, which would have come as an aid to the Roman army.

When Sulla finally manages to take the harbour, he is said to have destroyed it, and the source stresses the obliteration of several structures: *ὀπλοθήκη*, an armoury; *νεώσοικοι*, the ship sheds; and other *ἀοιδίμοι*, well-known structures. Thus, Sulla not only did not intend to take advantage of the harbour in the immediate future, but he considered it perilous for his future endeavours to an extent that he destroyed the main structures which served the purpose of a harbour, by eliminating not only the sites for weaponry preservation but also the actual constructions to store (and potentially to build) ships. Why Sulla would have taken this option is not entirely explainable through his lack of ships, as the Piraeus was a well-known and developed harbour with several centuries of history, as mentioned by the source itself; one may also question why there is a mention to the destruction of ship sheds, but not a single mention of ships or their respective destruction within. Were the ship sheds within the Piraeus empty? Were the materials used in these ships reutilised to build the improvised walls and towers put up by Archelaus? As we have observed in the previous chapter, ship timber is worked in a particular way, and one may question whether it would have been reusable in siege engines and walls. If there were no ships in the Piraeus, they would not have been problematic to the Roman army; if there were, they seem to have been ignored by this historical source.

If the Piraeus was destroyed by Sulla's intervention, it seems that it was not entirely out of use even in the continuation of the 1st century BCE. App. *B Civ.* 5.10.93 states that Antonius would have departed from Athens towards Tarentum with three-hundred ships, a statement which raises several questions with unclear answers. When the source was referring to the siege of the Piraeus, it distinguished between this harbour and Athens;

however, now it is referring to sailing from Athens itself rather than the Piraeus, making it unclear whether Antonius would have been sailing from a reconstructed Piraeus or other location around Athens. Secondly, the number of three-hundred ships is mentioned, which is, as has been verified, a rather large number for a harbour to keep within ship sheds. Could it be that none of these ships were kept within the sheds and they were all already on the shore and waiting for orders? Were they sailing from ship sheds around Athens that did not belong to the city? Was the Piraeus partially reconstructed, allowing for these ships to be stored? This chapter comes in the sequence of Octavianus having lost a significant portion of his vessels (App. *B Civ.* 5.10.92), which would have created a great necessity for new ones; these vessels, according to the source, would have come from allies, which remain unspecified⁹⁴⁵. It is later stated that Antonius would have delivered one-hundred and twenty ships to Octavianus in Tarentum, during their exchange of military resources; we do not know whether all these ships would have been kept at sea or ship sheds in Tarentum. The greatest question is, yet again, a matter of numbers⁹⁴⁶.

Some of the most important harbours to the growing Roman area of influence would have been those in Sicily and, especially, those between this island and the Italian peninsula. When Rome begins its expansion out of the continent in 264 BCE, Sicily is the first

⁹⁴⁵ The mention of his friends and allies, however, shows that not only were the cities investing in their own shipyards, but private citizens could also make investments in shipyards and own their ships, as we have seen several times before. This may also have implications in the matter of ship shed construction, and we can question whether privates would have invested in shipyards and ship sheds themselves, or whether there was the possibility of renting ship sheds from the harbours.

⁹⁴⁶ Grigoropoulos dedicated an entire study to the existence of the Piraeus after Sulla's siege (2005). It states, first and foremost, that «the fragmentary archaeological record of the Piraeus, known through rescue excavations, makes the attempt to trace Sulla's siege even more difficult», as «very few archaeological remains and deposits of the pre-Sullan Piraeus have survived intact as a result of the site's subsequent history»; however, there is a certain «discontinuity of occupation across the town between the late 2nd century BCE and the 1st century BC» which «may point to the Sullan destruction» (16). The author also stresses the importance of «psychological stress and anxiety» during the siege (24), which would have created a lasting impact aside from the physical destruction. The areas of most destruction would have been «the large harbour, Zea and the hill of Mounichia» (27), and the author presents a solid explanation for the reasoning behind the destruction of the Piraeus: «Even after the walls of the Piraeus had been breached, the Roman troops were far from having secured control of the town. The port facilities were still intact and ready to be used by the enemy to escape or gather forces, while, most importantly, the acropolis on the hill of Mounichia had been occupied by Archelaos and a substantial number of troops who carried on active resistance to the intruders» (28). Whereas we propose Sulla's interest in future protection, Grigoropoulos focuses on the present, more preeminent issues of the siege, which, in fact, may have been the more determinant, although the former cannot be entirely disregarded. The second chapter of his work fully focuses on the repopulation after the siege, giving examples of both historical and archaeological sources, and if he underlined the seeming decrease in the early 1st century BCE, he also states that «excavations in and around the Piraeus have revealed substantial evidence for occupation of the area in the Roman imperial period» (37).

territory over which it will engage in a dispute, and the first insular region it incorporates following the Carthaginian defeat in the First Punic War. This will thus begin Rome's military contacts with Mediterranean navigation on a regular basis. In Strabo's descriptions of the Italian Peninsula and its connection with Sicily, there seems to be a continuum of ports along the westernmost side of the former: the source first mentions the naval station of Hipponium, still relatively far from the Messina strait, which it describes as a naval station built by (and ruled by) Agathocles, thus creating a relation between what would have been an old harbour in the Italian Peninsula and the Sicilian Greeks. This would have implied a different construction method for any potential piers and breakwaters, a few centuries before the widespread use of hydraulic concrete. There is no description of this naval station; according to Strabo, it would still be in use in his time, which means that long after Rome's expansion Hipponium would still benefit from constructions of a different style.

From Hipponium, the next point of navigation would be the Harbour of Heracles⁹⁴⁷, at the intersection in which the Italian Peninsula would begin to tilt towards the west and close to Sicily; in between, one would go through Medma and a naval station called Emporium. If there aren't extended descriptions of these intermediary stations, the mention of them, in a coastal line which may have had several natural ports (Strabo himself mentions an anchorage location by the Metaurus river, for instance, which possibly indicates the existence of others), underlines the importance of the positions when journeying through the Sicilian coastline; what is more, the source itself states that one would have sailed from Hipponium to the Harbour of Heracles, which seems to indicate cabotage sailing between the two stations. Strabo will also account for the Isthmus of Scyllaeum, which seems to have been in use from early times by the Tyrrhenian populations, as it would not only have provided a safe station for ships, but also protection against piracy, as it would have had some sort of naval station.

Aside from these intermediary stations, the source starts mentioning other locations which would have provided anchorage to ships. Amongst these are the Lipari islands, a small archipelago which is visible to this day, off the northern shore of Sicily and ahead from the Strait of Messina. For those ships traveling to northern Sicily, it may have been not only practical but also safer to cross through the Lipari islands, rather than sail down to

⁹⁴⁷ *Tropea* (Transl. of H. L. Jones).

the Strait. The matter of crossing the Strait, or the locations along the Strait itself, was treated in detail by Strabo, who makes a lengthy description of Rhegium. There is an observable detail in this description, however. Whereas Strabo has often provided mentions regarding the naval stations along the Italian coastline, even if they were non-descriptive, there is very little said regarding Rhegium's role in maritime affairs in his account. The reason seems unclear. The source goes to great lengths to describe the foundation of the city and its first inhabitants, as well as its relation to the religious cult and its growth in importance through time, but its role otherwise is presented mostly in connectivity to the military in general, rather than the navy: Strabo mentions, for instance, that it would have been fortified since early times, and that the fact it was fortified would have made it an influential station against the island of Sicily, up until the wars with Sextus Pompeius; there are mentions of earthquakes and their growing scarcity, regarding the origins of its name; but no mention whatsoever to a harbour or its construction.

There are several possible explanations for the lack of treatment of the harbour in Rhegium. The most immediate is that which comes in sequence of Strabo's first statement: that the Romans were not well-known for their naval matters, but rather for their land constructions. Although we have mentioned several harbours along the Italian coastline from Strabo's accounts, these are often described as belonging, or having been born, through the works of the several peoples of the Italian Peninsula, rather than of Rome itself. However, this also seems to be the case of Rhegium, which did not belong to Rome upon its creation. The history of its demography and its role in the civil wars seems more relevant to Strabo than the harbour, even if the latter is directly connected to it, as the source itself says that the fact Rhegium was a fortification would have had influence upon the matters of Sicily. All observed, it seems that the source gives greater importance to the smaller harbours and anchorage sites than the large and long-standing naval stations when it comes to descriptive chapters on maritime affairs. This could be somewhat of an indication of the significant maritime importance of these intermediary posts, when contrasted to the possibly more-frequented larger harbours. Somewhat juxtaposing with the lack of attention to the naval matters of Rhegium is Strabo's detailed description of Sicily and its coastline, as well as the cities which occupied it. His section in Book 6 makes for one of the longest and most detailed accounts of Sicily's geography in ancient sources, describing the distances between the cities, capes and bays, as well as the island's overall shape.

The highlighted locations were Messana, which is in a direct connection to Rhegium, and then Tauromenium, Catana and Syracuse. If the latter was not only one of the largest cities (both in size and population) but also one of the most relevant in military and naval terms throughout Roman history (Syracuse, for instance, is Rome's ally during the First Punic War), there is a single mention to its harbours, and this one mention is merely to state that the city had them; it is a similar case to that of Rhegium, where a city known for its coastal connection has scarce textual investment in naval structures. Whereas Sicily is an insular territory and therefore mostly known for its coastal harbours, it is still an island of significant size, which would benefit from connectivity to its interior through fluvial courses; it is possible that there is an indirect mention of this detail in Strabo, as the source states that the rivers which would originate at mount Aetna would all have good harbours at the mouth. Thus, although most of the largest and important cities in Sicily are coastal, there seems to have been some connectivity to the inland⁹⁴⁸.

⁹⁴⁸ Another notable case that may be mentioned is that of Gades/Gadir, which has been mentioned several times in the previous chapters. The situation of Gades in relation to Rome is *sui generis* and different from the one that can be observed in the Piraeus, Alexandria or Sicily. In 206 BCE, Gades and Rome celebrate a *foedus*, a treaty which is renewed in 78 BCE, on the brink of the Mithridatic Wars (Bauman 1986: 88; 90). Sáez Romero et al. (2016: 66) call the *foedus* an «agreement that resulted in a strong link» between Rome and Gades and which was «strengthened by the clever activities of local elites», as is the case of Balbus and his family; in the context of the 1st century BCE and following the fall of Carthage, Gades reached a situation in which it was not quite Punic, but had not entirely absorbed the Roman «cultural or economic perspective» either (67). The connection of the city to Rome and its political life can be seen, for instance, during the Civil Wars between Caesar and Pompeius, and Caesar's reactions to it: it was the «first *municipium civium Romanorum* outside Italy», ahead of what Weinrib calls «more romanised communities» like Corduba and Italica, something related to the city's loyalty and the expulsion of Varro. Caesar had «confidence in the local leadership of Gades», one who was connected to the «faction of his agent Cornelius Balbus and were from the same group that he had as proconsul installed in 61». This, however, was made difficult due to the fact that Pompeius also had «ties with Gades» and «the rest of Hispania Ulterior», which divided the region. Whereas Gades remained in the Caesarian faction, there were likely Pompeian supporters as well. This can be seen in sources such as *BHisp.* 37, which narrates the episode in which Didius was stationed in Gades waiting for Pompeius to leave Carteia. It was also from Gades that Varro would have ordered several warships, and he would have provided the city with treasury («*naues longas X gaditanis ut facerent imperavit conplures praetera Hispali faciendas curauit*»; «*pecuniam omnem omniaque ornamenta ex fano Herculis in oppidum Gadis contulit*»). The envisioned strategy would have been to station two legions there and keep «*naues frumentumque*»; later, there were movements from local inhabitants and tribunes to turn the city to Caesar (Caes. *Civ.* 2.18 and 2.20). There is also the case of Balbus, who was born in Gades to a family of «high rank»: Cicero stated that Balbus would have taken the city taxes and silver and left without paying the soldiers (Cic. *Fam.* 10.32; on Balbus see, for instance, Masciantonio 1967). As far as Gades is regarded, it seems that even as it keeps its specific characteristics in the context of the Iberian Peninsula, its ties to Rome, supported by legal clauses, keep it in the centre of Rome's political developments of the 1st century BCE.

9. Caesar's expeditions

As Roman armies frequently dislocated themselves by ship, taking possession of safe harbours during expeditions (or, at least, protecting the ships through improvised fortifications) would have been one of the concerns of a Roman commander. This is especially relevant as Rome's expansion begins to extrapolate the Italian limits and entering foreign shores, as is the case of Caesar's two campaigns in Great Britain. As this geographic region remained, as of yet, unexplored by Rome, and given its distance from Rome and Roman allies, assuring safe passageway to and from the island was an essential part of the campaign and a matter of safety for commanders and soldiers. To assure this safe passageway, it was important to keep the ships prepared and in good condition, something which proves to be difficult during the first campaign, but that Caesar will not overlook during the second: as mentioned by Cassius, one of the first actions was to take the harbour (Dio Cass. 40.1). Later, Cassius states that the locals would have attacked the *Νεώριον* (Dio Cass. 40.3.3), and that, despite ships having been attacked within the harbour, this confrontation was not successful to the attackers. Together with securing the harbour in Great Britain, Julius Caesar would have done similarly in the continent: Flor. 1.55.10.16 states that one of his crossings to Great Britain would have had the fleet departing *«qui tertia uigilia cum Morinorum soluisset a portu minus quam medio die insulam ingressus est»*; thus, from a Morini harbour in what is modern-day Belgium, which could have acted as safeguard.

Another circumstance in which Caesar's fleet takes advantage of local harbours is found in Caes. *BAfr.* 63, during the account of his African campaigns. When his enemies took refuge within the fleet, Caesar is said to have approached it. This is one of the few occasions in which it is clearly specified that the war fleet would have been stationed in high sea: *«atque in salo in ancoris ea nocte commoratus»*. As the vessels could not enter Hadrumetum (at least not the inner part of the harbour: *«atque Hadrumetum in cothonem se uniuersae contulerunt»*), the commander opted for attacking those which had remained outside⁹⁴⁹, but did not take further action against the vessels which had been taken to the beach or to the inner harbour. It thus seems that there would have been a part of this port that would have had further protection against enemy attacks, as Caesar is unable to reach

⁹⁴⁹ It is not specified whether this was a voluntary choice to engage in guard duties or whether the ships were forced to stay behind due to lack of enough room within the inner harbour.

it, but also that this same section would have had insufficient capacity to protect an entire fleet.

Regarding Caesar's campaigns there is also the matter of shipyards, which is of greater difficulty to interpret. We observed in Chapters I and II that Julius Caesar would have engaged upon at least two instances of intense naval shipbuilding but are never given many details regarding the shipyards where they were built. We have a rough idea of the locations, especially regarding the ships built for the campaigns in Great Britain, but not much else. Strabo, who makes a detailed description of Brittany, states that he would have established ship infrastructures in this geographic region, which he describes as being close to the river Rhine and Cantium but further away from Sequana (*Strab.* 4C 3), which indicates river shipyards being used to construct sea-going vessels. As these were not warships and were built in the Veneti way, there may have been a shipbuilding industry and several fluvial shipyards creating these transports even before Caesar's arrival. In spite of the relatively long period of Roman presence in Great Britain, there is still much work to be done regarding Roman harbours. Whereas the mentions of Mediterranean ports are scarce, it seems even more difficult to find them for stations out of the Mediterranean basin: Londinium, which would have become one of the greatest posts, only has a small reference made by Tacitus⁹⁵⁰. As mentioned by Stephen Rippon, amidst the means of communication throughout Britain during the Roman period one can think of the «network of long, straight roads that crossed the entire province»⁹⁵¹; however, the necessity for river and coastal transportation is ever more present in Great Britain, seeing its insular situation. That is what Rippon observes, stating that in locations where erosion has not been as severe, it is possible that «Romano-British coastal settlements» are still present, together with those of larger dimensions, which were frequently placed alongside «major creeks or estuaries, whose locations make them prime candidates for having functioned as small ports». The author poses a question of how a Romano-British port would have looked like, and states that the two most likely hypotheses are either:

«A relatively specialised site with trade as its major function which, if marketing went on elsewhere, would have formed a distinctive element in the settlement pattern of Roman Britain, dominated by the infrastructure of moving and storing goods such as quays and warehouses, with relatively little domestic occupation or other activities»; / «The second possibility is that during the Roman period coastal trade was conducted through settlements whose function included the marketing of goods and provision of other services, and as such were in effect small towns» (88-89).

⁹⁵⁰ *Annals* 14.33.

⁹⁵¹ Rippon 2008: 85.

The Mediterranean basin seems to focus especially on the latter, and we seldom find a harbour that lacks at least some sort of human occupation; the situation in Great Britain may have been less standardised. It seems that there are still few studies in this regard, but the investigation of Crandon Bridge has led the author to believe that it may have been an intermediary «trans-shipment port on the supply route from south-east Dorset to the military establishment in Wales», which would have had «domestic occupation and industrial activity»⁹⁵²; this would have made Crandon Bridge a small but active coastal settlement, of which the author believes may have been many others.

10. Ship sheds and Shipyards

As we have verified through this chapter, whereas the harbour refers to a whole complex structure, the ship shed in itself seems to be related to the actual location where ships are kept within the harbour. According to Rankov, up to 2008, there were only four ship sheds dated to the Roman period that had been studied in detail, namely «Velsen in the Netherlands», «Haltern in Germany», «Caesarea Maritima in Israel», «and the river port at Ostia»⁹⁵³, with Haltern and Velsen grouped together. The latter has been dated to the early first century BCE, «ca. A.D. 15 to 30», and is located along the Rhine, «at the mouth of the most northernly branch», and is constituted by buildings believed to be two boathouses. Identifying a boathouse, however, is not easy, and there are few certainties regarding the Eastern and Western boathouse, whose nature can be contested through matters presented by Rankov as being related to the safe launching of ships into the water: although it would not have been impossible to accomplish it, there would still be difficulties, particularly for potential long ships⁹⁵⁴.

One must also add that the harbour of Velsen must be considered separately, as it is not a Mediterranean harbour and, therefore, has different characteristics. As mentioned by Driessen, Velsen is one amidst several Roman harbours in the «Low Countries», which were «a swampy wetland» that required some degree of adaptation. Velsen would have been «an early military base with associated waterfront installations», built around «16-25 CE»⁹⁵⁵, the second works date from «25-28 CE» and the third from between «28-

⁹⁵² Rippon 2008: 137.

⁹⁵³ Rankov 2008.

⁹⁵⁴ Rankov 2008, 55.

⁹⁵⁵ Driessen 2013, 211.

45/47 CE)», which shows not only that there would have been early investments in safe anchorage points for vessels circulating along the Rhine, but also that this region, due to its geographic and natural specificities, would have led to several interventions during a very short period. In the Mediterranean, it would seem that some harbours last for a few decades or centuries with scarce significant alteration (although we may be lacking evidence for it in archaeological data, we know that several Mediterranean harbours would have been built with the long-lasting hydraulic concrete, which does not seem to be the case for these stations), but this region requires constant adaptation. The birth and growth of these Rhenanian harbours also has another factor that must be taken into account, which is the process of building itself: Mediterranean harbours are often built upon places that would have been used for long periods of time prior to the construction of walled structures and most of them would have grown attached to the nearby cities, but Velsen is a station built by the Roman military, which was probably born to serve the Roman army rather than as a regular harbour to serve all types of ships.

Whereas the first stage of Velsen would have been constituted by a «roughly trapezoid base» with a gate that gave «direct access to the waterfront installations and was connected to one of the four pier-like structures: quay moles»⁹⁵⁶, the second stage sees a growth in the initial project and the existence of «eight towers», with one of the former quay moles «extended with an open quay jetty», possibly due to «turbulence, erosion and deposition»⁹⁵⁷; the last stage saw further expansion of the annexes, a «well», an «aqueduct» and «probably two new single gates and four towers», and it seems that the «active occupation and usage of the Roman camp and harbour of Velsen covers only a few decades and ends in the second half of the 40's, (...) most probably due to the silting up of the Oer-IJ estuary and the establishment of the *limes* frontier along the Lower Rhine». Thus, the Velsen structure is not only a particular case of a Roman river harbour in Northern Europe but also one of a temporary harbour, which was built for specific purposes and abandoned by the army when it was no longer needed. This reinforces the idea of the importance of rivers to the logistics of the Roman army, showing that campaigns would not only include the use of rivercraft to transport supplies (and thus ensure not only the added safety but the celerity of the dislocation), but also that they would imply the Roman army itself building supporting infrastructures for transport boats

⁹⁵⁶ In this area «numerous artifacts» were found that seem to indicate the «quays were also used for docking ships in order to loading and transhipment». Driessen 2013, 211.

⁹⁵⁷ Driessen 2013, 212.

(it is unclear who would have been building these ports, however, whether locals or Roman soldiers with the knowledge).

Rankov inclusively questions the potential shipsheds found in Ostia, considering that the construction of the roof and colonnades, together with the matter of ventilation (to make sure the vessels remained dry and thus avoid fungus) would not have been ideal for ship storage⁹⁵⁸; the final issue with Ostia's shipsheds would have been the constant flooding of the Tiber, which would have caused «the bows of any ships within» to start floating, «with the danger of their being damaged against the sides of the vaults». All considered, Rankov finishes the article by saying that the conclusions would seem «disappointingly negative: Haltern, the Western and probably also the Eastern Boat Houses at Velsen rejected, all three of the Caesarea sites unlikely and Ostia possible but problematic»; but reinstating the fact that different archaeological approaches must be put to use when studying ancient ship sheds.

The study of this issue is continued by Blackman (2015), who states that in spite of the existence of archaeological and iconological evidence for ancient *naualia*, there are scarce archaeological samples⁹⁵⁹. Whilst observing the historical source data for ship numbers, Blackman has reached conclusions regarding the dimension of some ancient ship sheds. Regarding Rhodes, for instance, a city-state which has often been verified as one of Rome's naval allies, he observes that it evolves from circa 40 to 50 larger vessels during the «Hellenistic period» to probably 75 in 190 BCE, although 55 would have been the maximum it could hold in any given time. The number of 55 is considered by the author as the largest amount of vessels for which Rhodes would have had the demographic capacity to provide with «citizen crews», and the main military harbour, which would have been Mandraki⁹⁶⁰, may have been able to receive one-hundred vessels,

⁹⁵⁸ Rankov 2008, 60-64

⁹⁵⁹ Blackman 2015, 526.

⁹⁶⁰ Mandraki wouldn't have been the only fortified station of Rhodes. App. *B Civ.* 4.9.72, for instance, mentions that Cassius would have sailed towards Loryma, a fortification which would have belonged to Rhodes; he would have repaired his ships beforehand, however, which suggests that either they were unfit to sail, or that Loryma did not have the conditions for ship repair. Aside from Mandraki, «the military harbour on the east side of the town», there were several other structures, including a «commercial harbour» built to the south, and «two harbour areas to the south of the Great Harbour, the Akantia basin and the south-east one». The Mandraki and the Great harbour would have been connected and undergone several stages; during the early periods, the military harbour would have been dedicated exclusively to defensive functions, whereas the remainder would have happened in the Great Harbour; this would have been modified following the «*pax romana*» with a change in the traditional role of the Rhodian navy, and it seems that «on the south shore of the military harbour, the superimposition of the remains of the tetrapylon and of several phases of the ship sheds testifies to a substantial remodelling of this area after the earthquake

although it can be discussed whether this number would have been stationed at Rhodes simultaneously, with the added possibility of craft being kept permanently «based at out-stations»⁹⁶¹. This comes in accordance with the theory we have presented of the main harbours having plenty of secondary supporting ports throughout the Mediterranean, which they may or may not have sustained of their own accord.

The secondary posts would possibly not have required as much human investment in the building of infrastructures, as they would tendentially have started as smaller, and thus would most likely take advantage of the natural situation of locations, as seems to be the case of the Rhodian post studied by Blackman. Alimnia, which he describes as having «the best natural harbour in the area»⁹⁶². An important element which has also been outlined by Blackman in what regards the Rhodian harbour is connected to a 3rd century inscription that has been identified as «the preamble of a public subscription for the construction of ship sheds (*neoria*), followed by the list of names of contributors: communities lying between Pisye and the coast». It seems that, for the Rhodian case, the community members themselves would have contributed towards the construction of external ship sheds; we can thus question whether this would also have occurred in the case of Rome.

Blackman's study provides exact information regarding not only the width of the walls dividing each of the storage units, but also the difference in size between the units storing different types of ship: «6-6.30 m housing the larger units – *kataphrakta*; 4.20-4.40 m housing the smaller units – the *aphrakta*», in which the «standard <battleships> (triremes to *pentereis*) and the guardships (including *trihemioliai*)» would have been stored. This is well over 600 metres of wall in width, considering a total predicted storage capacity of one-hundred ships.

Blackman and Rankov have worked together to deliver a comprehensive study on Mediterranean ship sheds, with particular focus on the Classical and Hellenistic period. Their works have been fundamental to create an understanding of these elusive structures, particularly because they attempt to ally the archaeological/iconographic/epigraphic⁹⁶³

of the 2nd century a.D.», which included «the arch and a monumental transformation of the street to the south, which penetrated the city and extended towards the agora». See Bouras 2014, 672-73.

⁹⁶¹ Blackman 2014, 531.

⁹⁶² Blackman 2014.

⁹⁶³ The latter provide information especially regarding matters of sponsorship and investment; Blackman 2013, 23-24.

data with what one can find in historical sources. Blackman, for instance, ascertains that the earliest mention to ship sheds in historical sources is present in Herodotus 3.45.5, «that they existed at the time of Polycrates (c. 530 BC)⁹⁶⁴», and this leads us to observe that plenty of the ship sheds (and harbours) to which the Romans would have had access, especially following their conquests and territorial expansion, would already have existed for centuries. Some of the closest examples are, for instance, those which would have been present in Sicily: following Thucydides (7.25.5-7), Blackman dates the Great Harbour of Syracuse to the early 5th century BCE, or even the late 6th century⁹⁶⁵, adding that at least until 414 BCE it would not have been an «enclosed dockyard», given the fact the Syracusans are said to have defended it «with a palisade».

The fact that most of the ship sheds in use by the Romans did not initially belong to them nor were built by them can be seen, for instance, through the fact that when Rankov writes about the Roman structures he still makes plenty of references to non-Roman harbours and sheds⁹⁶⁶. Even upon reaching the 1st century BCE, he mentions the ship sheds of the Piraeus in the works of Appian, which would have been «still in existence and perhaps even in use in 86 BC when the port was captured by Sulla and the sheds burned», a case we have studied above⁹⁶⁷. The author also takes notice of Caesar's mentions of ship sheds during the Civil Wars, namely those in use near Massalia, Alexandria and all those built in 31 BCE as «commemorative/dedicatory sheds» at Actium⁹⁶⁸.

If actual archaeological evidence for shipyards is scarce, we can attempt to observe them by looking at shipwrecks. As presented in the previous chapter, ships were being built and circulated through the Mediterranean during Rome's expansion. If one observes these vessels, one can sometimes infer some data regarding the place where they were built. As an example, we can observe the *Napoli C*, 13.2 metres long and 3.7 metres wide ship

⁹⁶⁴ Blackman 2013, 18.

⁹⁶⁵ Blackman 2013, 18.

⁹⁶⁶ «The evidence for Roman ship sheds is somewhat elusive. The literary evidence for the period in which Rome was a major power in the Mediterranean relates to sheds maintained for the navies of independent or allied states in the third and second centuries» (Rankov 2013, 47). The author adds that even if it is certain that ship sheds were used during the Republican and Early Imperial period, «only a minority» can be «characterized as 'Roman'», and both epigraphy and iconography fail to grant us information, together with the fact that «archaeological evidence (...) is almost entirely inconclusive».

⁹⁶⁷ Rankov 2013, 33.

⁹⁶⁸ Rankov considers that «the earliest possible depictions may be on coins», exemplifying with an 88 BCE coin in which «the reverse shows two arches, with a Victory framed in the left-hand arch and the prow of a ship with a crescent moon above framed in the right-hand one»; he also mentions what is considered as «the best-known coin which has been claimed to depict shipsheds», namely a 45 BCE *denarius* which depicts a «convex row of arches supporting a flat roof surmounted by a bench (*subsellium*), together with the inscription *Palikanus*».

found in the Piazza Municipio. The one factor to take into account is the timber, namely its origin: the vessel, dated to the 1st century CE, has a particularity regarding the identification both of wood and pollen. If «*Abies* use in Mediterranean shipbuilding is very frequent» and it is difficult to identify the sub typologies, it is believed that «the wide use of *Abies* for the ceiling as well of the planking» of this ship probably indicates a «close provenance of *A. alba* timber for *Neapolis* shipbuilding». This is one of the scarce circumstances in which one can physically observe there would have been a connection between a shipyard and local resources, a situation which is explained in detail (regarding, for instance, the presence or absence of fir, oak and walnut) by Allevato et al.⁹⁶⁹, a study which concludes that «the supplying took place not far from the shipyard, both from tree growing and from wild forests». These networks are only beginning to be understood and will require further research in the future.

That the Romans were not the most prolific shipbuilders in Ancient Times seems well-attested through the first chapter, in which one finds multiple references of vessels being reused after acquiring them from enemies during campaigns (the case of Sulla and Mithridates, for instance), or of Roman allies taking charge of the naval component (the frequent Rhodian alliance⁹⁷⁰). It is difficult to ascertain when the first warships were built by Rome itself; Polybius states that they would have been constructed during the First Punic War, but there are previous mentions to warships, albeit scarce, of unspecified origin⁹⁷¹. To say there was no shipbuilding prior to the First Punic War might be a modern misconception, beginning by the fact that Rome had its own river infrastructure, the Portus Tiberinus, from relatively early times. As naval investment grows during the 1st century BCE, so does the need for building ships and training crews. During the latter half of the century, with the onset of the civil wars, there are instances in which there is an intense investment in shipbuilding, as is the case of Dio Cass. 48.49: it is said of Octavianus that he would have ordered the building of vessels all throughout the Italian Peninsula, and that these efforts would have continued for at least two years.

A two-year long building enterprise over such a large geographic region can essentially be called a building program, which would have implied infrastructures and large-scale

⁹⁶⁹ Allevato et al. 2009: 39.

⁹⁷⁰ Not to mention the case of the *socii navales*. We have kept them purposefully apart from this chapter to be observed further ahead, but these «coastal cities of southern Italy» would have been essential to provide «ships and crews», especially in early periods. See, for instance Southern 2007, 68 and Valvo 2006.

⁹⁷¹ The first mention is in Liv. 5.28, with the shipment of a single warship towards Delphos, carrying an offering for Apollo (394 BCE), but it seems like an isolated case. See Dantas 2017.

handwork. However, this work would not be happening at the future harbours in which the ships would be kept: as mentioned above, the Italian peninsula would not have had the necessary infrastructures, which would have taken Agrippa to order the construction of several channels near Cumae. This raises several questions. The source does not mention where these ships were being built, whether by the mouths of the rivers, by the sea, or even further into the mainland, to be subsequently transported down to the sea through fluvial networks. If the Italian peninsula was lacking in harbours, it is not equally said to be lacking in shipbuilders, and one can debate whether these were pre-existent craftsmen or whether they were summoned from other geographic regions.

If we are in the presence of locals, it means that not only there were men capable of constructing larger sea-going vessels, but also that there may have been a demand for them, even if not from within the Italian Peninsula itself; otherwise, that knowledge may have been unnecessary. Cassius goes to great detail describing the region where Agrippa undertakes the building enterprise, but does not give any information regarding who the builders were or where the workshops were located, thus raising a hypothesis that cannot be dismissed, which is that the existence of shipwrights would not have been that uncommon an occurrence within the Italian Peninsula, by comparison to man-made harbours. As seen in chapter II, however, ships require very specific materials to be built, thus creating one of two requirements: either these builders were stationed in locations with easy access to materials, or they would have been stationed in places of easy access, particularly by fluvial or coastal dislocation, as this would imply the transport of heavy cargo.

As verified in Chapters I and II of our study, it would often be the case that the Romans, lacking in their own ships, would rely on those of their allies or find freight ships which could suit their purposes. The circumstances under which these vessels were built, or rather, where they were built, are often elusive, with the exception of Rhodes. Plut. *Vit. Luc.* 3.2, for instance, mentions that the commander would have increased his fleet with ships he would have gathered along coastal cities, aside from the pirate communities; the only data this chapter gives us is, therefore, that Lucullus would not have been collecting vessels from individuals which usually opted for hybrid, smaller versions of the larger warships; however, there is no mention as to the type of vessels, how or where they would have been built, whether they would have been made by the cities themselves or other locations or included imported materials.

The chapter proceeds to say that Lucullus would have taken his vessels to the shore and beached them, which is somewhat contradictory: if Lucullus requested these vessels from the cities, why would they subsequently have been taken away from the sea and back on land? Would these cities not have suitable harbours? Where on land were these vessels stationed? It is unlikely that these were large warships, since, as verified above, these seldom would have been taken on land, as they could easily become stranded, but all the other details are absent. After bringing the vessels back on land, Lucullus would also have negotiated with the cities so he could station the army and fleet there during the winter, even if this subsequently did not come to pass. Even if this was a manoeuvre, it seems to show that the harbours would not have been at the disposal of this fleet.

Another of the few circumstances in which there is a clear reference to shipbuilding is found in Plut. *Vit. Brut.* 30.1. Upon Brutus' arrival in Smyrna, he is said to have required from Cassius a part of the treasury attained during his own campaign, given that Brutus himself would be lacking in resources due to having spent them in the building of a large fleet which would allow him to control the sea («*ναυπηγούμενος*»). In this case, there seems to be a specific reference to private naval investment on Brutus' side, although there is no reference as to where these ships would have been built, how, and of what nature they were.

During the period which corresponds to the Civil Wars between Caesar and Pompeius, and through thorough analysis of chapters 30 and onwards from the first book of Caesar's Civil Wars, one can find specific mentions to several potential shipyard locations across the Mediterranean. The first is seen in Caes. *BCiv.* 1.30 and it seems to indicate that there would have been several shipyards and potentially construction workers in the island of Sicily. Caes. *BCiv.* 1.30 states that «*Cato in Sicilia naues longas ueteres reficiebat nouas ciuitatibus imperabat*»; thus, Sicily would have had stations in which warships could have been repaired, as the source specifically states that these would have been *naues longae*, and the citizens of the island possibly kept warships with them as well. Although it is not clearly stated that the warships kept by the inhabitants would have been built in Sicily, this is not unlikely: if there were workers with the capacity of repairing the large warships, it is also possible that these same craftsmen would have been builders.

Another case is that of Massilia. In chapter 1.34, when the source describes the intention to take over Massilia, it is also mentioned that the inhabitants would have been undergoing several repairs to avoid this, amongst which to their fleet; this is another

possible indicative. The city would later have attempted to remain neutral during the conflict between Caesar and Pompeius, stating that *«neutrum eorum contra alterum iuare aut urbe ac portibus recipere»*; these harbours, not being considered as Roman, would not have been open to either Caesar or Pompeius during the civil wars, and one can question whether this translates to their ships.

Another important reference, however small, is found in Caes. *BCiv.* 1.36. Caesar, not giving up on his intent to take Massilia, would have decided to attack the city and thus besiege it with *«turres uineasque»*, as well as *naues longae*. We have a specific reference to where these long ships would have been made and exactly how long it would have taken: *«naues longas Arelate numero xii facere instituit quibus effectis armatisque diebus xxx a qua die materia caesa est»*. Before observing this passage, one must begin by taking a closer look into the timing. Caes. *BCiv.* 2.1 seems to give somewhat of a description of the harbour, by stating that during the siege of Massilia there would have been works (*«aggerem, uineas turresque ad oppidum»*) on two different sides: *«una erat proxima portu naualibusque altera ad portam qua est aditus ex Gallia atque Hispania ad id mare quod adiacet ad ostium Rhodani»*.

There seems to be some distinction between the side of the harbour which is directly connected to naval matters (*«portu naualibusque»*) and the other which turns *«ad id mare quod adiacet ad ostium Rhodani»*. One can thus question whether the specific mention of naval matters connected to the harbour on a specific side are related to the location of shipyards and ship sheds, places of construction and of storage; the fact is that Massilia, during this time period, seems to have found it necessary to keep guard ships at the entrance of the harbour, as stated in Caes. *BCiv.* 2.22, which shows that *«hunc conspicatae naues quae iussu Bruti consuetudine cotidiana ad portum excubabant»*; this is justifiable, in itself, by the size of the harbour and the amount of commerce that would be undergoing through it, but it seems that there would have been other sorts of material to defend, as seen later in the same chapter, where it is mentioned that the city itself would have produced *«arma tormenta ex oppido»*, which shows that Massilia would have had the condition to produce war engines at relatively short notice. This chapter, which also makes an account for a valuable importance to have been delivered to the Romans (*«pecunia ex publico tradunt»*), states that it would have been carried by the ships brought from the *portus naualis*, thus showing yet again a distinction between the harbour

itself and the shipyards/ship sheds and underlining the differentiation of the latter within the whole port.

There is also the potential addition, found in Caes. *BCiv.* 2.4, that Massilia could have had secondary naval bases: *«nacti idoneum uentum ex portu exeunt et Tauroenta quod est castellum Massiliensium ad Nasidium perueniunt ibique naues expedient rursusque se ad confligendum»*. This description comes to show that Massilia would have had secondary naval posts in which ships could be repaired, which makes a case for a significant amount of these secondary ship sheds all across the Mediterranean, intermediary stops which could provide support to vessels sailing from the main harbours. Whether these secondary posts would also be centres of ship construction is debatable, and it would have depended on their size and the easy access to materials, as well as the commercial demands of the time; but to repair ships these posts would have required a steady supply of material, including seasoned timber and potentially metal components, thus creating a new flow of commercial movement that would have assured it. Whether the posts themselves sponsored these voyages and ordered for the shipments or whether the main harbours would have some sort of agreement with them is not clear.

According to Grillo's table in Appendix 1, the Massilian affairs would have occurred in 49 BCE, beginning on April 19; on October 25, Caesar would have been capable of returning to Massilia. The two major naval battles would have occurred on June 27th and July 31st. The exact time division by chapter, according to Grillo, is the following: Chapter 1.30 (when Caesar dispatched Curio), April 22nd; Chapter 1.34, which is when Caesar arrives in Massilia, April 19th; the siege of Massilia itself is dated to May 4th (1.36) and Caesar's activities in Hispania, which are being described from chapter 1.36 onwards until chapter 1.55 (1.56 being the start of the first naval battle), would have occurred between June 5th and June 26th⁹⁷². Even if Luca Grillo presents the dates corresponding to the pre-Julian calendar, as stated in the title of Appendix 1, it seems that the bulk of this campaign would have occurred between April and September of year 49 BCE, since, as verified further in the Annex, by December 12 of the same year, Caesar would have been in Rome already.⁹⁷³ The pre-Julian calendar not being much different from the Julian

⁹⁷² Grillo 2012, 175.

⁹⁷³ Grillo 2012, 176.

calendar, and seeing as the latter has a difference of thirteen days, the campaign would thus have begun in early April according to the Gregorian style.

Observing the duration of the campaign is important to understand how shipbuilding worked in ancient shipyards, because it determines whether seasoned or unseasoned timber would have been used. According to the source, there would have been twelve warships made to use against Massilia, which would have come from Arelate, in modern-day Arles. April in southern France, very much like across most of the Western Mediterranean, is a relatively irregular month, in which temperatures slowly begin to rise, although precipitation can still occur. The specific timeframe for the cutting of the timber in itself is not mentioned, but these warships would have been needed during the siege of Massilia and the subsequent naval battles, with the first occurring on June 27th. The source states that they would have taken thirty days to be built from the moment the builders first began cutting down the timber; if they were ready before the beginning of the siege on May 4th, even if we include the short journey between Arelate and Massilia, they must have begun construction in very early April or late March (Julian and Pre-Julian style; possibly late or mid-March, Gregorian style).

Can these timbers truly be considered seasoned? If so, the timespan for building with seasoned timber seems relatively large, and one has to consider that prime shipbuilding season would have begun quite early in the year and extended itself through the whole of the Spring and Summer. One also has to observe that it would have been a fairly quick construction. The specific typology of these vessels remains unmentioned, but even if we are speaking of smaller warships like a bireme, they still require a significant amount of work and craftsmanship; as we do not know how many workers would have been in the Arelate shipyards, we can only conclude that either there would be a smaller amount of workers with great proficiency or a large amount of workers that, even if struggling, would have managed to construct twelve vessels in a relatively short amount of time. As for the timber being seasoned or not, there is also another factor taken in consideration, which is that, even to this day, the two main methods for seasoning are «air drying and kiln drying»⁹⁷⁴, which can then be stacked through specific methods to maintain it. One can thus question whether the ancient shipyards would have had the necessary infrastructures to keep seasoned timber in storage: if so, it could have attained several

⁹⁷⁴ Marshall [1968] 1971, 5.

benefits, amongst which the capacity to always have reserve timber to repair vessels and the one to keep near-permanent storages at hand, as seasoned timber is practically immune to insect attacks⁹⁷⁵.

Another element of ancient shipyards has been found in ancient Auenticum. This would have been a late 1st century BCE Roman settlement, which became a colony in 70 CE⁹⁷⁶. It lies relatively close to Lake Morat, as observed by Arnold, and an 800 metres long/7 metres wide channel has been found connecting it to the lake; the banks were found to have been «reinforced by planks upheld by posts», making it possible «harbour installations». This is, therefore, a case of a different structure from those which we have observed so far, as it is not likely to be a shipyard dedicated to building sea-going vessels and rather river or lake craft; however, this can be debated through the observance of what will follow. The existence of the harbour in itself is hardly questioned, and it would have been accompanied by a «large statue» with an inscription «dedicating the monument to both Neptune, god of the sea and terrestrial waters and protector of mariners, and to Silvanus, god of the forests and protector of woodcraft artisans»⁹⁷⁷. This detail, seemingly unconnected to the matter of shipbuilding, must be seen in context.

Béat Arnold states that the findings of «isolated pieces of wood», which were «studied on the site», together with what he calls the «remarkable inscription on the monumental column», would have raised questions regarding the possibility of the presence of a «naval building yard» situated «at the top end of the canal»⁹⁷⁸. This would have been a region propitious to the development of such a structure, as there was enough room and it was close to a road («allowing planks and other wood material to be transported for boat construction»; these could also be transported through the lake, as stated by the author); plus, it would have been close to Auenticum and «its specialised workshops and traders». It is believed that some remains of «planking and frames» found along the canal would have been remains of unfinished boats. It is thus thought that this location would have been used as an «area to store undressed wood underwater, specifically recycled ready-to-use planks».

⁹⁷⁵ Marshall [1968] 1971, 5.

⁹⁷⁶ Arnold 2006, 167.

⁹⁷⁷ Arnold 2006, 168.

⁹⁷⁸ Arnold 2006, 169.

This conclusion derives into several others. Firstly, it is an indicator that there would have been storage locations for timber specifically prepared to repair ships, probably already cut and ready to use; if this timber was being stored underwater, there must be some rethinking regarding the matter of seasoned and unseasoned timber, although whether this applies to seaborne construction or not is to be debated. The second matter is related to the statue, which, in itself, and as stated by Arnold, «would not have been erected just for the construction of a few isolated boats». The dedications of the statue in itself are indicators of its purposes: on the one hand to the god of the seas, on the other to the god of forests and woodcrafters. It thus seems that there would have been a timber business running in the region that would have been supplying the shipyard with material, and that this production would have been sufficient to create additional stock. On the other hand, even if we are observing a lake-river area, the statue has a dedication to Neptune, and one may question why it would be connected to the god of the seas if there was not any sort of sea-going ship construction in this area.

App. *B Civ.* 2.6.41 is another chapter in which we have mentions to ships being built, going as far as to state the regions where they would have been made, but in which there is no specific mention of shipyards. It seems that Caesar would have been attempting to keep the Italian shores closely guarded (as seen in the following chapter 42, in which the source states that his intention would have been to keep the peninsula safe from Pompeius' attacks), and in doing so would not only have placed several of his commanders in guard positions but would also have commanded the building of new fleet. The chapter specifically mentions two fleets being built rather than one, which means that there would have been a standardised unit to account for each of them, whether regarding the numbers in their composition or as a matter of command. These fleets would have been built throughout the Jonian and Tyrrhenian seas and with considerable haste, which seems to have been countered by Pompeius in 2.8.49, as he too is said to have been investing in shipbuilding, this time with no mention regarding the location. One can question whether the celerity used in the building of these ships would have been hazardous to their later functioning, or whether it was simply achieved by investing a greater deal of human resources and did not have any influence whatsoever in the ship's resistance and durability.

During the late stages of the last civil wars, there are mentions that seem to indicate the Antonin faction was seeking shipyards outside of the Italian Peninsula. According to App.

B Civ. 5.6.55, Antonius would have ordered a fleet of two-hundred ships to be built in «*Ασία*»; whether it was due to the main Mediterranean shipyards being barred to him or to the fact he believed in the superior quality of the materials or the construction, we do not know, only that he would have travelled towards Corcyra with the fleet, yet again raising the issue of whether a harbour would have had the capacity to store two-hundred warships in shipsheds.

The Roman investment in harbour construction may have reflected itself upon the growth of former shipyards or the creation of new ones. App. *B Civ.* 5.9.80 describes Octavianus' increased investment in protective infrastructures to defend the Italian coastline, which would have involved, firstly, the creation of several fortified structures along the shore (*φρούρια*), and, secondly, the building of new warships. This is one of the very rare circumstances in which we have the specific mention of warship construction not only within the Italian peninsula, but also within Rome itself, for the ships would have been constructed both in Rome and Ravenna. It thus seems that not only either city would have had the shipyard infrastructures to construct these large warships, but also that Rome itself, situated inland and by the river, would have had the capacity to receive and store a large amount of materials; one may add that these triremes would have had to be carried to the sea, and it is not mentioned whether they would have been rowed or towed down the river Tiber (nor whether it would have had the capacity for them to be launched without becoming stranded) or whether they would have been taken to a nearby harbour, potentially Ostia, through any sort of device. It is also unknown why the warships were being built in these two cities simultaneously and why Rome would have been chosen rather than a city closer to the sea. One can question whether the usage of the word «Rome» did not instead actually mean Ostia, as it has been seen that Ancient sources considered Ostia as one of the acknowledged Roman harbours, but if that is not the case, and if we can accept this statement as true, we must also accept that in the late 1st century BCE Rome had the capacity and the infrastructure to produce triremes in a large scale and to have them transported into the sea.

Harbours and ports also seem to have had a strong ritualistic component associated to them. As the sea was associated with deities, it is not unnatural for these infrastructures, associated with the safekeeping of vessels and sailors, to have had their own symbolism. App. *B Civ.* 5.10.96 describes one of such rituals, which would have happened by the coastline, when the fleet had finished construction. This would have been a ritual of

purification for the fleet («ἐκάθαιπεν») which would have involved the building of altars by the sea; the sacrifice would have been offered by the water, and some of the offerings would have been thrown into the sea. Georgoudi addresses this «*lustratio classis*», the «lustration of the fleet performed by Octavian» in 36 BCE⁹⁷⁹, and underlines the fact that the Latin term would have been replaced in Greek by a terminology related to purification, which would have had «purificatory victims».

There are not many mentions of these rituals being done for newly-constructed fleets, and one may question why, seeing as the 1st century BCE in particular is prolific in this regard, but it is possible and even likely that ancient harbours and shipyards would have seen these rituals with relative frequency and for several reasons; the altars themselves would have been built by the water, and one can question whether these would have been temporary structures or whether they could have been kept for longer periods of time and reutilised, or even if shipyards would have had temporary altars included that did not reach our days due to the materials with which they were constructed. The source seems to show, however, that plenty of these purification rituals would have occurred mostly from the ships themselves rather than the harbour: App. *B Civ.* 5.11.98 gives another instance in which the offerings would have been given from the flagship directly into the sea, rather than from improvised altars. But there may have been rituals involved in the practice of shipbuilding that were unrecorded, especially seeing, as we did in chapter II, that there were objects which were included within the ships for symbolic purposes, such as the case of the coins found within the ships.

Thus, from the middle of the 1st century BCE, we can observe a growing interest in harbour structures through the following:

- 1) Caesar's projected development of coastal areas, which will only be verified in the period after his death;
- 2) A growing presence of the Roman army along the coastal cities of the Italian Peninsula, especially during the civil wars. This led to physical expansion, even if temporary, and one may question whether it may have been made permanent, with the remains having deteriorated until our time;

⁹⁷⁹ Georgoudi 2017, 131.

- 3) The growth and creation of several harbours in the proximity of Rome during the late 1st century BCE and the early-mid 1st century CE and the mention of a growing interest in fortifying the Italian Peninsula's shoreline by Octavianus;
- 4) The expansion of usage of hydraulic concrete throughout the Mediterranean from the 1st century BCE, although not in exclusivity; harbours were being built to be lasting, strong defensive structures, even into the period of *Pax Romana*;
- 5) The existence of support infrastructures for vessels in-land throughout fluvial courses, showing the need to provide assistance not only to coastal ships but also fluvial vessels.

11. Lighthouses

One of the most well-developed quotes about lighthouses comes from author Jonatan Christiansen:

«Les constructions destinées à la signalisation maritime sont avant tout de formidables marqueurs du paysage, des constructions remarquables, destinées à être vues. Leur implantation participe aussi de l'élaboration de frontières, en particulier maritimes, et s'inscrit parfois dans un contexte de conquête ou de guerre, comme cela a pu être le cas pour les tours romaines bâties entre le I^{er} s. av. et le I^{er} s. apr. J.-C. à Chipionia dans l'embouchure du Guadalquivir, à La Corogne, à Boulogne ou à Douvres. Ces tours, dont la vocation maritime est largement acquise, ont une dimension de trophée. Les phares, comme tous les autres types de tours côtières, renvoient à une notion de doublon entre surveillance / communication et observation / signalisation. La tour est aussi un lieu d'observation stratégique qui permet d'assurer des tâches de surveillance et de contrôle sur une frontière naturelle qui est le point faible des territoires, ou la portion la moins bien maîtrisée: le littoral. Cela n'exclut en rien une vocation de signalisation et la capacité de l'exécuter». (Christiansen 2014, 233.)

Lighthouses were not the only method of signalling for ships in ancient times⁹⁸⁰, but this statement defines, to a great extent, not only their function but their symbolism. First and foremost, a lighthouse is a tower, which is, as stated by Christiansen, meant to be seen. The function of a lighthouse, in the most precise sense of the world (that is, a large-scale tower with signalling functions, as was, for instance, the Pharos), is to be looked at and, since lighthouses are, first and foremost, towers, they are also a way to signal human presence and, above all, territorial domination: as the author says, they have the «dimension of a trophy», one which is possibly resulting from military conquest and the necessary implantation of new borders, in the case, maritime borders. A lighthouse is

⁹⁸⁰ As seen in Chapter II.

thus, indirectly, a way of declaring the expansion of the *Limes*, and that is something that may be observed in the Roman army's behaviour, especially as it gets further away from the nucleus. Christiansen speaks of the coastline as the part of the territory which is most difficult to control and master, which comes in accordance to the sea and the rivers being some of the fastest means of communication in Ancient Times: the predictability, or at least the capacity for awareness of the movements of an army on land are superior to those of a fleet, as the marching army is always slower, and it is the shoreline that must be well-guarded against these potential sea attacks.

Harbours across the Mediterranean were known to have lighthouses, whose function, as will be seen below, was not the same as it is today. Navigation in ancient times did not have access to the modern technologies that allow ships to be guided through the seas even without additional support, and from early times there were methods in use that would have enabled ancient sailors to prevent incidents with their vessels according to the indication of people who remained on land. As stated by Martinez Maganto, considering the technical capacity and its result on ancient ship traveling, the sailors would have undertaken several available methods to make journeys safer; nonetheless, if the author proceeds to ascertain that there are mentions to these structures in Ancient Sources, we must acknowledge that actual descriptions of lighthouses are sparse and not very elucidative. Archaeological evidence is also relatively scarce, although there are some notorious exceptions, including some which are well-preserved, that have lasted to this day and will be mentioned further along this chapter; the study of ancient lighthouses is thus a difficult matter. One may question why, seeing as there is plenty of iconographic and numismatic evidence⁹⁸¹, is there such scarcity of descriptive evidence, but perhaps this is another case in which a structure or situation would have been so well-known in ancient times that it would have gone amiss in textual notes.

Martinez Maganto shows that communication through light signals would have been used since very early periods, usually with a «military» purpose rather than exclusively of guidance⁹⁸², and establishes the birth of lighthouses as the connection between two defensive elements in Ancient times: on the one hand, the use of lights as a way to signal the safe entrances to harbours or to establish communication with more distant locations; on the other hand, the creation of watchtowers. Lighthouses are thus an alliance between

⁹⁸¹ See, for instance, Rossi et al. 2009, 201; see also Giardina 2010.

⁹⁸² Martinez Maganto 1990: 68-69.

both: as stated by the author, they connect both the potential uses of fire and lighthouses, and thus a lighthouse would be the «consolidación, en un elemento arquitectónico», of systems used more or less sporadically or purposefully («métodos usados ocasionalmente (fuego costero) o deliberadamente (señales de alerta y comunicación)». Martínez Maganto also discusses a possibility which is seldom presented amidst historiographic research, which is the idea of lighthouses also being used for sound cues, «emitir señales sonoras para orientar la navegación en momentos de adversidad climática»; this would only be functional in actual physical lighthouses with greater dimensions, rather than exclusively smaller and potentially improvised beacon turrets, but it is a possibility that cannot be discarded.

Out of all these structures, the most well-known in ancient and current times was Pharos in Alexandria. This has been widely discussed; thus, we will not dwell too much upon it. However, it could not go amiss. Caesar describes it in chapter 3.112 of the Civil Wars:

«Pharus est in insula turris magna altitudine, mirificis operibus extracta; quae nomen ab insula cepit. Haec insula obiecta Alexandriae portum efficit; sed a superioribus regibus in longitudinem passuum dccc in mare iactis molibus angusto itinera et ponte cum oppido coniungitur. In hac sunt insula domicilia Aegyptiorum et uicus oppidi magnitudine; quaeque ubique naues imprudentia aut tempestate paulum suo cursu decesserunt, has more praedonum diripere consuerunt». (Caes. *BCiv.* 3.112)

A great tower which required a large amount of work, built upon the island of Pharos, which is connected to the mainland, and in which some Egyptians had settled and made their living by pillaging ships; this is how Caesar accounts for the lighthouse. The commander would have considered the tower as being of importance to assure his success, namely in making sure the supplies entered the town, and thus he would have attacked it and stationed some of his men in it. During this description, however, there is no mention to the function of Pharos as a lighthouse, rather emphasising its function as *turris*; the tower itself is said to have been taken by Caesar's army, which was subsequently garrisoned there to ensure that their own supplies (which, therefore, would be transported by ship) could successfully enter Alexandria. The Pharos would have provided guidance through the «numerous reefs» that «complicated the approaches to the port and obstructed the channel itself»⁹⁸³.

There are a few conclusions and questions which may be raised: firstly, that the Pharos was not a lighthouse in exclusivity, but rather what seems to have been a guard-tower; a lighthouse in itself may not have warranted the advanced technological craft mentioned

⁹⁸³ Belov 2015, 49-50.

by Caesar in this chapter, thus implying that Pharos had other important roles than that of providing guidance for vessels. This may be supported by the idea that night-time navigation, although being in practice, was not as common and significant as it is in our days⁹⁸⁴: on the one hand, the existence of lighthouses in itself could be evidence of the ancient craft traveling at night, but on the other, the fact that this function is not even mentioned in chapter 3.112 seems to underline the idea of Pharos being a protective military device (a watchtower) first and foremost. Secondly, one may observe that Caesar mentions the importance of taking over Pharos to make sure the supplies reached Alexandria, but the exact implication of the tower in this is not mentioned. It seems to be a preventive measure, as it is undertaken before any event takes place and to protect the imminent arrival of supplies, but what would it be preventing exactly? Does the concern lie upon the watchtower being used as a means to attack the upcoming transports? Would it serve as a high station for archers or projectile-hurling devices, which could thus be thrown into greater distances and destroy the ships? The chapter mentions that the inhabitants of the island would be living off pillage, and it is possible that the Pharos could also be used to detect the arrival of the transports, thus enabling these individuals to attack Caesar's supplies and weakening his position in the city. However, all these issues are unrelated to Pharos being used as a lighthouse and are more of a logistics/war architecture issue than a matter of ship orientation. Caesar would wish to take up the turret rather than the lighthouse.

One can present theories on why Pharos, as a lighthouse, would have been important to preserve Caesar's transport ships. In the eventuality of them arriving after nightfall, Caesar could have been attempting to prevent the transports from being purposefully confounded by misplaced lighting (or lack thereof); there could be an attempt to guide them into unsafe parts of the water or ambushes. But this must have into account the actual use of Roman lighthouses, which is still being debated. Rossi et al argue against lighthouses serving similar functions to those of the 21st century by observing the case of Pharos: on the one hand, sailing «merchant ships» usually travelled through coastal navigation, and thus would not usually lose «sight of land»; on the other, there were few vessels «entering the Mediterranean, directed towards the city». They also add that

⁹⁸⁴ As we are dedicating this study mostly to material subjects, we will not dwell on the matter of night navigation, which is a subject that would benefit not only from a larger number of studies, but also an investment in experimental archaeology. We point towards the 2009 work of Danny Lee Davis, which, in spite of dedicating itself to commercial navigation in general, frequently mentions the matter, including quotes from ancient authors and the relation of astronomical works.

although all of the large Roman harbours had lighthouses built along the structure, it was rare for the merchant ships to leave for travels during the night «far from ports», due to the «excessive risks caused by the scarce visibility». Thus, they ask: «why would they need lighthouses and for whom?»⁹⁸⁵. The authors do not deny night-time navigation, which, in fact, seems to have existed, but there is a lingering question regarding the need for these very large infrastructures to provide light support.

Ancient depictions also seem to focus on lighthouses during daytime, as observed by the authors, but this argument is debatable, since, as observed in the previous chapter, Roman imagery is not always following a realistic pattern. However, the doubt is still justified, and they provide their own justification: the most significant time of use for lighthouses during the Roman period would not have been night-time, when they were deemed «not very useful and almost superfluous»; their function would have been more relevant during the day, when they were «useful and almost indispensable, especially for ships sailing the high seas who lost sight of land». They suggest the usage of lighthouses in a way that created black smoke visible in the distance, and that this «black column of smoke» would have had good visibility, «rising for thousands of metres» and observable «at a distance not of tens but hundreds of kilometres».

The fact that the structure was of significant architectural investment can be observed, for instance, in that its construction began «before 270 BCE», and the building was still standing and «in use until 651 CE»⁹⁸⁶. That is nearly eight centuries of a building standing and functional, in spite of any probable repairs. It does not mean, however, that it was the only working lighthouse in the Mediterranean, which «remained the center of lighthouse development for a long time». There have been found at least thirty of these structures along the Mediterranean and Atlantic (along the French and Spanish coastlines), placed in «key stations», one of the most prominent being the one built at Portus, which is well attested in numismatics⁹⁸⁷; by the 4th century CE and following Rhein and Compton (2001), the number of working lighthouses in the Roman empire is still estimated at around 400, most of which «based on the legendary tower erected on the islet of Pharos». Aside from these larger buildings, the hypothesis of smaller, temporary structures having been in use for this purpose cannot be dismissed, especially when one considers, as above,

⁹⁸⁵ Rossi, Russo et Russo 2009, 201-3.

⁹⁸⁶ Rhein et Compton 2001, 6-7.

⁹⁸⁷ Rhein et Compton 2001, 7.

that harbours in the Ancient Times could often be improvised structures that did not require any physical markings.

If the lighthouse of Alexandria was possibly the most well-known, it was definitely not the only one that assumed an important role. Possibly the best-preserved Roman lighthouse in the Atlantic, even if subjected to a significant amount of preservation, is the lighthouse of La Coruña, also known as the «Tower of Hercules». This tower still stands, and is classified by UNESCO as «the only fully preserved Roman lighthouse that is still used for maritime signalling»⁹⁸⁸; however, this statement must be observed with care: Latorre, who has studied the building of this structure, states that the only Roman portion of the structure is the «núcleo interior», and that the actual Roman lighthouse would have been significantly larger in volume when compared to what remains⁹⁸⁹. The author states that the Tower of Hercules would have been reutilised as «Atalaya defensiva» during the Medieval times, and that later, during the Early Modern period, it would have been restored to its original function. The structure, built between the 1st and 2nd centuries CE, is described as follows:

« (...) el núcleo conservado estaba recorrido exteriormente por una rampa de desarrollo helicoidal desde la que se accedía a la parte superior y a los distintos recintos interiores, que serían utilizados como residencia o almacenes. También parecen estar de acuerdo todos los autores en que la torre estaba rematada con una estructura cilíndrica con dos puertas en sentido opuesto y abovedada». (Latorre 2007, 564).

The Roman lighthouse of La Coruña is not only a piece of evidence for the physical structure of a Roman lighthouse, but also an indirect statement of a vast amount of such buildings that may not have reached these days: if, as mentioned by Martinez Maganto, the building would have been ready until the 2nd century CE (as attested by archaeological records), the first mention of the lighthouse that reached us is found in Orosius, in the early 5th century CE⁹⁹⁰. There are thus two centuries between the construction of the lighthouse and the first written mention of it, which comes in accordance with one of our interpretations of the scarcity of such references; it is likely that many writings and epigraphic tablets have been lost, but it cannot be dismissed that it would have been considered such a common vision that authors in the 1st centuries BCE-CE would have dismissed further mentions of them.

⁹⁸⁸ <http://whc.unesco.org/en/list/1312/>.

⁹⁸⁹ Latorre 2007, 563. This article has a very precise description of the theories regarding the structure, accurate measurements and interpretations.

⁹⁹⁰ Martinez Maganto 1990: 80.

The Roman province of Lusitania would have been a profitable location for the creation of lighthouses, whether the larger towers or smaller beacons, as it would have become a region of growing Roman maritime investment upon the trade routes. Several harbours along the Spanish and Portuguese coastline would have become important connections; as mentioned by Vasco Gil Mantas, among these are, for instance, the harbours along the river Sado and the Tagus, especially up to the end of the Republic⁹⁹¹. It seems there would have been a transition of growth and importance from Salacia to Olisipo sometime during this period, although the reasons remain unknown. Mantas underlines the importance of Avienus' *Ora Maritima* as a source to understand the ancient description of the shoreline, although it is not a large text and does not provide much specific information regarding the outlines; it does show, however, that there are several mentions to the Iberian Peninsula up to its Atlantic coastline.

The reason why there is scarce information regarding Roman harbours in Lusitania is, according to the author, explainable due to the fact that coastal anchorages would be mostly constituted of natural ports, as has been verified for other locations as well, such as the case of the vast number of man-made harbours in the Italian Peninsula, particularly prior to the late 1st century BCE transformations. This is an explanation for the lack of harbour infrastructures and is therefore an added difficulty in the study of devices such as lighthouses. However, the few that do exist, amongst which the already mentioned Tower of Hercules, may provide some indication towards these ancient harbours in Lusitania. The estimated total height of this lighthouse for instance, as per by Latorre, is of a little over 40 metres high (Latorre 2007, 572), which is considerable. As mentioned by Mantas, there are three ascertained Roman lighthouses, two of which, however, have not survived to this day, namely the Cadiz lighthouse, the Chipiona and the Tower of Hercules⁹⁹², but it is not unlikely that those were, as we have mentioned, accompanied by smaller beacons throughout the natural harbours, and Mantas makes a case for one of these being a tower in Outão, by the mouth of the Sado⁹⁹³. As for other lighthouses which

⁹⁹¹ Mantas 2010, 200.

⁹⁹² Mantas 2010: 203, based on the *CIL* II 2559 inscription, attributes its construction to the «arquitecto eminiense *G. Sevius Lupus*». However, Martinez Maganto (1990: 80) states that it is not possible to know with certainty whether this architect was in fact responsible. This theory comes from an inscription found in the whereabouts of the tower.

⁹⁹³ The author adds that lighthouses are a structure that should lead to the reconsideration of the importance of routes: «O facto de a maioria dos faróis romanos indicar o ponto de aterragem ou a localização do porto, associado à prática da navegação nocturna, própria das rotas de longo curso, obriga a considerar a existência e a frequência regular de tais rotas, cujo impacte sobre os centros portuários com elas relacionados foi, sem dúvida, muito relevante, dos pontos de vista económico e cultural». Recent studies also point towards the

would have existed in Hispania, most of them have now disappeared, and there are mentions to at least three: the «*Turris Caepionis*», a mid-2nd century CE structure, which would not only have a signalling function but also mark the outing of river Baetis (current Guadalquivir); the «*Turres Hannibalis*», probably built as part of fortification systems and used also for communications, and «*Torrox*», in modern-day Málaga, which does have archaeological support⁹⁹⁴.

There is textual evidence for the construction of a lighthouse in Caesarea Maritima, although there is still no definitive archaeological evidence. Vann (1991) quotes Flavius Josephus and the description of «*pyrgoi*», towers⁹⁹⁵. Whereas Josephus makes a detailed portrayal of the harbour (according to Vann's conversions, the «Southern Breakwater» would have «curved outward for more than 700 metres», whereas the «Northern Breakwater, (...) perpendicular to the shore (...) stretched 275 m to the north-west entrance»), the only indication regarding a potential lighthouse is the mention of towers «standing outside the harbour entrance», different in size. The mention to the Drusion is also not very clarifying, although it seems that the breakwater would have been «divided by a spinal wall with towers at intervals», of which the biggest would have been the one named after Drusus. Archaeological remains of the ancient harbour of Caesarea are described by the author as «slim»; however, in 1990, some evidence has been found that may account for the lighthouse, including large concrete blocks and planks which were «fastened» with mortise and tenon joints.

Another factor to consider when studying lighthouses, especially in Ancient times, is their cost. This matters not only regarding the investment upon the building of the structure and its maintenance or the paying of individuals to keep their guard-posts through the year but also in the physical matter of keeping the lighthouse functioning in its primary signalling structure. Three authors, Rosen, Galili and Zviely, have studied the potential for the existence of a Roman Lighthouse at Akko, in modern-day Israel, and this is one of the issues that their study has covered, alongside the possibility of the existence of such a building. As we have observed above, plenty of lighthouses were born from the military needs for signalling rather than that of commercial ships, and Akko would have been used

possibility of a lighthouse in the Portuguese locality of Espigão das Ruivas, albeit of smaller dimensions (Fabião 2009, 66; Encarnação et Cardoso 2017).

⁹⁹⁴ Martinez Maganto 1990: 83-84.

⁹⁹⁵ *Jewish Wars* 408-18 and *Jewish Antiquities* xv.335-341. This issue is also discussed by Patrich 2011b, 99.

as a military base for several years, particularly after the first Jewish revolt, a factor that must be taken into account as the situation would have remained unchanged through the years and into the 1st century BCE, regardless of the construction of a new harbour at Caesarea, «new» and «spacious»⁹⁹⁶.

Rosen et al. speak particularly of night-time navigation and the aid a lighthouse could provide when they observe economics, opposing the perspectives pointed above. As we observed, this would not have been the main function of a beacon tower or lighthouse during the 1st century BCE; however, as mentioned by the authors, «for night navigation, keeping a permanent fire, emitting navigationally meaningful light all year around, was expensive in both labour and materials», regarding «a regular allocation of resources for structural maintenance and for firewood»; these expenses, it seems, «could have been covered by taxing ships served by such lighthouses»⁹⁹⁷. This would be one of the fields upon which the tolls taken to the ships entering a given harbour could be used for; we know they exist from textual evidence, as seen above, but the sources seldom clarify it.

Seeing the necessary investment for the upkeep of a lighthouse, therefore, and the lack of historical sources regarding this subject, one of the ways through which one can evaluate the potential existence of such constructions is through observation of the terrain alone: as stated by Rosen et al. regarding Akko, the positioning and «layout» of the harbour, together with its «marine environment», would have made it necessary for the existence of a «navigation aid» that signalled the difficult approach towards the harbour's entrance; this aid would, if possible, come in the shape of a lighthouse⁹⁹⁸. This premise, however, must be observed with care, since we are still far from completely understanding the exact needs of ancient ships during navigation (and especially night-time navigation, which is the one upon which their study focuses). It is, however, a valid approach that may enable researchers to have a starting point, and which will lead them to observe the alterations in the coastline throughout the last two-thousand years, to verify whether the difficulties faced by sailors today would have found their equivalent in the past; such was the case of this work, which analyses the matter with particular care. It begins by referring to the struggles of sailing along «the Israeli coast» due to the «reef south of Akko», which, «as ships became bigger, with deeper draught», became a growing preoccupation; «the bay

⁹⁹⁶ Rosen, Galili et Zviely 2012: 171.

⁹⁹⁷ Rosen, Galili et Zviely 2012: 172.

⁹⁹⁸ Rosen, Galili et Zviely 2011: 173.

has not changed much in the last 2000 years», with the entrance being from «south-east and east» and an entry described as «obscure, not visible to ships arriving from the open sea». This factor, conciliated with the several numismatic evidence described in detail in the study, supports the research's proposal of the lighthouse's existence and location.

We have observed how lighthouses can be regarded not only as essential markings for navigation, but also as examples of military presence and territorial control. The city of Rome left their marking as it expanded, to a point of building what could be called a Roman world; lighthouses could be a contributing element for this situation, and we can observe them not only in the Mediterranean context, but also north into the Atlantic. In 1923, Arthur Weigall published a work analysing a vast amount of Roman architectural remains in Great Britain, a region that, as we have observed in Chapters I and II, created difficulties to the arriving Roman armies and fleets; upon the establishment of Roman presence, this would be accompanied by the construction of lighthouses. There are two examples which are highlighted by Weigall and whose structures seem to be the most well-preserved of the type to these days. The first, although not entirely confirmed by Weigall, are the possible foundations of a lighthouse in the «great naval base at Rutupiae, the modern Richborough Castle, near Sandwich, in Kent»⁹⁹⁹; this is described as a «great concrete platform» (Weigall does not elaborate on the composition of this concrete), upon which there would have been a cross-shaped platform; the former is «sunk in the natural sand to a depth of 30 feet of solid concrete» (thus, according to the author, «designed to carry a great weight and to give stability to a building of exceptional height»). Weigall's interpretations lead to believe that the arms of the cross on the upper platform would have been entrances to the lighthouse, and as «hundreds of fragments of white marble, many of them highly decorated» have been found, it seems that the tower would have been highly ornamented.

The elaborate decoration of a building which was created for a mostly functional task is an indicative of the amount of work invested in the Roman lighthouse of Rupitiae. If this structure was to serve as a signalling station and watch-post, it would not have required decorative elements, so these contribute to the symbolic importance of the construction. We must have into account the chronology of Roman presence in Great Britain to observe how the building of lighthouses seems to be a direct consequence of the expansion of the

⁹⁹⁹ Kent, as we have discussed in Chapter I, is the landing place of Julius Caesar's army in the 1st century BCE. See Weigall 1923, 181.

«*limes*»: when Caesar engages in his two unsuccessful campaigns, we have no mention of the building of long-standing signalling structures, and it will not be until Claudius that one will find the emergence of lighthouses not only in Great Britain but also across the Channel, at Boulogne, which would have been a significant point in the process of creating a «permanent communication link across the Channel»¹⁰⁰⁰; the fact that there is another Roman site at Reculver, close to Richborough Castle, that also shows evidence of «a signal station, or even a lighthouse», pointing to «the importance the army attached to this route for military traffic», which would have been maintained «at least» until the year 65 CE¹⁰⁰¹.

Amongst the other relatively well-preserved Roman lighthouses in Britain, and possibly one of the most well-known, is the Dover lighthouse, also not too far from Richborough, in the ancient harbour of Dubrae. The tower, as has happened in La Coruña, has been rebuilt, and some of its materials have been used in building the nearby church of St. Mary, but in 1923 it still stood «to the height of some 40 feet», and to this day it allows for the observation of part of its structure. Weigall calls it a «monstrous construction, octagonal outside, and square within», with a «large archway on the east side» and a «hollow interior»; there are also «clear enough indications that once there were living chambers», which points for a stationed guard at all times.

A more recent analysis of the Dover lighthouse is that of Peter Williams, who not only presents measurements but adds details such as construction materials and visibility. It seems that the main materials would have been «tufa (a porous, spongy-looking rock) and green sandstone, with bonding courses of red tiles»¹⁰⁰², that the lighthouse itself would have had «eight levels» with «plank floors» which would have had «access ladders to the beacon». The reasoning behind the usage of planks for the floors may be questioned for two reasons. Firstly, the lighthouses required a great investment; to opt for plank floors was possibly a matter of structural and architectural issues rather than an economic choice, seeing that the constructions were object of great funding and even included decoration (which, however, was external; one may state that there was no need to create stone floors, as no one but the guards would see them); secondly, and most important, that the lighthouses would have required the usage of highly flammable materials. We do

¹⁰⁰⁰ Webster [1980] 1993, 94. It does not mean, however, that Caesar would not have kept signalling devices between the coast of Great Britain and France.

¹⁰⁰¹ Webster [1980] 1993, 98.

¹⁰⁰² Williams 2004, 13.

not know where these would have been stored, and it is likely that the upper level of the lighthouse had some sort of protection against fire, but one may question the option, seeing that there could have been some danger of the wooden planking catching fire.

The matter of visibility is equally worthy of mentioning, as it seems to create some connection (perhaps chronologic) with the North of France. According to the author, the light would have been «exhibited 380 feet (115 meters) above the sea because of the tower's position», and it would have «been visible from the Tour D'Ordre at Boulogne in northern France, creating not only a useful beacon but a signal station, too»; this shows a lighthouse network in connectivity between the North of France and the South of England. The so-called Tour d'Ordre, built by Caligula in the early years of the 1st century CE, would have preceded the Dover lighthouse and started its existence as a commemorative monument¹⁰⁰³, but upon Roman expansion to England it would have been transformed to its later beacon functions.

¹⁰⁰³ Williams 2004, 14.

12. Some remarks on iconography

We have proposed treating the Ancient Roman harbours in a comprehensive way, which implies the inclusion of sources of all natures. One of the most immediate ones would be Iconography. However, there are chronological issues regarding this matter: most of the representations we have of Ancient Roman harbours belong to later periods than the one we proposed to discuss. As we have observed, there seems to be a continuity in the usage of ancient harbours throughout the 1st centuries BCE and CE, one which in some cases begins in even earlier periods and will remain until the Medieval times; therefore, even if these pieces did not exist during the 1st century BCE, they are worth including in our study. As this time-period is one during which there was a significant investment in construction, the absence of iconographic representations of several harbours along the Italian Peninsula seems logically explainable, as most of them would still be inexistent or undergoing works; it is important to add that the harbours suffer repair works through the centuries, and therefore iconography of later periods must be interpreted cautiously, seeing that some structures may be posterior. The abundance of representations, especially in Roman mosaics, is also noteworthy, and therefore it would not be possible to analyse all in a work of this nature; therefore, we will present a selection, which will include some pieces on which one can either see definite harbour structures or activities in direct connection to the port.

Noguera Celdrán (1995-1996) has published an article focused on the iconography of ancient harbours, in which he shows them to be prolific and depicts other means for their illustration. The author begins by stating that the representations of harbours and harbour landscapes were extremely popular in the Hellenistic and Roman art¹⁰⁰⁴, something which is verifiable, above all, in small objects of daily use: «vasos de vidrio, recipientes metálicos, sellos, lucernas, monedas, gemas». This is justifiable, according to the author, through ways of certain specificity, in which harbour scenes («escenas con puertos») in Hellenistic or Roman landscape depictions can often be connected to the representation of coastal cities, considering the connection between harbour and *polis* from the Hellenistic period onwards. This was particularly relevant for Roman art up to the late 1st century CE, until the eruption of the Vesuvius, and Pompeii is the site where a larger

¹⁰⁰⁴ Noguera Celdrán 1995-1996: 230.

gathering of these representations may be found; afterwards, it seems to disappear¹⁰⁰⁵. The artistic representation seems to have had a model which was followed throughout the Roman influence area, which is observed by Noguera Celdrán as large constructions with porticos, columns, sometimes with lighthouses in either corner, with the design of a half-circle.

One of the pieces in which one may observe information on this subject is the ship mosaic currently stored in the Palazzo Diotallevi, at Rimini. This consists of a work dated to the 2nd to 3rd centuries CE, built with «black and white *tesserae*»¹⁰⁰⁶. The Rimini mosaic shows what seem to be sailing vessels «with their sails in the lowering process» and «guided by a tug-boat to a two storied structure, probably the customs for checking in». One can, in fact, observe a small vessel, which does not include a sail; there are three visible oarsmen and one individual in charge of the rudder, which seem to be going towards the arriving ships. Whether they were working for the harbour itself or privates is unknown, as is the precise meaning of the stone structure on the left, where one can verify an individual holding an unknown object; the structure itself has two separated layers of bricks with one area in between which is either made of a different material or covered in another; there is also a curve-shaped hollow area which bends into the structure. According to Friedman (2005-2006) and based on the iconographic testimonies, it seems that ships would have entered and left a harbour «guided by tug-boats to the quay or harbor entrance», something seldom observable in historical sources. As we have often seen cases of several dozens or hundreds of vessels arriving in a harbour simultaneously, this raises several questions regarding the logistics of these operations, including the storage of the tow-boats and how many vessels could be simultaneously transported into a harbour, as well as how long these operations would take.



Fig. 64 The «Mosaico delle barche», at the «Palazzo di Rimini»¹⁰⁰⁷.

¹⁰⁰⁵ Noguera Celdrán 1995-1996: 221.

¹⁰⁰⁶ Friedman 2005-2006, 126.

¹⁰⁰⁷ http://www.museicomunalirimini.it/musei/museo_citta/patrimonio_museo_citta/catalogo_mappa_museo_citta/-archeologia/pagina12.html.

Ancient iconography is also one of the few sources that can give further detail about the activities happening in an ancient harbour. We have observed studies regarding fishing, but iconography, and particularly mosaics, provide insight on matters such as wood transportation, amphorae, metal and even animals, the details of which are provided by Friedman in her study. The matter of wood transport, particularly, would have been impactful in ancient trade networks, as timber was required for most of the ancient constructions. It would have developed to an extent which led to the representation of timber workers in several mosaics of the *naicularii lignarii*, the «office of wood shippers» in Ostia. This mosaic, as seen in fig. 65, is of difficult interpretation: it is identified as a 3rd century CE piece in the «office of wood shippers», with two ships on «either side of a large rounded structure, placed on a raised rectangular podium», of which flames are seen coming out¹⁰⁰⁸. Neither ship can be clearly identified as being towed (definitely not the vessel on the right, which is not attached to anything). The lighthouse itself seems to be standing on some sort of platform, and it has an opening which allows for the fire to come out. As stated by Leone, there is a mosaic in Ostia with an inscription that mentions the *Naicularii Lignarii* which may point towards the use of fire timber of North African origins in a significant portion of the Mediterranean basin¹⁰⁰⁹; Leone suggests, with no doubt, that the mosaic attached to inscription *CIL XIV 287= XIV 4549*, namely «NAVICVLARIORVM LIGNARIORVM», is definitely representing a lighthouse. Even if it cannot be confirmed with complete certainty, the lighthouse in itself would be connected to the profession, as timber would be required for its functioning¹⁰¹⁰.

¹⁰⁰⁸ Friedman 2005-2006, 128.

¹⁰⁰⁹ Leone 2007, 59.

¹⁰¹⁰ See Diosone 2008, an article which explores the matter of timber, its importance and usage. The demands for timber were from both the construction and energetic sector, which is particularly relevant to the matter of lighthouses, and transporting wide amounts of timber, as well as providing it (which can reveal itself a fundamental issue and lead to deforestation) are questions which surround several historical periods, as she explains in her article; the author concludes that the *naicularii lignarii* would only transport wood destined to create energy (274), whereas the dislocation of wood types destined for different functions would be put to the charge of the *dendrophori*, thus making them responsible not only for exploring the forest and providing the materials but also assuring their arrival to Rome (hence comes the difference between *lignum* and *materia* proposed by Diosone; 265). Another factor to have into account in this study is the proposition that this timber, assembled together in temporary rafts, would have been used to transport other products as well, namely those of agricultural nature, a practice observed in the Medieval period and related to the timber from a forest area known as Massa Trabaria (268).



Fig. 65, as seen in Friedman 2005-2006 («Mosaic in the Office of the Navicularii Lignarii»).

Loading and unloading transport ships is directly related to ancient harbours, not only because they were the locations in which these operations occurred, but also because they would have provided the instruments, particularly relevant when dealing with heavy cargo. The mosaic of the woodworkers does not show how timber would be loaded and unloaded onto a ship, but there is a representation that shows how metal shipments would be processed in Tunisia, in another 3rd century CE piece known as the Sousse mosaic. This is presented by Friedman as having a «ship anchored near the shore», something which is deduced and implied by the mosaic rather than clearly seen («neither morning nor anchor line is visible; the porters are walking in shallow water»). The «iron ingots» are being «unloaded by stevedores» and brought to be weighed on a scale. The vessel itself only has an individual within, and the representation seems to indicate it would have been one of the men unloading the cargo, rather than part of the ship personnel; as the ship is also close to the coastline, this would probably have been a smaller vessel in which the transports would unload. There is no aid to the individuals transporting the metal, which is carried exclusively through human intervention; the one device which is verifiable in this piece (fig. 66) is the scale, of which there would possibly be several distributed across the harbour.



Fig. 66. The Sousse mosaic¹⁰¹¹.

The matter of animal transportation is possibly one of the most documented through ancient iconography, and there is one particular mosaic which connects it to ancient harbour structures. Friedman shows several examples of caged and uncaged lions being taken on ships, as well as horses and elephants; the Veií Mosaic, dated to the 3rd – 4th centuries CE, is one of the most well-known examples. It depicts an elephant being loaded onto a transport ship, and the details seem to provide insight into the process, as well as making one question it. The setting, overall, seems to be of a beach area, on which wooden planks have been assembled to allow the elephant's transporting towards the ship. The structure seems relatively small and the mosaic makes it disconnected from the ship, as there is not only a gap between the wooden planks and the vessel but no continuity whatsoever, which is probably a stylistic matter. The vessel itself is a transport ship, on which the sizes of the five human figures have been exaggerated; however, this transport also seems to have somewhat of a beak at the prow, which is more coherent with the idea of a warship (the beak, however, could be a cutwater and have no military purposes). There is no observable harbour in this mosaic; however, even if the ship seems to be at sea, upon closer observation there seems to be some sort of structure beneath it, as the colouring of the mosaic closely resembles the one which seems to be sand or soil. The

¹⁰¹¹ <http://www.romansociety.org/imago/searching-saving/show/468.html>.

surface on which the vessel is lying also does not seem the same as the open sea observable to the right.



Fig. 67. The Veii mosaic¹⁰¹².

As there is no visible harbour structure, one would assume this is set in a natural harbour rather than a large commercial port; however, the absence of harbour infrastructures from ancient mosaics related to ships and transports is not uncommon, and this may not be representative of a generality. The material of the wooden planks assembled to transport the elephant into the vessel can be questioned as well. We have stated it is likely wood, but the image is not clear enough to affirm it with certainty. There are four visible poles, which would have been able to fully sustain the elephant's weight, and the sand which seems to be covering the portion connected to the beach can either be an artistic choice for the representation or actual use of sand to facilitate traction. Where would this structure come from? Was it improvised, carried by the ship itself, or taken by the individuals who are bringing the elephant? It seems clear that it has some sort of elevation, which is visible through the angle in which it is represented and the fact that the lower poles are smaller; this means that the ship's level would be superior to the ground, and yet again leads to questioning as to what the horizontal image of dark coloured patches would represent. As this is a large transport and not a towing boat, it is possible that there would have been some device to prevent the vessel from being stranded, but it could also be unrelated and just be representative of the sea without any further addition. There is yet another detail regarding the storage of such animals, which would need to be kept in an enclosure and fed until a ship could come to take them; if this is not a harbour, one may question where the said structure would have been, and whether the larger ports would have had any type of enclosure for animals being transported.

¹⁰¹² <https://www.ancient.eu/image/3925/roman-mosaic-showing-the-transport-of-an-elephant/>.

Lionel Casson's *Illustrated History of Ships and Vessels* provides a valuable catalogue not only of ancient ship representations but also of harbours across the Mediterranean, amongst which we find some of the rare depictions of ships being built. We have selected some to include in our work, as they are the ones which felt more relevant to this study. The first is fig. 68, which is subtitled as «a shipwright finishing a hull» following the finishing of the «skin of the planking»; the shipwright would then be inserting a «frame». This 2nd-3rd century CE piece, which is accompanied by an inscription that reads «Longidienus pushes ahead on his work»¹⁰¹³, provides some relevant information regarding what would have been a Mediterranean shipyard structure, even if it has deteriorated. One can observe that the ship itself is being held in place by several columns, of which one can count at least three, and that the shipbuilder seems to be standing on a small elevating platform to facilitate his work. The vessel is also probably not to scale, especially when one considers the design, which closely resembles that of larger vessels. The inscription is only assigned to an individual, which makes one question whether this man would have been the only one involved in the assemblage of the framing of this vessel; as we have observed above, there are several circumstances in which many vessels are produced at a fairly fast pace, which could indicate more workmen needed per ship.



Fig. 68, as seen in Casson 1964, 46.

One can also question whether Longidienus would have been part of specialised workers. Due to deterioration, it is not certain which sort of tools the builder would have been using, but this could be an indication of a type of chain process in which some individuals would be specialised in building shells whilst others would mostly dedicate themselves to creating the frames. It could also be an artistic choice based on the fact that Longidienus was the one dedicating this work, however, and one can question how a single individual

¹⁰¹³ Casson 1964, 45-47.

would have been able to carry, unaided, the heavy timbers needed to assemble the frame structure.

Another image which is worth observing is fig. 69. This is a late 2nd century CE relief, created in about 200 CE, and the image itself is not only extremely detailed but also filled with depictions of ships, structures and individuals, which does not facilitate its comprehension. Casson describes it as the arrival of merchantmen in Portus, with a ship «just moored, and a stevedore (...) busy unloading its cargo on shipping jars»; the other ship would have been «moving past the great lighthouse that stood at the entrance of the harbour». The image of the lighthouse is standing in the back, about 80% covered by the arriving vessel; one can see it would have been divided in several layers, which become progressively smaller as one reaches the top, and that there would have been a fire burning. This has some similarities with the image found in the mosaic presented above; however, fig. 65 shows a single circular structure on a square platform, whereas this has at least four levels of what seems to be a square structure with a far smaller chimney – a different type of lighthouse, or is a different interpretation truly required for the mosaic? On the lower left corner, one can see what is likely to be a towing ship, which, by comparison to the mosaic presented above, is represented on a far smaller scale; one can observe no oarsmen and a single individual atop, leaning towards the larger vessel.

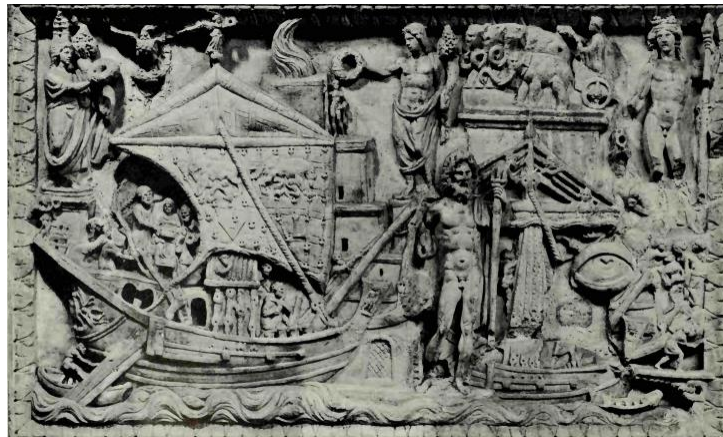


Fig. 69 (Casson 1964, 60).

A similar setting is observed in a mosaic belonging to approximately the same time period (c. 200 CE). This image, unlike some of the others represented above, is an example of a coloured work from an early time, and even through deterioration it provides several details. One can see a tower structure along the harbour with a large entrance but no windows, entirely made of brick, with a smaller, cylindrical tube on top, also with an

entrance. The top of the cylindrical structure is covered, however, which makes it unlikely for it to be a chimney: it is possible that we are in the presence of a watchtower of some kind, although light and smoke signals could be made regardless. On the lower level, there is a connection bridge with five noticeable tunnels, which could possibly be linked to a cutwater; there is also a difference in colour in the mid of the mosaic, but it is difficult to ascertain whether this is related to the sea or some sort of wall or pavement. However, the blue hue beneath this detail is lighter than above, and if we take that the top of the work represents the open sea, it would seem that the lower level represents an enclosed harbour of shallower waters, thus explaining not only the lighter colour but also the presence of a smaller boat, which could have been a towing vessel; one must notice, however, that it is empty. On the lower left corner, one can also observe two reliefs attached to the lower level of the wall, on which one cannot see a clear depiction of the bricks.

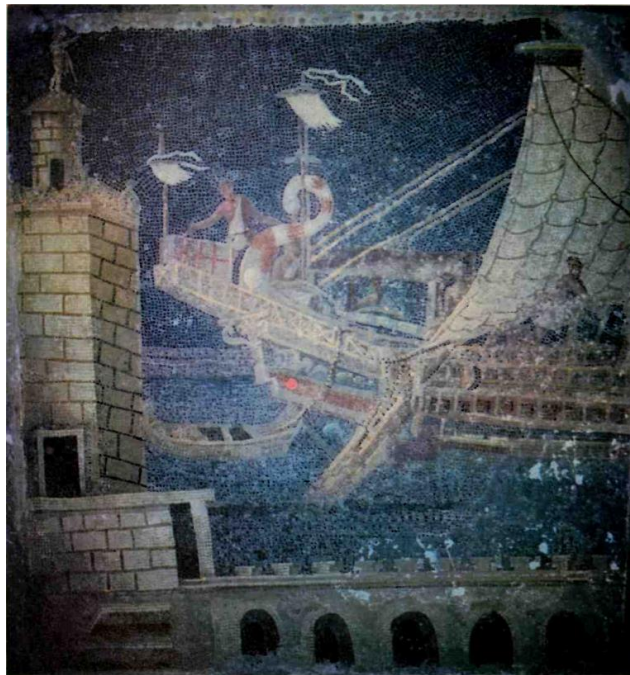


Fig. 70 (Casson 1964, 50).

Fig. 71 is one which shows a particular case and allows for a different observing of harbour structures. This is described as «three merchantmen at the entrance to Portus», dated to the 3rd century CE, with two vessels «racing out to rescue the boy (or man) who has fallen out of his skiff into the choppy sea»; during this rescue mission, one of the vessels (the centre) would have «come into danger of collision with a ship entering the

harbor (right), and both are maneuvering frantically to avoid each other». This is, therefore, a case in which an accident, or something close to it, is shown in an ancient relief regarding a harbour; rather than showing its magnificence, its size, the lighthouses or the magnitude of the ships, it shows a scene of struggle. One can clearly observe there is a figure in the water; on both edges, there are different structures. The left edge of the relief shows a tall pillar, possibly decorated with a statue, on which a man is standing; on the right, a closer depiction to the usual image of a harbour wall. The ships, as mentioned by Casson, are nearly colliding. The fact there is a man in the water, presuming the individual fell from one of the ships, shows the difficulties presented at the entrance of Portus, of which there is scarce textual record: the difficulties in navigation would have had to create enough instability for a sailor to fall, whilst simultaneously the harbour would have been busy enough for several vessels to be reaching it simultaneously and thus being on the verge of colliding.



Fig. 71 (Casson 1964, 55).

Possibly one of the archaeological records which provides us with most visual information on ancient harbours is Trajan's Column. This monument will be observed with further detail, not only because of its prolific representations, but also due to its chronology: it is one of the largest iconographic references for ships and harbours in the early 2nd century CE, which simultaneously makes it one of the closest to our work regarding chronological records. Robert B. Ulrich, Professor of Classical Studies at the University of Darmouth, has created an on-line catalogue of the scenes represented in Trajan's Column, as well as explaining his interpretation¹⁰¹⁴. The Column has a double importance in the analysis of ancient harbours since, as will be observed, it depicts

¹⁰¹⁴ Professor Ulrich based his division of photographs on Conrad Cichorius's work, *Die Reliefs der Traianssäule* (1896-1900), which are also observable on the website. For this work, we shall mostly be basing ourselves on Professor Ulrich's plates, as the visibility is clearer.

structures (or the lack thereof) involved in harbouring river craft throughout the Danube, but also shows images of Mediterranean (Adriatic) harbours. The structural division made in the catalogue follows the chronological logic between the two Dacian Wars, and therefore we will be presenting them along the same organisation.

The First Dacian War is represented by seventy-eight scenes. The first five are described as preparatory moments for the war and are amongst those with more naval motifs. Along the margins of the river Danube, one can see several military posts, amongst which one can count several towers and what seem to be torches on the upper floors. These towers are surrounded by palisades, indicating fortifications, but the scene itself immediately shifts to river transports which do not show any type of port structure; there are crates being carried on these vessels, some of which seem devoid of a crew. This image raises several questions. One can see that the soldiers, departing from a fortified city, are crossing the river through what has been interpreted as a pontoon bridge; one can notice there would have been at least two of these structures, which then finish unconnected to the other side of the river, as the army enters an upward slope. We do not know whether the vessels holding the bridge would have been the same carrying the supplies, but we can observe that the soldiers at the end of the pontoon seem to have halted, whereas those behind them are depicting movement. Therefore, the only definite visible information we can attain from scenes 1-5 is that the supplies seem to be taken from intermediary camps without man-made harbours, which raises the possibility of several smaller transport stations throughout the sea and rivers which wouldn't need significant structures for their upkeep.

Scenes 33 and 34 will once again show a connectivity with a harbour. The former, described as the departure of Trajan and his troops by the author, does not give many details as to the embarking. One can verify individuals carrying supplies into a transport vessel outside the harbour walls, with buildings visible from the top, and one can question whether these buildings would have been connected to harbour functioning; they have different roof types, but all share colonnades. In the middle, the representation of an amphitheatre, and to the right, another structure which seems to be on the outside of the walls and depicts somewhat of an entrance. Between Scenes 33 and 34 there are two noticeable arcs, which appear to be standing on the water. One can observe that the author of this relief clearly depicts the prow and stern of the ships crossing through.

Scenes 46-48 also regard ports. Once again there will be a depiction of a pontoon, although this one seems to connect further into the landline. In both verified instances of the usage of pontoons in Trajan's Column, the soldiers seem to immediately enter the vicinity of a city; this could be an artistic liberty, but it could also signify that the pontoon itself was placed at a station close to a nearby city, in which case one may question why it wouldn't have a harbour. Why the Roman army would have been crossing through pontoons rather than using the ships themselves is also questionable; if they are of the same typology shown in the first scenes, this seems unlikely, as they are seen departing from a beach.

The depictions of the Second Dacian war provide not only further information regarding support infrastructures, but also bring the observer to a different scenario. Between the scenes 79 and 91 in particular, there is an abundance of this sort of material. Scene 79 shows what is described as a night journey of the Roman warships into an Adriatic harbour. The notion of night navigation must be observed with care, particularly as this is a relief and there is no visual cue to aid the interpretation. If these are, in fact, to be interpreted as warships (and the shape of the vessels seems to indicate it, with the prolonged beaks or cutwaters), the fact that they are approaching a harbour is interpretable not only by their proximity to a walled structure, but also due to the fact the sails are lowered. The notion of this being a night-time navigation could possibly be shown by the potential presence of a lighthouse, seen on the upper right corner of scene 80; however, as we have seen in this chapter, lighthouses were not necessarily used for night navigation, and rather for showing the entrance of a harbour in order to avoid dangerous paths. The ships are approaching a wall, but there are also several arches and colonnades all throughout, which makes one question whether they would be representative of the mouth of the harbour. In scene 80, although it is barely visible, one can observe, in the left corner, a tower-like structure similar to those we have frequently observed, but no flames are depicted; there is, however, a window or door. As scene 80 is considered to be a representation of Roman warships at harbour, we must question whether they are arriving, departing or undergoing training; they are in harbour, but not stored in ship sheds, of which we have no representation in the same frame.

Observing the reliefs of both Dacian wars, one can reach several conclusions. Although one must not incur in the danger of generalisation, one may observe that, in what regards the river Danube, there seem to have been scarce developed port structures throughout

the route of Trajan's campaigns; however, we observe the proximity of Roman army fortifications upon the departure, which may or may not have been accompanied by stations that permitted the upkeep and observance of the transport boats. As these seem to have been capable of being brought on land, there would have been scarce need for the development of large structures, or even of conquering local harbours as Caesar would have done during his campaigns in Great Britain¹⁰¹⁵.



Fig. 72: a representation of Trajan's column in its original surroundings¹⁰¹⁶.

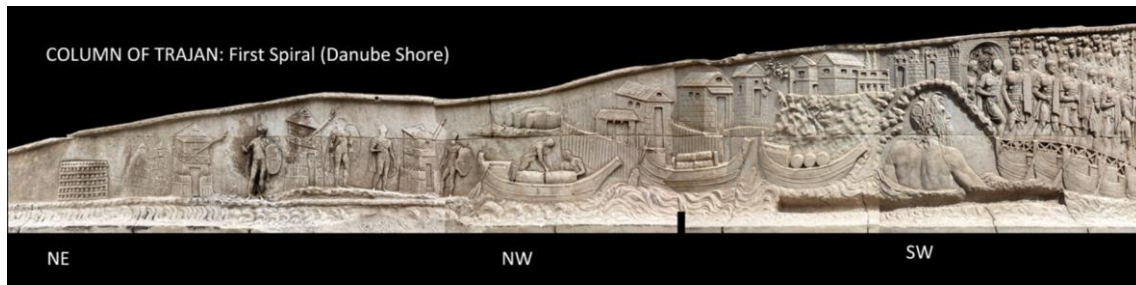
¹⁰¹⁵ There is another factor which may be taken in consideration, namely that Trajan's column would have originally been presented in colour; recent studies have pointed to pigments found throughout the marble and the colouring is believed to have been placed deliberately. If the original colouring had been preserved, it may have made interpretation easier. Future investigation may be able to provide further information on this matter. See Del Monte, Ausset et Lefèvre 2007.

¹⁰¹⁶ http://www.trajans-column.org/?page_id=38.

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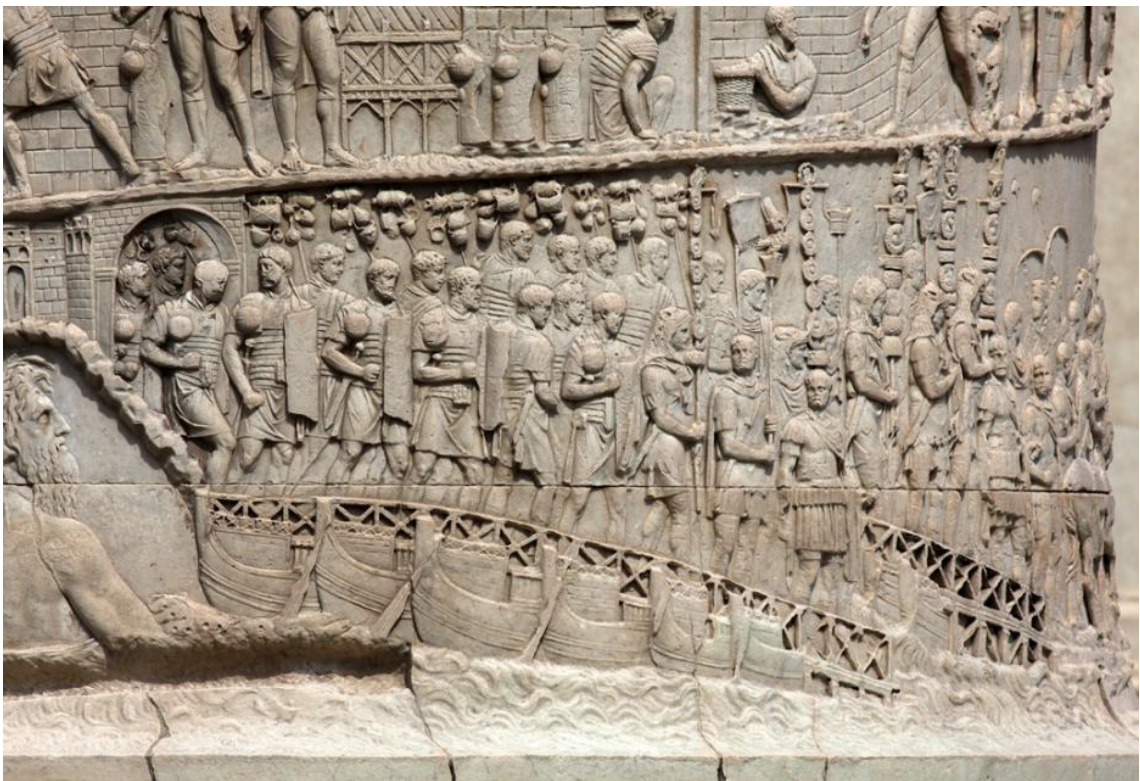
Trajan's Column: Motives¹⁰¹⁷

Scenes I to V



¹⁰¹⁷ At Trajan's Column in Rome, http://www.trajans-column.org/?page_id=107.

Some remarks on iconography



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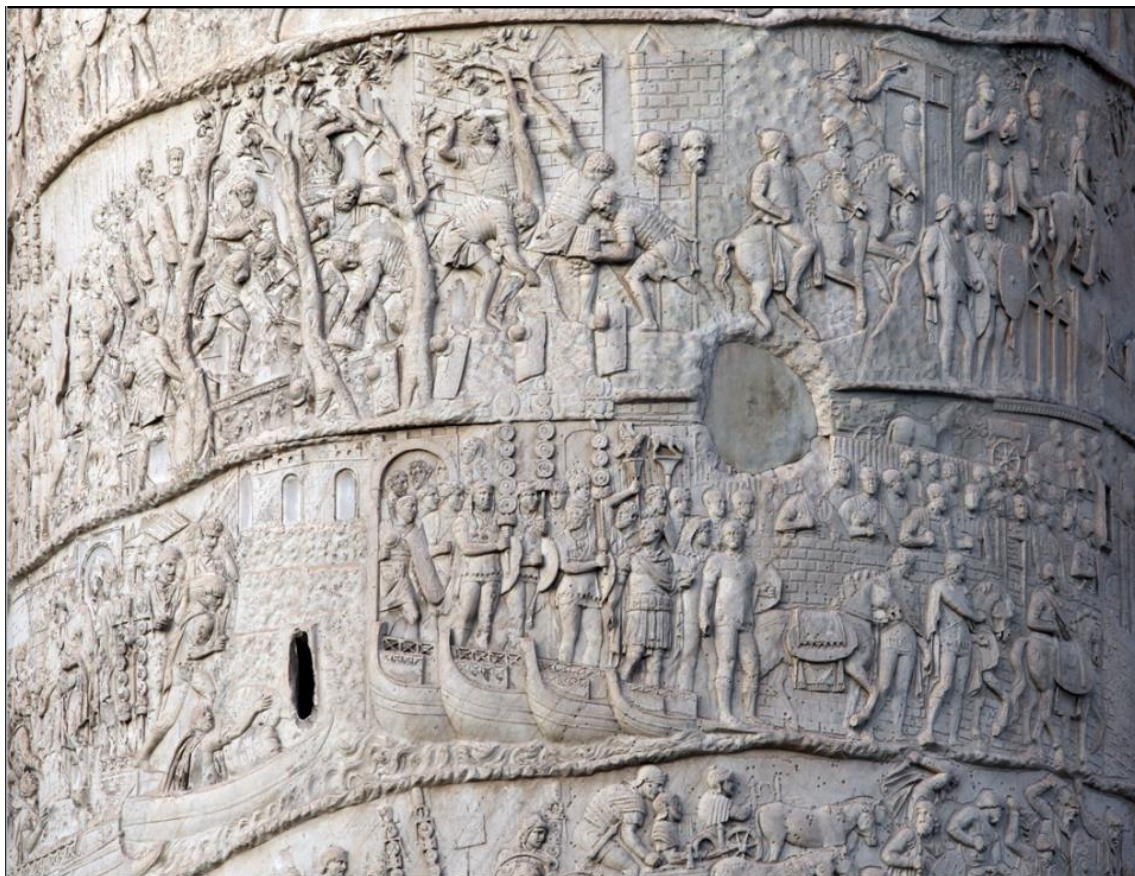
Scenes 33 and 34



Some remarks on iconography

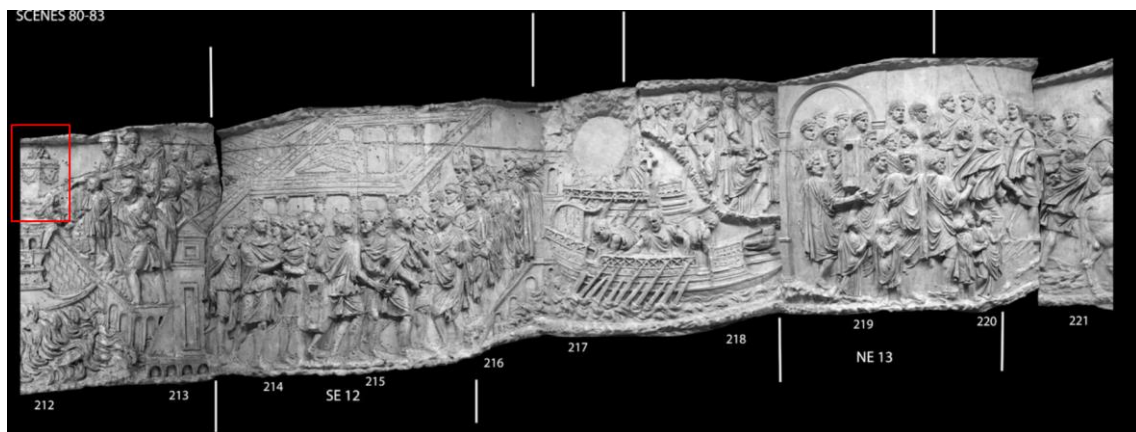
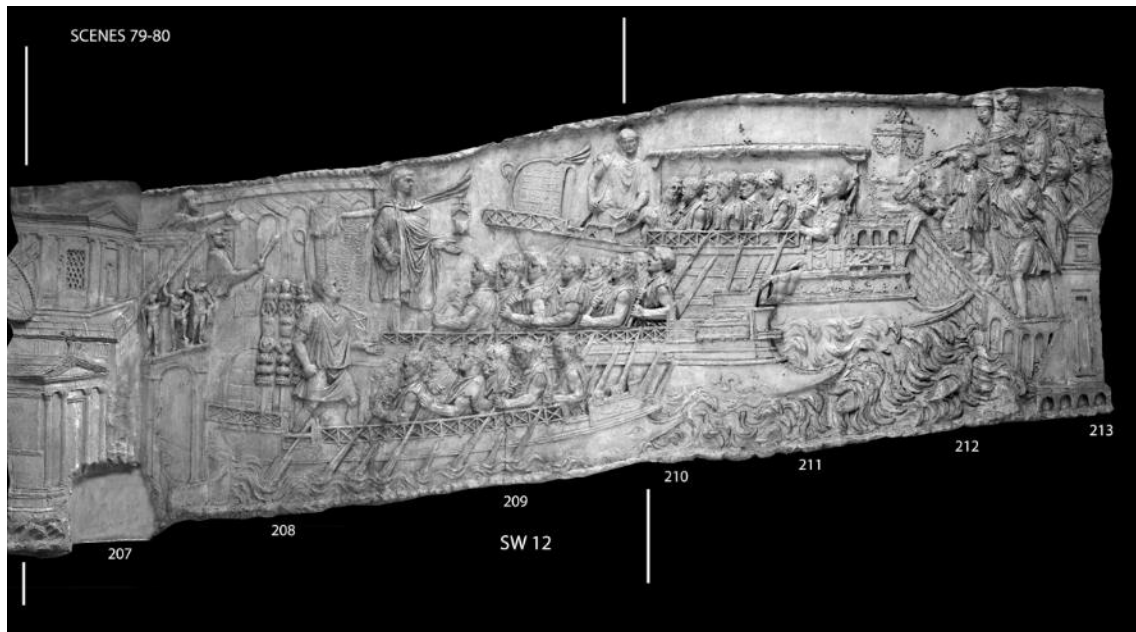
Scenes 46-48

Scenes 46-48



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Scenes 79 to 83



Roman frescoes are another artistic means through which one can observe structures of ancient harbours. Less common than mosaics (as they are more prone to decompose), frescoes are often of even more difficult interpretation, as the styles used by the painters have created unclear shapes¹⁰¹⁸. These frescoes were often found in Roman villas, which show abundant depiction of landscapes. As there is an evolution in the motives accompanying the villas, one will find some representations of «harbour towns», of which the most well-known is possibly the «small square panel from Stabiae», which «presents a fine sketch of a harbour which may well have been that of Puteoli (Pl. XIIB)»¹⁰¹⁹. The characteristics of this fresco are described as «spread out in bird's eye perspective, but distance is suggested by reductions in scale and the use of lighter, hazier colouring»; there is a variety of colour and objects, in which one can see «the foreground rocks, boats, buildings and statues», which are «vigorously conveyed by strokes of white and brown. The water is a bright blue, and white scribbles suggest the sunlight dancing on it».



Fig. 73, as seen in Ling 1991b, 176.

¹⁰¹⁸ We will not enter particulars regarding the several styles of frescos which are observable from the later periods of the Roman Republic into the mid-period of the Empire, as this work's purpose is not artistic observation. However, it is worth mentioning Roger Ling's 1991 work, which has often been reprinted and gives a detailed observation of these matters.

¹⁰¹⁹ Ling 1991b, 148.

This small square, currently found at the Museo Archeologico Nazionali di Napoli, provides significant details not only regarding the harbour's general structure but the harbour life. If one begins the observation from the lower angle, one will see there is somewhat of an arc formed through what may be a rock; there are light markings underneath, which suggest some sort of wall, but the structure itself is possibly natural, in spite of the particularly defined shape. Upon this rock, one can see what seem like two fishermen, although whether the oblong tools they are holding have another purpose can be questioned. If they are fisherman, one can see that they exert their activity far from the centre of the harbour, although there seem to be three small boats in the vicinity. It is unclear whether these are fishing boats or towing vessels, and the detail does not allow for further comprehension, but one can see that these vessels are close to what seems to be a beach or paved area. Moving the observation upwards, one can see one of several piers (there are at least two which are clearly visible, one at the lower edge and another at the upper left edge), and one can observe their columns holding them within the water, as well as what seems to be a dark arc of two columns in the middle of the first pier and at the entrance of the second; these may be related to the arc structures found in Trajan's column.

The harbour city itself is also depicted in this fresco, but there are no visible protective walls: there is a continuity between harbour and sea, a connection which leaves it unprotected from this point and approaches the city and the beach. Another arc seems to be an entrance to a street, along which one can observe several colonnades; to the left of the colonnades, there are several buildings of undiscernible types. These continue to appear towards the top of the painting, with the buildings emerging in an upward slope, and to the left there is another structure, which seems to be another edification. The harbour itself seems very compartmentalised, divided through the several piers into at least three-four sections, which are connected: the first would be the fishermen sector, the mid-section includes several ships, and there is one to the left of the fresco, which is smaller than the others and has degraded, and therefore one cannot clearly observe its function. The largest sector, but also the most shielded, protected by piers and buildings on both sides, is the one where the largest ships are depicted.

Another point which can be made regards the location of the largest ships. There seems to be a near-direct connection between this part of the harbour and the city itself, with five columns deriving immediately into buildings; there are also four vessels stationed,

all seemingly with lowered sails, and what may be a human figure (by comparison to those of the fishermen observed below) on top of a horizontal line. This does not resemble a towing boat, and the reason why the figure and whatever object it is on top are by the larger ships is unclear. One does not see devices to carry the ships into ship sheds, and they seem to be anchored at the bay rather than waiting to be stored; it is possible that these were vessels in transit, between loading and unloading, but there are no piers nor platforms to facilitate the work, which we verified often was undertaken by individuals themselves rather than being aided by any device. If there were ship sheds and shipyards within this harbour, they were not located in the site depicted by the fresco, which indicates a sectorial division; the building of shipyards out of the main harbour, for instance, could be justifiable through the avoidance of polluting/clogging the waters with the debris, and since ships would usually need a few repairs, perhaps the shipyards and ship sheds stood together in a less visible location for vessels in transit.

Aside from painting and sculpture, one can also observe Numismatics. Procuring information on ancient harbours in coins is even more difficult than observing frescoes and mosaics, not only because of their small size, but also due to the fact that several are severely decomposed and worn, even more so than the other pieces we have shown throughout this analysis. Coins, more than other types of representation, seem to indicate the substantial weight of harbours in the minds of the Romans: as mentioned by Cuyler, there was a set of «choices that the die engravers made in the extraordinary task of rendering the entirety of the Claudian harbour – its layout, its architecture, its ships and its gods – onto the 34 millimetre flan of a *sestertius*»¹⁰²⁰. Cuyler's study carefully analyses these coins, which the author describes as very similar in detail, stating that the most evident difference is the matter of the «number of ships and boats» that are represented in each «harbour scene», always between six and eleven. These coins are a valuable element to observe, for instance, the topography of the harbour, which seems to be represented with significant detail for such a small object. Having compared it to the archaeological evidence, Cuyler describes the coin depiction as the «entrances to the harbour on either side of the lighthouse (...) to the west»; the «statue at the top of the coin indicates the approximate position of the lighthouse». The curvature of the coin in itself would have been «perfect for mimicking the approximate shape of the harbour», with the left side representing «the southernmost side» and the right side «representing the north».

¹⁰²⁰ Cuyler 2014, 122.

On the left, one can observe «monumental colonnaded structures»; on the back of the coin there would have been a temple, next to which «stretch two long buildings also showing peristyles, pediments and roofs». From these coins, one can clearly observe the existence of a mole (which has archaeological grounds, the location having been ascertained but not undergone works as of yet).

In 1958, Aline Boyce published a study regarding the ancient coins of Pompeiopolis, in which she underlined the importance of a specific coin representing what would have been a «seaport»; in this image, one can observe «an elongated semi-circular structure apparently two stories high», as well as «a figure reclining in the familiar manner of a river-god»; one can see a dolphin and a circular base which is likely connected to the depiction of a lighthouse. What made the author identify the harbour of Pompeiopolis, however, was connected to the liaison between the figure of a water-god and a dolphin together with the circular figure, which, she concludes, must not be a «stadium or circus»¹⁰²¹. As there are both figures of a river god and a dolphin, it seems this would have been a «symbolic representation of the place where the river meets the sea» in «anthropomorphic form», which seems to have become relatively widespread during «the Roman Empire»¹⁰²².

Even if the information provided by the small object seems scarce, it is still significant and verifiable through modern archaeological methods. The most recent studies about the harbour of Pompeiopolis show some degree of connectivity. In a recently published article, in which Boyce's work is quoted, Hakan Öñiz¹⁰²³ states that «the width of the western mole wall above water is c. 15.5m; with a width of dumped material of c.30 m for each mole measured at the current seafloor; the distance between the interior walls of the two moles is c. 127m; giving a total width of the harbour structure, of c.182m». As the harbour is located in a windy region, it would have been designed thinking of a way to protect the arriving ships from the wind, and Öñiz believes that, through the

¹⁰²¹ Boyce 1968, 68.

¹⁰²² The article proceeds under the discussion and justification of the nature of this deity, concluding that in spite of the similarities with Oceanus, the fact that there is evidence for other harbour deities presented with rudders represented in coins would be indicative of a river god. The issuing of these coins is often connected to commemorative matters, as the «Pompeian city's bicentenary» or the «beginning of work on Claudius's harbor at Ostia», which is complemented, as stated by Boyce on note 37, by CIL XIV, 85 «a record of canal construction connected with the harbor works and incidentally relieving Rome of the danger of floods», which is believed to have «stood on the great travertine porticus of Claudius at Portus» and therefore indicates that «the construction of the harbor» in 46 CE, the date of the inscription, must have been near completion.

¹⁰²³ Öñiz 2018: 341.

observation of the coin of Antoninus Pius, the entrance, which would have been a narrow place located to the east (very different from what is observable in the coin, in which only the inside of the harbour is shown, as it has no narrowing), would have been accompanied by «a lighthouse placed on top of the western breakwater to guide incoming ships to the east-facing harbour mouth». As the harbour has been dated by Boyce to c. 143-145 CE, the lighthouse would have been built by this period. The evidence for a lighthouse presented by the coin seems inconclusive, however. As we have stated, it is difficult to ascertain whether the coin represents the entrance to the harbour or an inner structure, as the entrance is not narrow as archaeological data ascertains.



Fig. 74, the coin of Pompeiopolis, as seen in Boyce 1958, Plate 10.

Boyce presents the image of several coins representing ancient harbours alongside the one from Pompeiopolis. One of the most well-known, which we will discuss below, is Nero's coin depicting the harbour of Ostia, but there have been coins found in Sicily, Aegina, Corinth, Patrae, Perinthus, Bythnia and Portus, for instance, some of which show similarities. The coin Boyce is treating, which is depicted on her first plate, does show a semi-circular structure, more oblong than circular and not closed, and along this structure there seem to be several colonnades; on top, there are other elements difficult to discern, which may be towers or more columns. There does not seem to be any building depicted in this coin, which only shows a harbour bay similar to the one we have observed in the fresco above; the other coins, represented by numbers 1-12 on plate 13, seem to more frequently depict portions of a harbour rather than its entire shape. This is visible, for instance, in coins 3, 6, 7 and 8, on which there seem to be images of ships (alongside an anthropomorphic figure in coin 6), surrounded by a horizontal depiction of colonnades;

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coins 7 and 8 seem to depict some sort of channel through which one can observe the vessels are circulating. Coin 9 has a larger figure of a vessel and what seems to be a structure behind, which would probably be connected to the harbour, whereas numbers 4, 11 and 12 give large-scale depictions of a circular harbour.



Fig. 75: Coins 3, 6, 7 and 8, as seen in Boyce 1964, plate 13.



Fig. 76: Coins 7 and 9 (Boyce 1964, Plate 13).



Fig. 77: Coins 4, 11 and 12 (Boyce 1964, Plate 13).

These depictions present slightly different shapes: 4 has an elongated form similar to the Pompeiopolis coin, whereas 11 is represented by a round structure which creates a near-perfect open circle. Number 12 is different from the remainder, as it is the only one in which the structures which demark the harbour or surround it do not have a smooth oval or circular shape, showing one which, in spite of the apparent intention to form a circle, is in truth filled with angles. The entrance to the harbour on coin 12 is also significantly smaller than the one shown in its counterparts, and although it is difficult to judge ancient harbour structures through coins, the fact there seems to be a clear distinction in design leads us to question whether there are representations of different parts of a harbour between coins 11 and 12.

One of the most original coins from the group presented by Boyce is coin 10, which is also found at the On-line catalogue of the *Corpus Inscriptionum Latinarum*¹⁰²⁴. This is one of the bronze pieces originally from Bithynia (Caesarea Germanica), dated to 192-194 CE, on the turn to the 3rd century CE. It also shows the circular structure, but this time the representation does not include any type of column; the small harbour entrance seems to be connected to some sort of pillar on the lower right corner, and on the left one can observe a building, from which we can discern two pillars and a roof. A similar piece, which is also better preserved, is dated to a very close period, between 196 and 211 CE¹⁰²⁵, and one can observe the same elements: a ship within an enclosed harbour, what seem to be two pillars at the entrance, cattle and a structure on the left, which is this time connected to another object of more difficult identification. These two coins belong to a

¹⁰²⁴ <https://arachne.dainst.org/entity/3638729?fl=20&q=navalia&resultIndex=4>, currently in the British Museum.

¹⁰²⁵ <https://arachne.dainst.org/entity/3645194?fl=20&q=navalia&resultIndex=5>

group that gives more emphasis to the area surrounding the harbour rather than the harbour in itself; although the visual information is scarce, the space reserved for the depiction of a harbour is considerably smaller to allow for the inclusion of the building and cattle, something which seems absent in the previous coins. The design of the harbour in itself seems less important than its inclusion in a wider context and the depiction of its purpose.



Fig. 78. On the left, the coin presented by Boyce; on the right, its better-preserved counterpart. Both images are from the CIL catalogue.

The numismatic representations of the harbour of Ostia, dated to Nero's time, are amongst those in which a port is most carefully represented in ancient coins, with Kreitzer going as far as to state that «the whole of the reverse is taken up by a very artistic presentation of the harbour»¹⁰²⁶. If there is little doubt that the other coins are representative of harbours, this is even more true in the case of the Ostia coinage, as the coin is accompanied by an inscription which reads «AVGVSTI POR(us) OST(iae)» which is placed «between the letters S C», something that represents «the Imperial Port of Ostia». It is not only a matter of stating it is a harbour, but of giving it a denomination directly connected to the institution of the emperor; and the elements of the coin give it both a link between the other coin designs which have been observed but also a certain originality.

¹⁰²⁶ Kreitzer 1996, 116.



Fig. 79. The Ostia coin, as seen in Boyce's Plate I.

The harbour in itself is represented by circular figures which enclose the rim of the coin, interrupted by the inscription at the bottom; the traditional colonnade structures are well-marked, once again displaying a demarcation of ancient harbours that is not equivalent to harbour walls. There are seven ships represented, all with different characteristics: the middle row all seems to have lowered sails, and thus seems to represent vessels already stationed in the harbour; the upper left corner, however, shows a ship with a full sail, which seems to indicate it would still be arriving or departing. Three ships do not have visible pole-masts, and one can question whether these would have been towing boats; the lower left corner ship, which has three to four figures within, does not have such a marked stern and prow as those in the upper right corner.

According to Kreizer, in the middle of the coin one can observe the lighthouse of a harbour, on top of which is positioned a statue, which he believes may be a representation of Neptune; this statue is prolonged «into the letters of the top inscription». There are several visible characteristics in this element: five poles, which seem to be connected to what would be a water region, topped by a rectangular structure, more elongated than tall. In the middle of this structure, a cylindrical form, which seems somewhat narrower at the bottom and larger at the top. This is fairly different from the usual representations of lighthouses. There doesn't seem to be a tower, it is not levelled and there is no visible

chimney; there is also no indication of fire or smoke coming from it, and the fact that a statue is atop creates a series of issues. On the one hand, a statue would easily decompose under the constant effects of smoke; on the other, the visibility of the statue itself could be rendered difficult through the columns of smoke or fire coming from the lighthouse, depending on their placement. The depiction in itself is enough to raise doubts: lighthouses are not usually represented with pillars underneath, and they are generally set on land rather than the middle of a harbour. There is also evidence for ancient depictions of lighthouses originated in Ostia, and they all seem to follow the more traditional model of several large, cubic blocks which become progressively smaller; there is no visible pillar in these mosaics, reliefs and graffitos, and none of them depict a statue.

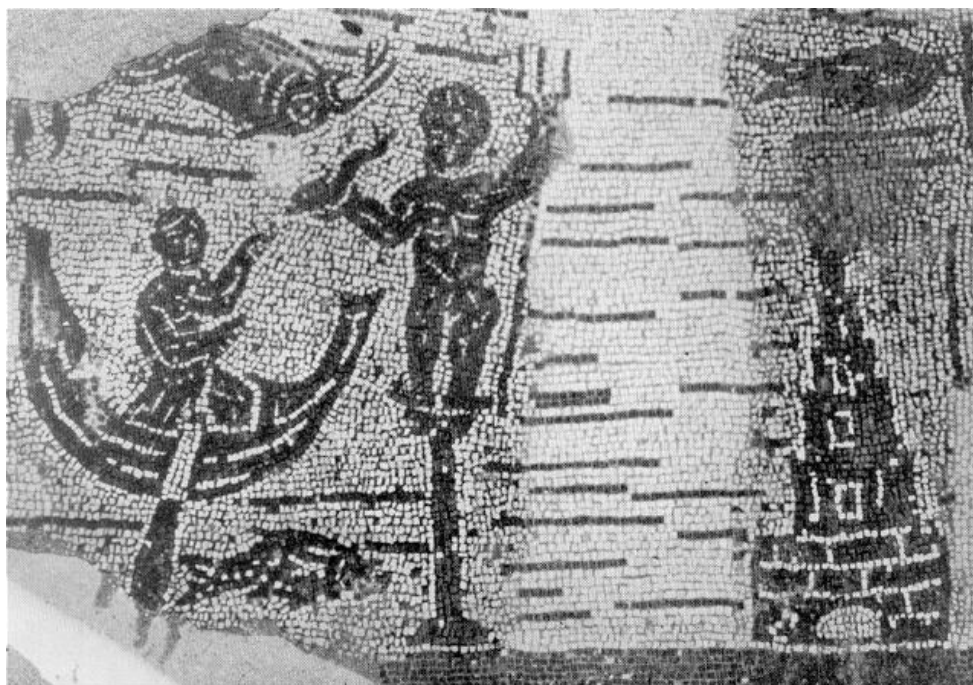


Fig. 80. «Mosaic in the House of the Harbour Mosaic»¹⁰²⁷. The statue on the Ostia coin seems to more closely resemble the figure on the central pillar than the lighthouse itself.

¹⁰²⁷ The following images of lighthouses come from the Ostia Antica website, which is sponsored by the Soprintendenza at <https://www.ostia-antica.org/portus/c001.htm>. The image descriptions are as presented at the website.



Fig. 81. «Mosaic in Statio 23 of the Square of the Corporations».



Fig. 82. «Mosaic in statio 35 on the Square of the Corporations».

III. PORTUS: LIMES TERRAE AC MARIS

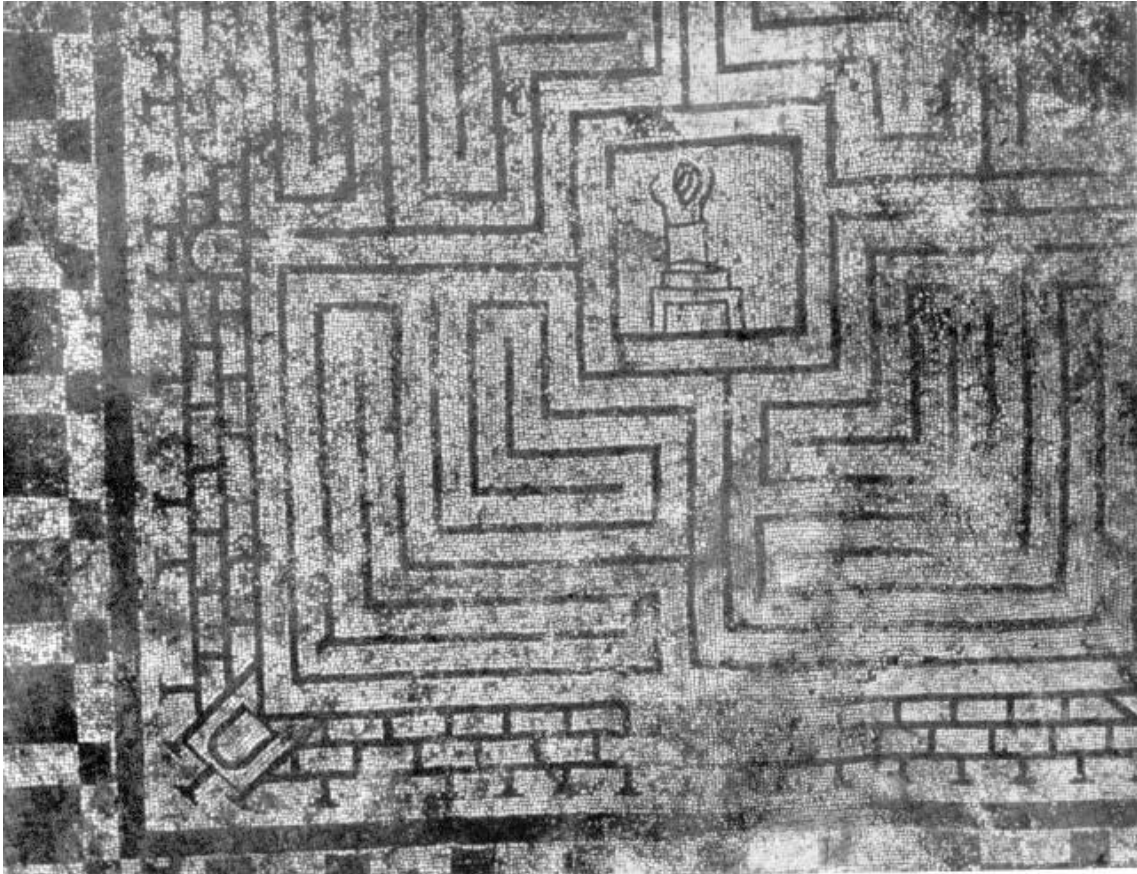


Fig. 83. «Mosaic in the Imperial Palace of Ostia, courtyard 73».



Fig. 84. One of several graffitos from Ostia, which all follow the same design.

Thus, we are left to interpret what the structure could be. One cannot deny that it may be a lighthouse, although the depiction is unusual; in which case, the statue may not be connected to the structure, but be an artistic addition to the coin, in conformity with the water god lying beneath. There is another possibility, which comes in accordance to the notion of it being a signalling structure: rather than showing a lighthouse, this figure would, in fact, be signalling the entrance to ships, but the statue itself would have been the signalling, rather than smoke or fire signals.

There is another detail which may be added, still connected to the statue but in relation to the water god. Kreitzer identifies the lying figure as what may be a «personification» of the Tiber, one which is reclined and turned leftwards, «holding a rudder and a dolphin»; thus, a river god in a similar fashion to what is observable in Boyce's analysis of the Antonin coin. According to the author, the dimensions of this figure would have been superior to those of Neptune's statue due to «a deliberate attempt to convey perspective and distance». This is thus a representation of the mouth of the Tiber in connectivity to the main harbour entrance, rather than any possible different piers, cutwaters and protective walls, which are not visible; the importance of linking the river and the sea is displayed in the coin, which, in spite of showing a coastal harbour, does not forget its relation to the Tiber, a navigable river essential to the evolution of the city of Rome.

Numismatics has provided different perspectives on ancient harbours, and this is seen, for instance, in an article by Charikleia Papageorgiadou. This study has observed the harbour of Patrai through numismatics: Patrai, important due to its location on «a pivotal point along the itinerary joining the Italian coasts with the Aegean and the Orient markets», seems to have been created mostly for commercial purposes, and was not one of the military-related creations that we have often observed; it would have grown to result upon a station of which we have archaeological remains, if scarce, to this day. Nonetheless, it is scarcely mentioned by ancient sources; Papageorgiadou mentions the exceptions of Strab. 8.7.5 and Paus. 7.21.7, which, however, do not enter far into detail. We have observed that Strabo often mentions harbours that remain unknown in other sources, but his work is often more enumerative than descriptive, and we frequently only receive the names rather than actual information¹⁰²⁸; therefore, we must rely on other foundations for further knowledge.

¹⁰²⁸ Papageorgiadou 2013-2014.

In the case of Patrai, for instance, Papageorgiadou mentions two coins, «issues dated to the reign of Commodus and Geta», in the 2nd century CE, which, according to the author, point towards the fact that between 180 and 192, hence the time of emperor Commodus, there is «numismatic evidence» which matches the evidence found by archaeological search to strengthen the possibility of «a project to restore, enlarge or reconstruct the port»¹⁰²⁹. As the harbour would have been a consequence of the «roman colony» founded by «Augustus», this would place the foundation much earlier, which means that some of the 1st century CE harbours, and potentially some of those which were a part of the late 1st century BCE construction program, were still in use nearly two-hundred years later, and had potentially grown and required adaptation. The harbour also seems to have been slightly different from the usual representations. Papageorgiadou describes the harbour found on the first coin as «represented in a rather peculiar way, avoiding or failing to emphasize its circular form (...) although the presence of a mole on the left – as well as possibly on the right – out of the coin’s flan could finally give the impression of a close harbour».

The importance of harbours in everyday life shows in the fact that they were represented in current objects. Ostrow, for instance, shows that the topography of Puteoli would have been observable in objects such as glass flasks, with two found («Ampurias and Populina») which seem to have a mixture between the shorelines in the region of Baiae and the port of Puteoli, whereas the Roman vase focuses its representation only on the coast of Baiae. These objects have been interpreted as a sort of souvenir¹⁰³⁰, something that has been reaffirmed by Popkin in 2018. However, one must have into account that a significant part of these so-called souvenirs was also depicting architectural feats of the Roman cities, and thus not over-focusing upon the role of the harbours. The artisans who were crafting these items were having the city as a whole in their minds, even if the harbour was considered as a relevant element and included in the representation.

¹⁰²⁹ Papageorgiadou 2013-2014: 100.

¹⁰³⁰ Ostrow 1979.

Some final considerations regarding iconography and lighthouses:

- 1) Ancient iconography of harbours, although abundant, does not seem prolific until the transition into the imperial period. This seems to coincide with the growth of new harbour infrastructures attested by historical and archaeological sources, as well as with a period of great expansion.
- 2) Even through this scarcity, Rome would come to show the importance of harbours through the variety of depictions, both in painting, sculpture, numismatics and glassworks. Small and large-scale depictions made harbour iconography frequent in everyday life.
- 3) Iconography is one of the few sources that allows researchers to observe ancient harbour life, as the depictions present imagery of functional divisions in space that show the distribution of work within a port.
- 4) The consistent development of Roman lighthouses seems to accompany the growth of iconographic representations. Whereas lighthouses and beacons were usual in the ancient world, albeit with several and debatable functions, those which can be truly called Roman only appear after Rome's expansion and further investment in coastal areas.

IV
MARE NOSTRUM

IV. MARE ALTERUM, MARE NOSTRUM



The Course of the Empire: The Consummation. Thomas Cole, 1836¹⁰³¹.

1. Mediterranean Rome and Roman Mediterranean

The Mediterranean Sea in ancient times is far beyond a passageway. It is a means of communication, one of the most effective and fastest, and one cannot underestimate its importance in that regard, but it is also a source of livelihood for the populations that settle along its coastline. Its importance in the minds of those who made their existence by the sea is seen to such an extent that it became the centre stage for many of the foundational narratives in ancient mythology, with many accounts of sailors who crossed it. The Mediterranean is always present: from the travels of the Argonauts to the journey of Odysseus, throughout the very birth of gods and goddesses, as seen by the narratives that show Venus rising from the sea, and even to the very core of the myths surrounding the foundation of Rome, as Aeneas sailed from Troy to Carthage to the Italian Peninsula, where he would settle to fulfil his destiny. This mentality would prevail throughout the centuries, long after the decline of the ancient thalassocracies: upon the keen and growing investment in themes of the classical world throughout 19th century art, one will often

¹⁰³¹ Photograph of the *Metropolitan Art Museum*.
<https://www.metmuseum.org/art/collection/search/718413>

find the association of ancient people and the sea, not only through mythology but also in depictions of their daily life¹⁰³².

Hence, through several studies upon the subject, the Mediterranean's importance has frequently been underlined. The introduction made on Knapp and Blake's *Archaeology of Mediterranean Prehistory*¹⁰³³, for instance, focuses on the importance of the maritime environment for human movement, adding the observation of it allowing for the development and sharing of cultures. This work is of particular consequence to observe that the Mediterranean had gained importance long before any of the most well-known thalassocracies developed:

«In the popular imagination, the Mediterranean's absorption into the classical world in the latter half of the first millennium B.C. constitutes the defining moment in Mediterranean history. Yet this cultural integration is the exception, not the rule. Instead, it is in the periods prior to the spread of Greek and Roman culture that we can observe autonomous regions jostling for the position and interacting spontaneously, a pattern that is far more typical of the Mediterranean over its *longue durée*. These earlier periods offer an important counterpoint to the relatively brief period of classical cohesiveness, and are more consistent with the political and cultural plurality of Mediterranean regions today, even if the experience of prehistory and modernity differ in virtually every other respect».¹⁰³⁴

Controlling the Mediterranean seems to become a purpose for ancient civilisations since early periods, although not all civilisations have the same time frame. Each civilisation thus presents its own agenda regarding maritime investment, although they will often cross each other's paths and derive into conflict¹⁰³⁵. The collective memory of each people, from the Etruscans, Phoenicians, Athenians and Carthaginians, crosses through History acknowledging them by the efficacy of the respective fleets, independently of

¹⁰³² See, for instance, the paintings of Konstantinos Volanakis, John William Waterhouse, Lawrence Alma-Tadema and Joseph Mallord William Turner; the latter two, especially, often focus on themes where the Mediterranean is a constant presence. Waterhouse, whilst mostly focused on mythological subjects, has several depictions of nereids and a well-known painting of Odysseus. Volanakis, on the other hand, is known for his focus on maritime landscaping, and he is the author of several depictions of ships, boats, coastal shorelines and naval battles, especially for the 19th century, but also of more remote timeframes; an example is his painting «The Argo», seen in fig. 85.

¹⁰³³ Knapp et Blake [2005] 2008, 1.

¹⁰³⁴ Thus, the work focuses on the interaction and mostly the dispute of the Mediterranean from pre-historical periods, showing a plural space. Although this study's purpose is not observing the Mediterranean since Pre-History, this is regardless a fundamental period for the formation of identities.

¹⁰³⁵ Whereas the ancient Greek began their exploration in the Middle Neolithic period, those living near the Aegean sea would have reached Mediterranean navigation later than those of Thessaly or the people in Egypt and Assyria (Roller 2015, 8-9); the Greek people of Euboea would have been in the Eastern Mediterranean from the 8th century BCE (Twerios 2008, 16). The Phoenicians would have sailed since at least the beginning of the second millennia BCE (Aubet [1993] 2001, 172); from the 8th-7th centuries BCE, the number of maritime establishments across the Mediterranean increases amongst the different maritime civilisations. The peoples of Israel would have expanded in the 8th century (Stieglitz 2001, 14), whereas the peak of the Etruscan expansion, commercially, seems to have been the 7th century BCE (Smith 2014, 41-42), which would have led to disputes between Phoenicians and Etruscans, seeing how the Phoenician colonisation also achieves new vigour from the 7th century (Hoyos 2010a, 5). In turn, the Carthaginian expansion is a direct consequence of the Phoenician, with its beginnings dating mostly to the 6th and 5th centuries BCE (Hoyos 2010b). The 8th century thus seems representative as a moment from which maritime investment begins to grow.

their vocation being more connected to war or trade. As maritime activity evolves, the connection with the Mediterranean intensifies, the maritime routes grow regular and connect points between three continents. As city-states grow, they will expand their resources; as they do, they will feel the need to master the main way of communication. This brought war¹⁰³⁶.



Fig. 85. «The Argo», Constantine Volanakis, late 19th or early 20th century¹⁰³⁷.

¹⁰³⁶ Braudel ([1998] 2001) has a quote that depicts his view and investment in Mediterranean studies: « The best witness to the Mediterranean's age-old past is the sea itself. This has to be said and said again; and the sea has to be seen and seen again. Simply looking at the Mediterranean cannot of course explain everything about a complicated past created by human agents, with varying doses of calculation, caprice and misadventure. But this is a sea that patiently recreates for us scenes from a past, breathing new life into them, locating them under a sky and in a landscape that we can see with our own eyes, a landscape and sky like those of long ago. A moment's concentration or daydreaming, and that past comes back to life». Fernand Braudel considered that «the Mediterranean system was after all created to fulfil the demands and the potential of two great social units: Egypt, which had limited but direct access to the sea itself, and Mesopotamia, which used the active intermediary of the Syrian seaboard to obtain access to the "Upper Sea"» (73-74). Boats and ships were circulating the rivers and the sea since very remote periods, although it is difficult to say precisely when this movement begins; Braudel stated, however, that in his «personal view, though with little to back this up (...) attempts to sail out on the open sea go back a long way» (Braudel 2001, 77-78). See also Jabouille 1995 and, more recently, Horden et Purcell (2000) 2001: the authors, who are specialised both in Ancient History and the Middle Ages, propose to start their analysis in «later prehistory» (2) and observe the subject up to the «early modern period» and «even to the later twentieth century» (3) when they find it necessary, in order to observe the matter of Mediterranean unity and conflict. In fact, they describe their subject as «the human history of the Mediterranean Sea and its coastlands over some three millennia», in a perspective that partly follows the earlier analysis of Braudel, but also distances itself from it, observing the «history in the Mediterranean» and the «history of the Mediterranean» (9 and 1-3). The terminology of «interactionist approach» is used as one that «is likely to emphasize the sea», whereas the «ecologizing» approach would be more closely related to the observation of «Mediterranean hinterlands». The authors present a discussion on «What is the Mediterranean», observing it both from geographical, sociological and cultural approaches.

¹⁰³⁷ Image from Wikimedia Commons.

The dispute for the control of the Mediterranean began long before Rome could be an active counterpart. Geographic proximity makes its early developments mostly connected to the river Tiber, and it is only in later periods, following its expansion throughout the Italian Peninsula, that it will turn its eyes towards the fight for the Mediterranean. It is, therefore, a late contender¹⁰³⁸. According to historical records, when Rome first decides to intervene in a significant sea conflict (264 BCE, the start of the First Punic War), the Mediterranean had long been sailed and disputed. Sicily itself, centre stage of this conflict, had been occupied for centuries and a cause for conflict between Carthage and the Greek tyrants for at least two-hundred years. And yet, when Rome drifts for the first time from an apparent four-hundred-year tradition of land conquest in the mid-3rd century BCE, building its own fleet and fighting the main naval power of the time, it achieves considerable success for one who had never fought at sea. In the next two-hundred years, with the incorporation of the remaining Roman provinces, the Roman sea empire is concluded, and will be kept by the *pax romana* for the next three centuries.

This is a traditional view. However, Rome's relationship to the sea is not yet widely studied. Only recently and slowly are new studies appearing on this regard, which are, nonetheless, usually limited to smaller book chapters or articles; it is unusual to find books exclusively dedicated to the development of the Roman *Mare Nostrum*, although some works do intend to observe this problem for the whole of the Mediterranean History, or maritime history in general¹⁰³⁹. In spite of frequent mentions to maritime control and *mare nostrum*, very few studies have opted for observing Rome from the sea, and even the General Histories of Rome strongly focus on the land questions; there is not a strong

¹⁰³⁸ Pitassi, however, recalls the Etruscan influence on Rome and states that «it seems inconceivable that in the hundred years or so of the Etruscan period, no Roman, or Etruscan settler in Rome owned, operated or at the very least, served aboard ships, some of which must have been based there. It is from this period that the first 'Roman' ships are likely to date. There must also have grown up a body of shipwrights, sailmakers, riggers and the other trades connected with the fitting-out, repair, and victualling of the shipping at Rome and on the river» (he mentions the riverine craft which may have «extended their repertoire to build ships for Roman-Etruscan owners» (3-4). Likely as it is, this hypothesis still requires further investigation to be proven, and a study of archaeological material from the Etruscan Rome may require more detail. As to the lack of evidence for ships of this period and the following century, Pitassi states that «an ancient merchantman, when holed, was dragged down by the weight of its cargo and, as a result, a number of sunken merchant ships have been found»; however, it would be different for warships, as they were «all wood and carried, even with their rams, no load greater than their intrinsic buoyancy», thus not sinking but rather floating, so that they became swamped, awash and unstable», and often «salvaged». This is perhaps not as evident for later periods, as we often see the army carried in transports and Rome strays further from traditional naval battle under a great number of circumstances. Another potential indication of earlier attempts of expanding towards the Mediterranean is Pitassi's statement that «the Romans attempted to found a colony on Sardinia in 378 BC» (19), albeit unsuccessfully.

¹⁰³⁹ As is the case, for instance, of Lincoln Paine's *The Sea and Civilization: A Maritime History of the World* (2014).

historiographic vein which focuses on understanding what truly means, for the ancient Romans, a «Mare Nostrum»¹⁰⁴⁰. The works of Michael Pitassi (2009, 2011 and [2009] 2012), J. S. Morrison ([1950] 2016) and Lionel Casson (1964; [1971] 1994; 1991) are an invaluable aid for studying the maritime component of Rome; however, even these mostly focus on the evolution of the Roman navy itself, as far as ships are regarded. There is thus still a void, which is only just beginning to be filled. In spite of the undeniable importance of land conquest for the Republican Rome, investigating its connection to the sea is fundamental to understand the city's growth and evolution, as well as its insertion in the general context of ancient thalassocracies. If city-states like Athens are known for their navies, it is Rome who will refer to the Mediterranean as *Mare Nostrum*, and it is within Roman domination that the concept will truly be fulfilled. Before Rome, no other city-state had achieved undisputed maritime control of the entirety of the Mediterranean.

As Rome reached the late 1st century BCE, its situation was far from the subsequent developments. The city's connection to the sea was mostly made through two ways: the *socii nauales* and the *coloniae maritimae*. The *Socii Nauales* are usually acknowledged as «mainly Greek coastal cities of southern Italy and Sicily, which had long-established traditions of seafaring and some experience of operating rowed warships»; throughout «treaties of alliance with Rome», some would have been «obliged to provide a few smaller ships, probably triremes, complete with crews (e.g. Livy 25.39, but they would also have been a good source of recruits for the sailors and oarsmen needed for the larger ships»¹⁰⁴¹. As stated by Souza, first in Greek cities, then in Sicily, Rome would have counted with a large supply not only of ships, but also individuals, complemented by those which came from the several *coloniae maritimae* and the «citizens rated below 400 *asses*», which most likely «rowed ships, rather than fighting as marines» (Polyb. 6.19.3, as seen in Souza 2007)¹⁰⁴². In its earliest maritime interventions, Rome counts, therefore, with the intervention of its allies.

¹⁰⁴⁰ As seen, for instance, in Mary Beard's recent *SPQR: A History of Ancient Rome* (2015) 2016.

¹⁰⁴¹ Souza 2007, 364.

¹⁰⁴² Aside from the *socii nauales* and the *coloniae maritimae*, Rome may also have benefitted from its Etruscan heritage, through the «borrowing from the nautical knowledge of Etruria» as they had done in «building their envoy-ship to Delphi». As stated by Workman-Davies, «Rome's early naval period, in which she avoided the sea as far as possible, probably did not allow for much transfer of knowledge between the two cultures. Now that the sea had to be conquered, the Romans would not have ignored this vital source of knowledge and experience». Workman-Davies 2006, 158.

In the period immediately before our study, the situation, at least nominally and according to recent studies, is believed to have changed. Alfredo Valvo considers that the moment which leads to the Punic Wars is the one in which «si affermò la Potenza navale romana, favorita e quasi imposta dalle nuove condizioni politiche e dalle esigenze militari sorte nel III secolo a.C.», adding that «la moderna storiografia li considera semplice marinai – che in seguito si sarebbero chiamati *classici* o *classarii* – oppure alleati di Roma che, prima del 260 a.C., quando Roma allestì per la prima volta una propria flotta da Guerra, fornivano navi ed equipaggi, secondo una *formula* contenuta nel trattato di alleanza»¹⁰⁴³. By observing Valvo's statements in the course of recent historiographic words on the subject, it would seem that the main period in which the *socii nauales* acted would have been the one prior to the 3rd century BCE, which, coincidentally, is also before the one in which Rome actually has a need for large-scale naval furnishing for its operations. The period prior to 264 BCE is one of intense territorial expansion on land, with the «conquista dell'Italia meridionale seguita alla vittoria su Taranto, con la sconfitta definitiva di Sanniti, Lucani e Bruzi, e al Sistema di alleanze integrate su base confederale», which brings Rome's domain over a large territory on which «fronteggiava le grandi isole del Mediterraneo occidentale e, a oriente, le sponde occidentali della Grecia e quelle meridionali dell'Illiria».

As far as the *socii nauales* are regarded, there seems to have been a temporal division between before and after the First Punic War, when one considers that after this period Rome would have attained its own navy, which created a different precedent. The evolution of the terminology itself seems to cause debate amongst researchers. According to the purpose of this work, we will focus on the matters surrounding the interventions of Roman allies in maritime purposes, rather than the conceptual nature of the *socii nauales*; however, it is worth including some brief information in this regard. Most of the occurrences come from Livy:

- 9.38 mentions the presence of the «*classis Romana*» and a maritime prefect («*quem senatus maritimae orae praefecerat*», Publius Cornelius) in Pompeii, where the *socii nauales* would have attacked («*ad depopulandum agrum Nucerinum profecti*»). This situation, occurred during the First Samnite War, shows the *socii nauales* being active not only on the ships but also on land attacks.

¹⁰⁴³ Valvo 2006, 179.

- Later, in Liv. 21.49 and now regarding the Second Punic War, they will reappear under the orders of M. Aemilius, who was in charge of Sicily; the *socii nauales* would have been commanded to prepare for ten days at sea.
- In Liv. 29.35, they appear in Scipio's campaigns and are clearly distinguished from the land army (*«et a classe nauales socii qua ex parte urbs mari adluitur simul et terrestris exercitus ab imminente prope ipsis moenibus tumulto est admotus»*).
- Liv. 32.23 is one of the most elucidative chapters regarding the nature of the *socii nauales*, at least for a determinate time frame. It states that *«pars ex Hannibalis exercitu metu poenae a Romanis Philippum secuta pars nauales socii relictis nuper classibus ad spem honoratioris militiae transgressi»*: some of the *socii nauales* would have deserted a fleet in order to reach for *«honoratioris militiae»*; to find a pathway to more honourable roles in the military. It seems to indicate the different status of the *socii nauales* in the overall view of the Roman armies in what regards their social standing, which would have been seen as inferior to the traditional ways.
- Liv. 34.5 once again shows the distinction between the *socii nauales* and the remainder of the army corpus: *«ad urbem Romam admoturus exercitum uidebatur defecerant socii non milites in supplementum non socios nauales ad classem tuendam, non pecuniam in aerario habebamus»*; the *socii nauales*, provided by the Roman allies, would have lacked the populational surplus to send any more men to man the ships, making the fleet ineffective. This seems to point that in this period Rome would have had an easier access to ships than to crews.
- In Liv. 43.12 there seems to be another shift in the origins and nature of the *socii nauales*: *«Macedonia maxime curam praebebat in classe mille socii nauales ciues Romani libertidini ordinis ex Italia quingenti scribi iussi»*. The fleet would have consisted of one-thousand men of the *socii nauales*, but these would have been considered as Roman citizens of the *«libertidini ordinis»*, with only five-hundred coming from Italy and five-hundred more from Sicily; rather than described as mostly coming from Roman allies, when Livy addresses the matter for the period of the Third Macedonian War, the *socii nauales* are now freedmen who are citizens of Rome and make up for at least half of the fleet; the term is not used to

refer to the men coming from the remainder of the Italian Peninsula nor Sicily in this chapter.

- Liv. 44.29 seems to show that the idea of *socii nauales* went beyond Rome in the way ancient writers interpreted them. The chapter states that one of the Roman allies, king Eumenes¹⁰⁴⁴, would have participated in that stage of the war with five quinqueremes and the *nauales socii*: «*itaque permixti Romanique et Macedones et Eumenis nauales socii et in templo indutias religione loci praebente uersabantur*». Liv. 45.39 mentions the «*legiones ex Illyrico laureatae urbem inibuntur et nauales socii*».

Therefore, two inferences can be made from Livy's work. Firstly, that the Romans continued to use naval allies long after there was an established Roman navy; secondly, that the terminology itself can be vague if observed from the prism that believes the *socii nauales* were always external allies. This was dispelled in 1993 by Kathryn Lomas, who stated that «the nature of the military obligations [of the Italiote allies] is clouded by the erroneous but persistent notion that the Greeks formed a separate class of allies, known as *socii nauales*, whose military contributions to Rome were exacted in ships and crews but not troops»; rather, the author says that these were «not a type of ally, but were units of allied troops which served as marines on Roman or allied ships» with the term being used «indiscriminately» by Livy, who applied it to «full-time marines, legionaries drafted into the fleet, marines serving on the Carthaginian, Rhodian and Pergamene ships, and to the crews of the Roman fleet of 310 BC, a date at which there were no allies serving in the Roman fleet»¹⁰⁴⁵.

¹⁰⁴⁴ As stated by Marek et Frei 2010, 235-37: «in the war on Perseus, the brothers from Pergamon took an active part on Rome's side. Eumenes directed the fleet, while Attalos and Athenaios participated in Aemilius Paullus's decisive battle at Pydna (168 BCE) (...). But after the victory at Pydna, Eumenes had to reap the bitter harvest of his western policy: the Senate no longer needed him and began to humiliate him». Eumenes did not receive the cities which had been promised to him, Ainos and Maroneia, and the Senate would not have received him nor his requests. He died in 159 BCE and was succeeded first by his brother, Attalus II, and afterwards by his son, Attalus III. Thirty years later, the kingdom of Pergamon would have ceased to exist, whereas the growing power of Rome and Pontus slowly took its space in the Mediterranean; in time, as we observed in Chapter I, the friction between both would have led to the Mithridatic Wars.

¹⁰⁴⁵ Lomas 1993, 82. The author goes on to observe that the Greek city-states would have continued to participate as allies with land forces, although in smaller numbers, and that «military obligations on the Greeks to provide allied contingents for the Roman army were not heavy» (83), with the situation changed following the Punic Wars both for eastern Greek cities and the Italian city-states, following the fact that «some secessionist allies lost their right to maintain independent forces», which may have «limited the possibility for military participation in the alliance». During the third century, «there are only two instances of naval levies», one in 264 (Locri, Tarentum and Naples) and the other in 210 («Rhegine, Paestan and

Independently of whether we are speaking of Italian city-states, Greek city-states or other external powers outside the city of Rome, what seems certain is that the navies of Rome throughout the 2nd century BCE are hardly completely Roman. The proportions on which this is true diverge, but it remains a constant throughout Rome's maritime interventions. Historiographic focus has greatly relied on the First Punic War as a changing moment for the Roman navy and Rome's own relation with the sea, with Matthew Leigh going as far as to call it Rome's «Maritime Moment»: the two expeditions prior to this moment would have resulted in failure («in 310/9, a raid was launched on Pompeii and Nuceria Alfaterna, but this ended in failure (Livy 9.38.2-3); and in 282 the fleet of Cornelius, entrusted with a survey of Magna Graecia, strayed contrary to treaty obligations into the waters of Tarentum, was met by the locals, and was sunk»)¹⁰⁴⁶. However, the author acknowledges that «it would be erroneous to suggest that the state did not equip itself with any naval resources before 311, or that it never undertook any mission indicative of overseas contacts or ambitions»¹⁰⁴⁷; Rome seemed to be acquainted with navigation and to be aware of the importance of the sea long before the First Punic War. But the first contacts seem almost like testing. While the sources give us scarce information in this regard, Rome did some (albeit unsuccessful) experiments, both with ships and infrastructures. The city was expanding, and at the turning point of 264 BCE it began turning towards the

Velian ships» added to the «Roman fleet»); there is also «evidence for the use of Greek ships by Rome in the second century», but it is seen as very sporadic, together with naval support from the «Italians» in 195, 193, 191 and 171 (also «Tarentum, Rhegium and Naples were called on by Rome to supply ships» both in 173 and 171, although «there is no other sign of Greek participation in the Roman wars in the eastern Mediterranean» - 92). This chapter gives greater insight into the relations between Rome and these city-states and what may have been the «legal and diplomatic framework» involved, which is not the purpose of our work; however, the number of times Rome resorts to naval allies is important to show that in spite of their continued use following the 1st and 2nd Punic Wars, there seems to be a consistent decline. This idea was explored in 1987 by Brunt, who observed three key-points in this regard: firstly, that there seems to have been a decline in the number of ships and sailors during at least the second half of the 2nd century BCE (a relevant number is the 50 ships he points for the «subjugation of Carthage» in 149, with about 20 000 men («De Sancitis iv. 3.34 n. 55»), about 16 000 of which would have been «Italians (freedmen)», a fleet at work until «the city fell in 146». The second is that after the fall of Carthage Rome would have relied «on allies in the east» for the war «with Andiscus» (quoting Polyb. 38.16.3); «thereafter Rome seems to have depended on her non-Italian subjects for ships». The last key-point is the possibility of Roman ships sailing without full crews. If this affirmation is correct, it would have been an important factor in Rome's naval affairs, as the city often resorted to external sources of ships and crew; a ship not manned to its full capacity may not have had the same degree of usefulness, but it would have allowed Rome to put more ships at sea, while the decline of large ships, such as quinqueremes, may have been related to the demography of ancient crews. See Brunt 1987.

¹⁰⁴⁶ Leigh 2010: 266.

¹⁰⁴⁷ The author mentions what we verified in the previous chapter: «when Antium was captured in 338, at least some of that city's ships were transferred to already-existing Roman dockyards, or *navalia* (Livy 8.14.12)»; there is also a mention to a failed expedition to Delphi in 394.

sea, at a period in which Carthage was one of the great maritime powers of the Mediterranean.

Leigh calls Rome's «maritime moment» as something «twofold», divided between the «first crossing of the sea to Sicily in 264 and the construction of the fleet of Duilius in 261», episodes which, as he states, resulted upon extensive writing in ancient sources. The author speaks of something which seems to have been a characteristic both of Rome and its commanders through time: «for a country ill-accustomed to maritime warfare and challenging so established a naval power, Rome proved remarkably adaptable». This capacity for adaptation, or flexibility, may be one of the indirect connections to the *socii nauales*, which show themselves early into the First Punic War as an «expanding body» which would have been used to «crew the new boats»¹⁰⁴⁸. They exist before, during and after the so-called «maritime moment». In 238, Rome expands to Sardinia, taking control of the island following the gap left by the Carthaginians¹⁰⁴⁹, thus taking its Mediterranean presence one step further.

Rome fought three wars with Carthage. This naval power was defeated in 146, creating a breach in the traditional domination of the Mediterranean. The period surrounding the second half of the 2nd century BCE is one in which, according to Rankov, «Rome's main naval focus was the suppression of piracy in the Balearics, which were finally annexed in 121, and especially off the coasts of Cilicia and Crete, from where the pirates began to threaten Rome's supply of corn from the east; this was only brought under control as a result of the conquests of Pompey in the 60s»¹⁰⁵⁰; Pitassi states that following the 238 annexation of Sardinia, as well as Ligurian campaigns (with Massilian assistance), the securing of Luna and territories along the Adriatic coast up to the valley of the Padus, would have made its «navy supreme and unchallenged on the west coast», thus allowing for Rome to turn to the combat of piracy, underlining the importance of Illyria (84). The Second Punic War is a moment which defines Rome's strong presence in the Mediterranean and, as stated by Pitassi, if Rome had «gained mastery of the seas» during the first, it now had a «dominance of the central Mediterranean» which «had an immediate

¹⁰⁴⁸ Leigh 2010: 268, quoting Polyb. 1.20.14, followed by Oros. 4.7.12 and Zonar. 8.11: heavily relying on the *socii nauales* resulted upon issues later on, as seen by «the 259 B.C.E. conspiracy against Rome of three thousand slaves and four thousand *socii navales*».

¹⁰⁴⁹ Pitassi [2009] 2011, 83.

¹⁰⁵⁰ Rankov 2017.

effect on the new war», forcing Hannibal, who lacked the «freedom of the sea», to attack on land.

Between the fall of Carthage and the 1st century BCE, Rome waged several wars, some of which in North Africa, others against the city-states of Macedonia; we have observed that Livy used the term *socii nauales* for this moment in History, and independently of terminology, it is certain that Rome was using naval allies, although seemingly to a smaller scale. The fight for the Mediterranean will only regain its larger scales well into the 1st century BCE, which is the moment our work intends to focus on: Rome reaches the Mithridatic Wars with some naval battles fought, some naval wars, and especially with expansion outside of the Italian Peninsula and across the Mediterranean, down to Sicily, the Iberian Peninsula and, subsequently, North Africa; it also carried a practice of naval allies, to greater or lesser extent. The following century will further define Rome's relation with the sea in this regard.

Whereas Leigh has considered the First Punic War as Rome's Maritime Moment, we believe that the 1st century BCE, in all its forms, assumed this potential just as much. Whereas that first fight against Carthage was, by all accounts, the birth of navy investment, the 1st century BCE was its concretisation. We see ships carrying the Roman army all throughout the Mediterranean. This may seem less relevant during the interventions of Gaius Marius, which, however, included plenty of sea and river voyages, but it is definitely important during the Mithridatic Wars. We reach this period with Rome having not only external naval allies, but also commanders, as seen in the 78 BCE tablet which we mention in Chapter I; more importantly, we observe alliances between Rome and cities from the Black Sea, like Callatis, which are attested by epigraphic inscriptions. This means that to secure the Mediterranean, Rome would have found allies outside its limits.

Do Rome's naval alliances, Rome's continuous dependence on others to fill its ships' crews, make the Mediterranean any less of a Roman sea? Was the Mare Nostrum, in good truth, a Mare Alterum? That all depends on the point of view taken by historians. The kingdom of Pontus is presented by Rankov as the last great naval potency faced by Rome, and yet, they, too, had allies during the First Mithridatic War, including several sea-faring nations, namely Phoenicia and Egypt, which are connected not with a need to achieve ships, but one to get sailors, a problem which seems very similar to Rome's. At the

beginning of this war, we observe Rome's ships stationed at the exit of the Black Sea, and we do not know whether they had a Roman fleet or an allied one (31). The alliance policy continues. Rome's great ally throughout the Mithridatic Wars is Rhodes, mentioned several times by the sources that cover the period, although we see Sulla, early into the war, assembling resources from other city states (p. 33). Rhodes is the first ally and the first one attacked by Mithridates; the first large naval battle of the conflict between Rome and Pontus is, therefore, fought between Rhodes and the Mithridatic alliance, rather than being a homogeneous Rome vs Pontus affair. Later in the war, one will observe a Roman commander, Bruttius, leading fleets summoned from Macedonia. As we observe in Chapter I, Rome is always present, at least nominally, in command, but it is not always an active member of naval war. If the navy had grown, it was not enough to defeat the Mithridatic alliance; and yet, it is an alliance, which leads us to raising the question of whether Rome would have been able to defeat Mithridates' fleet on its own.

The turning point in Rome's naval matters is brought about by Sulla. His actions to assemble fleets are constant throughout the First Mithridatic War, going further than the more usual locations found thus far: rather than Macedonia and Rhodes, or other Greek city-states, Sulla sends Lucullus to Alexandria and Syria, thus extending the variety of Roman fleets and combining these forces with the Rhodians. Whereas Rhodes is ever-present, there are now others. Are they allies, *socii nauales*, are they hired mercenaries? These doubts are some of those which may be raised regarding this key moment. The whole matter surrounding the siege of the Piraeus and Athens seems to show more difficulties in attaining the harbour than the city, so it seems that these allies, or these mercenaries, may not have been enough: not enough to control the seas, not enough to create siege engines that would allow his fleet to breach the harbour walls. After his victories in this conflict, Sulla attains a fleet of his own, having waged a war at sea, or against sea-bound enemies, far longer than Gaius Marius, his contemporary. The inheritance left by Sulla comes through his legate, Lucullus, an important figure of the Third Mithridatic War, and then Pompeius.

At the end of the Mithridatic wars, Rome hardly has any strong contendant for sea domination in the Mediterranean; and yet, it has hardly ever fought alone. If these city-states had not supported it, it would have struggled against the very large fleets of Mithridates. After the fall of the king of Pontus, is the Mediterranean already a Mare Nostrum? Rome is connected to the Greek city-states to a great extent throughout the

whole of its maritime expansion. This connection comes to a point in which, as we have verified in chapter one, most, if not all of the names for functions amidst the Roman navy come from the Greek world. During the naval battle between Rhodes and the Mithridatic fleet, we observe smaller, swift vessels on the Rhodian side and larger vessels on the Mithridatic faction. This seems to be a tendency found amongst some sectors of the Roman navy, although whether this is a Greek inheritance or not is something difficult to ascertain, as Rome shows different typologies of ships depending on whether we are observing the Pompeians or the Caesarians.

During the middle and later half of the 1st century BCE, Rome is fighting two major enemies: pirates and itself. Piracy seems to have been resolved with swiftness following Pompeius' campaigns; then follow the many Civil Wars. These are possibly the true «maritime moment» for Rome. It is no longer fighting others for Mediterranean domination, but itself. Roman commanders are fighting other Roman commanders. Even during Caesar's Atlantic campaigns, the commander had to resort to allies (whether voluntarily allied or not is another question). Nonetheless, even when we are observing the Civil Wars, although we have Roman vs Roman in command, we do not have Roman fleets entirely. In Caesar vs Pompeius, naval operations are, in a great dimension, logistical; when Sextus Pompeius, Octavianus and Marcus Antonius begin to be interventive political figures, the matters seem to shift slightly, with a growing movimentation of fleets throughout the Mediterranean. Even in the late stages of these affairs, Rome is not only hiring ships, but also gathering them - or rather, being unable to gather them - from traditional allies. Rhodes refuses Cassius, whereas Egypt does not. Sextus Pompeius may have had one of the most Roman fleets in Roman history, making Sicily his base, although even of these we still know relatively little; and they were fought by some of the traditional allies from the Italian Peninsula, namely Tarentum and Etruria, which were more absent during the Mithridatic conflicts. Fleets begin to grow smaller on the side of Octavianus, the biremes (liburnes) begin to make their appearance.

We reach the final war of the Roman Republic with a bicephalous Roman fleet: Octavianus with most of the Western Mediterranean, Marcus Antonius with the Eastern. It is a divided world between the smaller, fast vessels of Octavianus and the larger, most powerful but potentially slower vessels of Marcus Antonius and Cleopatra. Thanks to the intervention of Agrippa, swiftness wins over bulk. But the most relevant fact to this matter is that after two centuries of the earliest mentions to naval command, after over a century

of the First Punic War, even if Actium is fought between Roman commanders, there is still a foreign element, a foreign ally to a Roman faction. Rome's command of the sea begins and ends with foreign intervention¹⁰⁵¹.

2. A note about Rhodes

Rome's relationship with Rhodes would deserve its own chapter¹⁰⁵². There is still much work to be done in this regard, and recent studies are beginning to pay further attention to a subject which still has plenty to develop and can be interpreted through entirely different ways when observing the historical sources. In 1975, Erich Gruen published his article regarding this relation throughout the 2nd century BCE, an article which came to show not only the great historiographic divergencies, but also how they can be reinterpreted, paving the way for a structural change in analysis. Gruen questions the traditional view in which Rome would have grown «progressively more suspicious of

¹⁰⁵¹ D'Amato makes a good summary of the evolution in status and nature of ship crews in ancient Rome. He explains that the early «oarsmen (*remiges* and sailors)» would have come from both Roman allies and «the lowest class of citizens, listed by the *census*, and the *liberti* (freedmen)» (a perspective which seems different to that of Lomas, which, as observed above, sees the *socii nauales* as a unit and not a type of ally; however, it shows the origins of such individuals regardless). During the civil wars, there would have been a large number of slaves made freedmen at the fleet (Dio Cass. 48.49, information added from App. *B Civ* 5.1 and Div. Aug. 16); afterwards, «in the late Consular period Rome still relied heavily upon those non-Roman peoples who had a strong maritime tradition», exemplifying with Cicero's *Philippica* 11.5, in which he «urged the Senate that the Proconsul C. Cassius should be appointed to the administration of Syria and of the war against Dolabella, with the power to recruit sailors in Asia, Bithynia, Pontus and Syria»; D'Amato also adds the use of «fleets of vassal kings» as means to «revent piracy» as late as «the time of Augustus» (king Sauromates of Bosphorus at the Black Sea, for instance). A key-point is that «at the end of the Republic recruitment amongst allies was soon the only source for the *classarii* and *nautae*, because the formerly unemployed slaves, *liberti* and *proletarii* who had been the potential recruits now had numerous employment opportunities during the reconstruction of the Roman state after the chaos of the civil wars». The status would only have completely changed in «the Early Empire», in which «emperors incorporated them into the legions, or created 'additional' legions from amongst their numbers», the «*adiutrices*». D'Amato 2009, 11-12.

¹⁰⁵² One should add that, prior to Rhodes, Rome would have «entered an alliance with Neapolis» in 326 BC which would have allowed a «powerful foothold in the south, together with first class harbour facilities and the best location from which to exercise control of shipping in the Tyrrhenian sea»; Neapolis would patrol and guard «the harbour and surrounding coasts». However, Neapolis will not have such a significant role in the conflicts of the 1st century BCE as will other harbours such as Rhodes, Brundisium and Dyrrachium, as we have verified in chapter III. It shows, however, that Rome would have gained «both warships and merchantmen» through this alliance (26), which is, according to Pitassi, probably simultaneous with the adoption of Greek names «for ship's officers and crewmen». The late 4th century is already a transition towards allies from the Italian Peninsula, given the nature of the wars (Samnite conflicts), together with the establishment of a «Latin colony» at Pontia (312 BCE; 28) and another at Luceria (304; 32). Until the mid-3rd century BCE, Rome would have established not only several naval allies but also have its own ships «raised and organised by the *Duoviri* on behalf of the state and manned by Romans» (38-39); soon afterwards, the First Punic War begins and the turning point occurs.

Rhodian aspirations»¹⁰⁵³ following 180 BCE, with the subsequent subjugation of Lycia «in the 180s and 170s» and the favouring of Perseus by Rhodes which led to it being «pulled in two different directions» from the Third Macedonian War, while Rhodes oscillated between two factions until it «narrowly escaped a declaration of war in 167» and had its «suzerainty over the neighbouring mainland shattered», followed by «conversion of Delos into a free port» which «damaged Rhodes' material prosperity» (note 1 of the article provides several examples of the historiography presented in Gruen's summary).

Gruen takes up the subject by underlining the bias of the several historical sources writing on the matter, concluding that «Roman writers endeavoured to pre-date the infidelity of Rhodes, to exaggerate her inclinations towards Perseus, and to dwell on her overweening arrogance», so that the «measures taken against the island after the war could thereby be legitimised» (60), whereas other sources, such as Polybius, presented what he calls the «tenor of their post-war apologia», on which there is a minority to blame for the matter, «unrepresentative of Rhodian opinion», men who would not hear the will of their «countrymen» (Polybius himself had a «special and personal involvement in the events of the Third Macedonian War», following his deportation to Italy (62), thus having what Gruen calls an «advantage to distinguish the attitudes of men like himself as sharply possible from those who were properly stigmatized as Perseus' adherents, enemies of Rome, and corrupt, small-minded politicians» (63). As the author states, «the preserved accounts convey, at least in part, material deriving from interested informants with self-serving (and sometimes conflicting) purposes», thus building a «constructed portrait» which is «not to be confused with unvarnished truth». In early periods, Rhodes benefits from its alliance with Rome, receiving territories after the defeat of Antiochus III, but it led to more dissent which created instability, something which would have led historiography to consider it purposeful on Rome's side, but with which Gruen disagrees (64), speaking of the Roman favouring of Rhodes in other circumstances and going as far as to acknowledge, according to Polybius, their own «sphere of influence» (65).

In 1984, Berthold¹⁰⁵⁴ stated that «it is much easier to see Rome's actions in 178 and 167 as the redefining of its own policy and its attitudes towards Rhodes»; whereas in 188

¹⁰⁵³ Gruen 1975: 78.

¹⁰⁵⁴ Berthold [1984] 2009a and [1984] 2009b.

«Caria and Lycia were unconditionally given to the island for its part in the war, and with other matters drawing its attention, Rome ignored the subsequent struggle in Lycia as the internal affair of a distant Greek power», whereas «ten years later, however, an appeal from the now defeated Lycia arrived when the Romans were recently annoyed with Rhodes»; whereas Rhodes would have seen the reinterpretation of the «grant of Apamea» as something «entirely illegal and arbitrary», the Romans may «have felt morally justified, as it was on their account that the Lycians were now ruled and allegedly oppressed by Rhodes»: hence, «it was less what Rhodes had done than the changing attitudes of the Romans that brought the adverse judgement», as Rome was «tending to view the independent Greek states in terms of client relationships, and if the Rhodians would demonstrate their ingratitude to Rome by favouring Perseus, Rome would demonstrate its displeasure by redefining its grant to the disadvantage of Rhodes»; the author proceeds by saying that Rome did not necessarily consider «the island as clientela in the sense that it did, say, the civitates liberae of Sicily or the small states of Greece which owed their independence to Rome», but would have seen it as a «moral obligation of gratitude» (176-68).

The study proceeds by stating that, when one analyses Rhodes during this period, «it is misleading to speak of pro- and anti-Roman or pro- and anti-Macedonian parties, as it is a fair assumption that the sympathy of the Rhodian people on the whole was definitely with Macedon», and that there would now be a threat to Rhodian independence: «Rome, it seemed, would not rest easy so long as there was any Aegean state that might present the slightest threat to Roman security» (182); there would have been a faction which understood the likelihood of Rome defeating Perseus, but Berthold sees this more as a practical matter than these individuals having «any sympathy for Rome» (183), rather that «Rhodes had no realistic alternative and that even neutrality might compromise its position with the inevitable victor». These two positions present different stances on the importance and extent of the divergency; what seems certain is that there would have been some friction, at least nominally, during certain periods of the 1st century BCE, and that Rome, in spite of that friction, managed to keep Rhodes as an active participant in its own wars, whether the island was pro or against the Roman expansion; in 147, Rhodes was still contributing, as it participated in the war against Carthage. Rhodes maintains its existence, with more or less of the Roman favour, as long as it keeps contributing to Rome's purposes (380-81).

The history of the Rhodian-Roman relations begins long before the Macedonian Wars:

«In 201 BC Philip, having moved into the Hellespont, annexed the Cyclades and occupied the island of Samos, capturing some ships and destroying an Egyptian fleet there, thereby ending the Ptolemaic naval presence in the Aegean. He next attacked the territory of Pergamum; at sea he was beaten in a battle of Chios by the joint Pergamene and Rhodian fleets under Attalus, King of Pergamum, Philip in turn later defeated them near Miletus and advanced into Caria. This victory was however Pyrrhic as it cost Philip about a half of his combat fleet in losses and he was unable to thereafter seriously challenge the allies at sea. Rhodes and Pergamum, both allies of Rome, appealed to her for help». (Pitassi 2009, 120)

The Rhodians were present in the conflict against Antiochus and had naval intervention throughout it, and then again in the war against Hannibal. Halfway through the second century BCE, Rhodes had a confrontation with Crete that did not have Roman participation (134), as it was undergoing operations in the Iberian Peninsula during that moment. As it is, it seems the relationship between Rome and Rhodes shifts and undergoes several stages, and its ultimate conclusion is a statement for the change of naval power in the Mediterranean after three or four centuries of intervention: in 43 BCE, when Rhodes does not acknowledge the authority of Cassius (183), there is a naval battle, and Rhodes loses to Rome, a defeat which is followed by a blockade, the attack of the city and subsequent taking of Rhodes. The cycle is finished with a city which began as an ally during a period in which Rome was in need of naval resources being defeated in a naval battle by a Roman commander.

3. A concept of *Mare Nostrum*

From early periods of mankind's existence, the Mediterranean Sea has revealed itself an attractive space for demography and grew in its importance for the populations that inhabited its coasts¹⁰⁵⁵. The civilisations which inhabit the Mediterranean basin and its

¹⁰⁵⁵ Underlining the importance of the Mediterranean for Ancient populations is a consistent topic amidst studies that observe these problematics. The introduction in Knapp et Blake [2005] 2008, 1, stresses this point in a similar way, pointing towards the importance of the sea for human movements, thus allowing for the development and sharing of cultures. As the authors state, in spite of the focus which is given by «popular imagination» of a Mediterranean as «the centre of the Classical World» (and, hence, the one to define it), the chronologies prior to the 1st millennium BCE already show civilisations which occupy this space, interacting within it and fighting for it. Their work, which dedicates itself to the study of the Pre-Historical period, shows that during this time one can already observe a universe of plurality, an occupied and disputed region. Although it is not our purpose to observe the Mediterranean from Pre-History, this is still a fundamental period for the formation of identities. The conflicts for the Mediterranean begin long before the traditional Thalassocracies come to be, and the idea of Mediterranean unity is only functional for a short period of time if one observes political cohesion; it is, perhaps, a little longer regarding cultural identification, but the conflicts seem to overcome the potential connectivity. See also Braudel [1998] 2001: as quoted above, Fernand Braudel attempted to observe the Mediterranean as a whole, in the long duration

insular territories develop a relation of proximity with the sea, both in what regards their economy, its navigability and their own military capacity, which leads them to transform, in some cases, in large-scale naval powers. The memory of Etruscans, Phoenicians and Carthaginians, Athenians, Pontians, Rhodians, Macedonians, crosses History acknowledging these peoples for the efficacy of their respective fleets, whether they are more turned towards trade or war. The Roman Republic, like these civilisations, will develop towards maritime investment, as we have observed. Rome's arrival to the sea is not as late as one may suppose, as we observed above, but its arrival to the conflict for the Mediterranean, at least in a decisive manner, is relatively late by comparison. According to historical records, when Rome first decides to intervene in a significant conflict for the control of the sea (hence in 264 BCE, at the beginning of the First Punic War), the sea was being disputed since long ago; Sicily itself had been occupied for a few centuries and was disputed by Carthage and the Greek tyrants for two-hundred years.

In spite of its late arrival, Rome's influence in the Mediterranean becomes significant. In three-hundred years, a city which is, from its very beginning, connected to the river space, will have established its power throughout the territories of three continents, as well as the insular territories of the sea, which is the connecting element. In spite of its closeness with the Tiber, which derives from proximity, Rome's political, military and economic influence will grow into having a strong maritime and naval component. Rome acknowledges it, or seems to acknowledge it. From a given moment, the Mediterranean Sea will conceptually become the *Mare Nostrum*. But what is the meaning of «Our sea» for a person who lived in this Roman world two-thousand years ago? Whereas the geographic term *mare Mediterraneaum* does not exist until the 3rd century CE (and thus

of time. In his study, he looks at the evolution of the Mediterranean world in its periods of union and crisis, its geographic, social and technological subdivisions, trade and law, and the civilisations which amassed maritime power – he looks at the Mediterranean as a whole and a subject of study, rather than a bystander in the History of populations. He suggests three «classical» significant moments following the «particularly obscure centuries between 1100 and 700», or, as the study calls them, «three great acts»: «the colonization of the western Mediterranean by peoples from the east (Phoenicians, Etruscans, Greeks), a move which provided the Inland Sea with dynamic unity for the first time», «the rise of Greek civilization, founded on sea-power but eventually coming to grief after the over-ambitious war of conquest against the Achaemenid Persians», and «the victorious destiny of Rome, whose empire became coterminous with the Mediterranean» (177-78). Braudel acknowledges the issues of this three-way division, underlining the importance of an unprejudiced approach to Mediterranean History and the populations which surrounded it: «to keep an open mind», in spite of acknowledging that «these contradictory passions [for a civilisation rather than the other] are the flame that keeps history alive, both the history that is told to us and the history we try to create in turn. And as we do so, how can we avoid feelings of pain or enthusiasm, even if these are a sin against the sacrosanct rules of impartiality?»

has no significance in the minds of people who lived in earlier periods)¹⁰⁵⁶, the term *mare nostrum* not only exists before, but will continue to be used after and to be adapted¹⁰⁵⁷. The concept has shifted, just like most of other concepts, and evolved with History and mentalities, but when one observes further into the past, it becomes more difficult to understand. Where and when did it appear? What did it mean for the 1st century BCE? What evolution does it undergo?

To analyse the idea of *Mare Nostrum*, one must look at it through several prisms. Its first nature is the geographic, as we are speaking of a natural formation; however, the Mediterranean can also be a political and cultural notion¹⁰⁵⁸. For these populations, the first definition may be connected to the former more than the latter: for an ancient Roman, the Mediterranean may have been the *Mare Nostrum* because it was the closest (with all the smaller seas which are included within, such as the Tyrrhenian and the Adriatic). The nature of the relation behind the proximity must be evaluated, to define whether there is a feeling of property, of ownership. First of all, one must observe the immediate meaning behind the word *nostrum*. In Latin there are two words which can express the idea of ownership for the first-person plural, namely *nostrum* and *nostri*. These have different meanings. Whereas the first is used mostly for «partitives, numerals, comparatives and superlatives»¹⁰⁵⁹, the latter usually denotes the subject of the Genitive clause. In other words, *nostrum*, as a partitive, will have for most cases a stronger sense of proximity and

¹⁰⁵⁶ As stated by Papastratis, it was created by Gaius Julius Solinus to name the division between Europe and Africa (ex. *Solin.* 18.1, «*mediterranea maria*»).

¹⁰⁵⁷ The sea empires of the Portuguese and Spanish during the Early Modern period, for instance, apply the term to the Atlantic Ocean. The idea of the *Mare Nostrum* corresponding to the Ocean will go onwards amidst some lusophone circles in the 21st century (for the Portuguese case, see Dávila 2010, 136, regarding the idea of creating a Brazilian-Portuguese naval power as a way to control the sea). In the Spanish case, as the sea empire grows, so does the concept acquire different meanings: according to Fuentes, since the original *Mare Nostrum* (the Mediterranean) becomes under the influence of other powers for eight centuries, the European countries turn to the East; Fuentes [1992] 1999b, 158 and [1992] 199c, 329. Above all, *Mare Nostrum* seems like a concept that the 21st century uses to refer to the maritime empires of the past, especially when there is an intention of updating them to the present. In future, it would be relevant to elaborate a study to compare the different ideas of *Mare Nostrum* in History. See also the use of the term in the 20th century with nationalist objectives, as in Greece and Italy (Papastratis 2008, 86; Jett 2017, 130).

¹⁰⁵⁸ Ben-Zion Rosenfeld elaborated a study about the representation of the coastline in Palestine through Josephus. In spite of the author's chronology being posterior to the 1st century BCE, it is relevant to mention it, as Rosenfeld creates a distinction between the several types of Geography: «national geography», the one connected to national and biblical concepts, and «realistic geography», which is connected to political, administrative, ethnographic and physical matters. Aside from these, he also underlines the «cultural geography», connected to cultural, moral, social and economic concepts. These matters are pertinent to the case of the Roman *Mare Nostrum* since, as we have observed, there was a strong physical presence in spite of geographic impediments, and we can now observe how it related to cultural and social positions.

¹⁰⁵⁹ As mentioned by C. G. Zumpt 1836, 246. Considering this is the Latin Language and it has been studied throughout many centuries, this grammar, in spite of being a 19th century work, was included, as it clearly explains the difference between both terms.

inclusion, as in «the sea is part of us, part of a whole, which is Rome»; whereas *nostrum* shows the idea «ours», not underlining the relation of a whole with its separate component. *Nostrum* is a Sea which is «ours», rather than a sea which is a «part of us»¹⁰⁶⁰

One of the difficulties when one intends to observe the evolution of this terminology and the respective ideological and political impact is the severe lack of bibliography. There are many articles and book chapters which use the concept *Mare Nostrum*, but it mostly appears freely used to treat issues which, in fact, belong in a great part to the early modern or contemporary eras. When one wishes to observe the evolution of the concept for the Roman period, there is little work done. Some authors attempted to mention the matter in their works, but it usually comes across in short paragraphs included in chapters on other topics; they do not observe the concept per se. One of the studies which may be pointed is that of Gil Gambash, which is, as mentioned, inserted in a vaster work, one that intends to observe the problems of the *limes* in the Roman world. Gambash observes the mental borders of the concept of *Mare Nostrum*, with the intention to analyse the problematic in context and away from contemporary notions, considering, as we have, that the way the expression is used does not correspond, in the Roman case, to political and «imperial» notions of power, especially for early periods¹⁰⁶¹. Gambash attributes a greater importance to the geographic factor, or, in certain circumstances, the cultural factor, the inheritance of the Greek world, and concludes that even in the imperial period it is difficult to find clear mentions of the *Mare Nostrum* concept applied to the Mediterranean. The Greek inheritance would not come out of context, since, as we observed, Rome adopts many of its naval terminology from the Greek, it connects its own mythology to that of the Greek world, it has Greek naval allies; it would be an extension of this factor. Blits, on the other hand, observes the matter through the military point of view, underlining the «contempt» felt by the Romans regarding naval functions, even when the Mediterranean becomes the *Mare Nostrum*; the author does not explain, however, in what terms he regards the concept, although he exemplifies its use, in note 56, in Salust, Caesar and Livy¹⁰⁶². Campbell states that the concept is an effective

¹⁰⁶⁰ However, one must remember that these rules are not mandatory, and each case must be analysed separately. Both *nostrum* and *nostrum* are valid forms of the Genitive clause and, in spite of their apparently different meanings, there may be circumstances in which they are freely used. See, for instance, Mannetter 2004, 323.

¹⁰⁶¹ Gambash 2016, 28.

¹⁰⁶² Blits 2014, 14.

expression of Roman domination, seeing as Rome controls the space that is adjacent¹⁰⁶³; this is another valid position, and somewhat of a self-fulfilling prophecy in terms of argumentation: Rome wishes to have influence over the sea and take control, hence, Rome eventually does take control.

The studies presented above are representative of three different approaches to the issue, and, as seen, none is close to the other in their conclusions. Gambash sets aside nearly entirely that there is any idea of power associated to *Mare Nostrum*. Blits puts it as something which Rome sees in a second plan. Campbell observes the issue not so much on the Roman observation of the matter, but on factual observation: whether Rome despises the naval functions and its connection to the sea (which can be debated), it cannot, as Blits also states, avoid it. Connery's words apply: «Rome, though ideologically and aesthetically oriented away from the sea – there was no Roman Thucydides, after all – depends on its hegemony in *Mare Nostrum*, and the unipolar maritime dominance that Rome achieved, post-Actium, was unique in world history»¹⁰⁶⁴. Not originally turned towards the sea, Rome's power in later periods will be based on maritime hegemony. We shall not discuss to detail Rome's actual feelings on the value of naval service; this is a subject that deserves further work. At this point, we shall only refer to the many maritime representations, which go as far as to enter daily-life objects that include maritime scenes, and to the many accounts of Rome's naval successes in ancient sources. Rome's opinions on the sea may have been as subjective and varied as each living individual, but it is undeniable that its power is connected to the sea: it is first a place of expansion, and later a place of consolidation.

4. Before Rome – Greek inheritances

As we mention above, amongst the Greek world, the Mediterranean begins as a place where the mythology belongs. It is in the Mediterranean that the great occurrences of foundational myths will occur; the sea is where we will observe the circulation of heroes, gods and demigods¹⁰⁶⁵. This cultural and physical proximity will be translated in the first

¹⁰⁶³ Campbell 2012, 386.

¹⁰⁶⁴ Connery 2010: 686; see also Fulford 1992: 1.

¹⁰⁶⁵ Claval et Jourdain-Annequin 2016, 3-6. See also Roller's explanation (2015) regarding the contents of mythological narratives such as the Iliad, the Odyssey and the Argonautic. Roller also underlines that in the early periods of History, in what regards mythology (thus, with Homer's works), the Ocean, which one

uses of the concept «our sea» in literature¹⁰⁶⁶. «Our sea» will be part of a vaster idea, which intends to represent the known world, the «*oikoumene*». The sea is part of this known and inhabited world. All the space that is truly important for geographic, demographic and sociologic concepts can be included in this idea, and as the sea is within this space, the concept of «our sea» returns to the matter of proximity, first and foremost, amidst the Greek world. «Our sea» is the sea which is close to the inhabited areas. This evidence shows in two Greek versions of the expression: on one hand, «*he hemetera thalassa*», whose translation is pointed as «our sea»; on the other, «*he kath'emas thalassa*», which means «the sea in our part of the world»¹⁰⁶⁷. Both expressions are used in the 6th century BCE by Hecataeus of Miletus (firstly in F302c and secondly in F18b), together with the expression «the great sea» («*μεγάλη θάλασσα*»)¹⁰⁶⁸. Although he acknowledged the existence of an ocean, this would be exterior to the great sea at the very core of the inhabited world¹⁰⁶⁹.

can access through the Pillars of Heracles and the Red Sea, surrounds the world; this idea will be questioned as the Phoenicians advance in Atlantic exploration. Thanks to the navigation of Phoenicians, Egyptians, Babylonians and Carthaginians, the knowledge of the Ocean and the West of the Mediterranean grows, which allows for a mental approach to all the surroundings of the sea. Roller 2015, 21-26.

¹⁰⁶⁶ One may add that the analogy of water is one of the first present in the geographic contexts of Greek mythology; according to Seneca (*QN* 3.14.1), Tales would have said that the earth was on the water, floating like a ship (thus, a nautical analogy, as stated by Roller). See Roller 2015, 27, note 98.

¹⁰⁶⁷ Translation of Harris 2005, 15.

¹⁰⁶⁸ Harris 2005, 15-17. The translation includes the terminology used by Harris: in truth, in fragment F18a, what can be seen is «*ἡμετέραν ἄλασσαν*», another way to emphasise the idea of «Our Sea». Harris underlines the pre-existence of the idea of «Great Sea» in Semitic languages back in the beginning of the first millennium BCE, underlining two points: on the one hand, that one must be cautious, since the idea of «Great Sea» may not have a linear correspondence with the Mediterranean as a whole; on the other, the idea that it is natural that both «Phoenicians and Greeks», sea travellers since early in history, had given names to the seas they sailed. This expression has its continuity in Latin sources, and it may be found, for instance, in Sall. *Iug.* 78 («*ubi mare magnum esse et saeuire copeit uentis limum arenamque et saxa ingentia fluctus trahunt*»), Sen. *Ep.* 94.61.5-6 («*Multi sunt qui ante se agant agmina et tergis hostium graues instent et ad mare magnum perfusi caede gentium ueniant sed hi quoque ut uincerent hostem cupiditate uicti sunt*»); Verg. *Aen.* 5.628-629 («*dum per mare magnum Italiam sequimur fugientem et uoluimur undis*»), or in Titus Lucretius Carus' *De Rerum Natura* 3.1029-1030 («*uiam qui quondam per mare magnum strauit interque dedit legionibus ire per altum...*»). There is also the example of Cic. *Fam.* 16.9.4-5, although it is more an adjective note: «*Reliquum est ut te hoc rogem et a te petam ne temere nauiges solent nautae festinare quaestus sui causa cautus sis mi Tiro mare magnum et difficile tibi restat*», a passage which not only describes the nature of a potential sea-crossing, but goes on to advice the traveller to make his journey with «*honesto aliquo homine cuius Auctoritate nauicularius moueatur*», given that ship proprietors would have been eager to cross the sea without much thought to improve their profits. This tradition would continue through time, as one can observe in Isidore of Seville's *Etymologiarum sive Originum* (13.16, *De Mediterraneo Mari*: «*Mare Magnum est quod ab occasu ex Oceano fluit (...). Iste est et Mediterraneus (...)*»). On this subject see, for instance, Rickman 2003, 133, who states that the Mediterranean began by being observed as several separate seas of smaller dimension, named after nearby coasts and islands; the author also speaks of the sharing of Greek concepts, such as Our Sea (in the Greek case, «in a strictly limited sense»). Whereas it starts as «*Mare Magnum, Mare Internum or Mare Nostrum*», it becomes «an internal lake» and *Mare Nostrum* «for the Romans of the early empire». See also Matvejevich 1993, 143.

¹⁰⁶⁹ Braun 2004: 300-302.

The «thalassocentric» vision of the world is slowly built by some sources. This is not one of the world as a geographic structure in its entirety: there are several theories regarding the shape of the Earth, they knew of the existence of the Atlantic, the Indic and other civilisations outside of the Mediterranean. However, as a mental and civilizational space, the Mediterranean is what matters to these individuals. The centre of their known world, the place which is important politically, economically, and as a definer of identity, is the Mediterranean, regardless of a knowledge of distant seas and lands¹⁰⁷⁰. In Plato's *Phaedrus* one can find the subjacent idea of the mental representation of the world surrounding the Mediterranean¹⁰⁷¹: men live between the Pillars of Herakles and the Phasis river and, first and foremost, in the regions which are close to the sea, like ants or frogs around a pond (Pl. Phd. 109a-b). Socrates will underline three fundamental essences for human life (Pl. Phd. 111a)¹⁰⁷²: air, water and the sea, creating a central stage for the latter. Herodotus will go further: in spite of the ancient sources presenting a series of distinctions between the several maritime spaces east of the Pillars of Herakles, as will be verified ahead, the source establishes a unity. It will, however, have a different nature from the idea of «our sea» as a concept of identity and cohesion, and presents it far beyond: Herodotus considers that the sea where the Greeks sail, together with the Atlantic Ocean and the Red Sea, form a single unit, and that only the Caspian Sea would be separated (Hdt. 1.203)¹⁰⁷³.

¹⁰⁷⁰ Claval et Jourdain-Annequin 2016, 2-3. Aside from the Greco-Roman world, other civilisations have used the expression. The authors exemplify, for instance, with the Hebraic language: in this case, there is the terminology «HaYam haGadol», which they translate as «sea in the middle». Miller 2015, 80, note 4, however, considers that this addresses the ocean and all bodies of water which connect with it, including, but not exclusively, the Mediterranean, whereas Kashtan 2001, 26, note 10, states that «[the term] may connote a dangerous and destructive power beyond the geographical term». According to Malkin, the difference between Greeks and Romans would be that whilst the former see the Mediterranean and the Black Sea («he hemetere thalassa») as a metaphoric «Our Sea», observing it from the inside towards the exterior, the Romans observe it as something belonging to Rome, as a central point (from the centre, the empire expands in all directions; Malkin 2011, 3-5). Following from Malkin, there is also another way to interpret: that the Romans see the Mediterranean, in fact, as a central point, and that the empire is seen in a funnel shape from the outer borders in continental regions towards the core, which is the sea.

¹⁰⁷¹ As stated by Harris 2005, 15.

¹⁰⁷² The contemporary notion of the Mediterranean corresponding to «Our Sea», both in Greek literature and Latin, may also come from the fact that many translations, especially those made in the 19th century, nearly always equal the Greco-Roman expressions on the sea with the Mediterranean, in spite of the word never having been used until far afterwards. One can see it in *Phaedrus* itself: in 113a, Fowler's translation uses the word «Mediterranean», whereas the original has «*ἡμῖν θάλαττις*», a phrasing closer to «the sea in our part of the world».

¹⁰⁷³ The question of Thalassocracies and the need to control the sea is also present in Pseudo Xenophon: to rule the sea allows not only the control of income sources (trade) but also makes war facilitated. The sea is an important way of communication and faster than movements on land. This idea is important particularly in what regards the stockpiling and logistics for cities and armies. *Ps. Xen. Const. Ath.* 2.

Herodotus' tradition seems to translate the idea of cohesion, therefore, but not a cohesion of the Mediterranean, nor its unification as a whole. It is a consciousness of the entire world being a single territorial mass, which is surrounded by the Ocean. The three known continents, Europe, Africa and Asia, are Herodotus' «*oikoumene*», and the source shows unity within the three. As Padgen states, Herodotus nearly seems to complain of the fact that there were three names in use, one for each continent, when they were all connected and, in fact, belonged to the same mass¹⁰⁷⁴. It is an idea of identity that goes beyond geographic notions and beyond the maritime space in its tradition. Pagden states that the centre of Herodotus' concerns, and what he calls his Roman heirs, would have been the isolation between the population of the «*oikoumene*». In Rome's case, the control of a vast space implies the growing importance of communication sources, especially seeing that, in ancient periods, the fastest (and often the safest, in spite of piracy and the variability of atmospheric conditions) are the sea and the rivers¹⁰⁷⁵.

According to the analysis of Shahar regarding the first geographers, he initiates his chapter by quoting Quintilian, who refers back to Homer's views on the Ocean being the source of all the seas and rivers. Homer is the base of geographic organisation, which will then be followed by several authors throughout the ancient times, amongst which Strabo. Strabo's early education is Greek-based, and he does not reject it¹⁰⁷⁶. Herodotus, like other sources, will also present the theory of the Ocean's limit (Hdt. 2.21): the river comes from the Ocean, and the Ocean surrounds the world, which is how maps are conceived Eurasia is at the centre, the Ocean surrounds Eurasia. However, the source itself states that there is room for doubt: the theory is known but not possible to prove (Hdt. 4.8)¹⁰⁷⁷. In Herodotus, one also has a clear idea of ethnographic limits: the boundaries of the known world go beyond the geographic question, to become something civilisational¹⁰⁷⁸. The limits of the «*oikoumene*» in Herodotus, aside from the traditional exposition regarding the Ocean (on which the source itself presents a lack of trust, in a sense of not considering his statements dogmatic) are defined by a sociocultural pattern.

¹⁰⁷⁴ Pagden 2015, 154.

¹⁰⁷⁵ Whether Rome truly takes up the notion of isolation in the same sense as Herodotus can be debated; however, one cannot deny the importance of the sea to keep connectivity within the empire, thus allowing for trade of goods and political management.

¹⁰⁷⁶ Shahar 2004, 18-25.

¹⁰⁷⁷ Herodotus is inconsistent naming the seas. As Godley's translation shows (Godley 1920, note 1), in *Hdt* 4.37, the sea to the north is the Black Sea, whereas in *Hdt*. 4.42 it is the Mediterranean.

¹⁰⁷⁸ Shahar 2004, 30.

Out of the early geographic notions such as Hesiod, Herodotus and Hecateus¹⁰⁷⁹, there is a growing transition into the matter of maritime power. As stated by Connery, one of the most important Greek sources in this regard and one which underlines the importance of the sea is the *History of the Peloponnesian War* by Thucydides. The philosophy which will be presented regarding sea dislocation is one which states that it is important to have ongoing trade and freedom of communication both by land and sea, and that without these elements cities will not grow and attain their true potential (Th. 1.2). The connection between the Hellenic people and the sea would have begun in periods far back: to undergo the expedition to Troy, it was necessary to gain familiarity with the sea first (Th. 1.3). The source then exposes a brief history of the birth and growth of navies: the first is made by Minos, who becomes the lord of the Hellenic sea and tries to put an end to piracy¹⁰⁸⁰. This is very similar to what will be the Roman trajectory: Rome first becomes a significant naval power, and then proceeds onto several attempts to put an end to piracy, thus attempting to enable, whether consciously or not, the view of Thucydides regarding the growth of cities to their full potential. The source then speaks of Agamemnon, the master of a vast continental territory, which then seems forced to invest in the navy to expand his borders (Th. 1.9); again, a similar situation to Rome, which expands itself and becomes a large power on land, and then seems to turn its attentions towards the sea to continue expansion. It then proceeds onto the narration and cataloguing of fleets in capacity and quality, speaking of the first conflicts at sea (Th. 1.13, between Corinth and Corcyra), up to the formation of the Athenian navy (Th. 1.18). The eight books which constitute the *History of the Peloponnesian War* talk of naval confrontation. As stated by Kallet Marx (1993), Thucydides, by analysing the first «positive example of power development» (the case of Minos), observes a power which is sustained by the sea, establishing that only through maritime control and naval power can one attain the double purpose of colonisation and, consequently, the growth of cities¹⁰⁸¹.

Written long before Rome's naval expansion, the work of Thucydides seems to materialise itself in the Roman world. Unlike Hecateus and Herodotus, which present a mostly geographic notion, Thucydides seems to present a political philosophy of power

¹⁰⁷⁹ To an extent, also visible in Apollodorus (Apollod. 3.15); in the third book, the source introduces the question of maritime domination.

¹⁰⁸⁰ Which is born from the growing familiarity of all peoples with the sea, the important communication way (Th. 1.5).

¹⁰⁸¹ Thucydides inclusively believes that living by the sea warrants for a safer existence and is a factor of economic wealth, the so-called «*chremata*» and «*nautica*» (resources and ships; Kallet-Marx 1993).

construction, which corresponds, in practice, to what one will verify in Rome. There are historiographic positions which, however, not being contrary to the fact that Thucydides insistently mentions the importance of the sea and naval power, consider that it is possible the readers in posterior centuries have interpreted the idea of naval power in Thucydides as having excessive influence from posterior political thought. Kopp intends to test the arguments of the source, considering that the first book of Thucydides is not a mere «succession of thalassocracies»; more than that, it is the history of the ways in which men attempt to acquire power and overcome obstacles which come between them and that power¹⁰⁸². This theory removes some focus of the naval matter, but one cannot contradict the fact that Thucydides affirms, from chapter 1, that one of the main elements for the growth of a city's wealth (through trade) is freedom of movement, both on land and sea, as well as the proximity of the sea being a point for wealth. Rome, as a fluvial city, will have to counter the geographic question to build into the political world. One cannot affirm that Thucydides is an early oracle for the philosophy of *Mare Nostrum*. There is no firm conceptual formula which indicates a philosophy of full control of the Mediterranean to sustain a land-power of great dimension. However, maritime domination begins to be interpreted and thought of in a clearer way. Thucydides lives in the 5th century BCE, and only two centuries later Rome will initiate its expansion on the sea.

¹⁰⁸² Kopp 2016; see the comparison Kopp makes between this first book of Thucydides and Pericles' speech in Th. 2.34-46.

5. Rome

In what regards Latin sources, one of the earliest where one can find the term is *Bellum Jughurthinum*, by Sallust. Before the source begins its treatment of the confrontation itself, Sallust thinks it is pertinent to include a brief description of Africa. The expression is referred to twice:

«Ea finis habet ab occidente fretum **nostrī maris et Oceani** (...)» (Sallust. BI. 1.17.4).
 «Ex eo numero Medi, Persae et Armenii nauibus in Africam transuecti proximos **nostro mari** locos occupauere (...)» (Sallust. BI. 1.18.4).
 «(...) Qui ad **nostrum mare** processerant». (Sallust. B.I. 1.18.12).

Sallust, heir to the Greek tradition (amongst which the writings of Thucydides¹⁰⁸³), uses the term *Mare Nostrum*, according to Victoria Pagán, to address the Mediterranean, underlying the fact that the source uses expressions which refer to the expansion of the Roman empire, such as «*terra marique*». In the map which she includes in page 126, she presents as the *Mare Nostrum* the entirety of the Mediterranean basin¹⁰⁸⁴. However, Pagán's work focuses mostly in the problematics of linguistic heritage and not so much in the practical matters of concepts. Therefore, the words of Sallust must be observed cautiously, to verify whether he indeed expresses any idea of Mediterranean uniformity. There are, first and foremost, two geographic distinctions: on the one side, «*nostrī maris*», on the other, the Ocean. To these two a third will join, in chapter 18, which is «*mare africanum*». In a strictly geographic sense, the distinction between sea and ocean is the same as our own: Sallust sets the Strait of Gibraltar as the divisive region (Sallust BI. 1.17.22). The narrative is filled with mythological elements: the Libyans and Gaetuli would have been the first inhabitants of Africa; the Medes and Armenians would have been part of Hercules' army. After the death of Hercules, they would have crossed the sea from the Iberian Peninsula, settling in North Africa.

From chapters 17-18 onwards and after this initial mythology, one can detect a division within the Mediterranean. The source states that the Persians, Medes and Armenians, those which came from the army of Hercules, cross the strait of Gibraltar into North

¹⁰⁸³ The influence of Thucydides is felt especially in linguistic matters: Sallust retrieves substantial portions of the Greek author's writing. Grethlein considers that, regarding his method, Sallust is closer to Herodotus, due to the more active intervention of the author's voice and an underlying presence of references to the historical research he makes, which is absent in Thucydides. For a detailed analysis see Grethlein 2006. There is yet another notorious difference: whereas Thucydides values the proximity of the sea, Sallust considers it more as a source of decadence (Morstein-Marx 2001: 184-85).

¹⁰⁸⁴ Pagán 2009b, XXXIII and Pagán 2009, 126).

Africa, close to «our sea». However, they place themselves in different regions. The Medes and Armenians join the Libyans, who inhabit the regions closest to the «*mare africanum*». The Persians join the Gaetuli, who lived closer to the Gibraltar Strait (Sallust. BI. 1.18). Therefore, the Mediterranean of Sallust is divided between a *Mare Nostrum* and a *Mare Africanum*¹⁰⁸⁵. Its exact positioning is difficult to tell: Sallust states that the Libyans are those who live closest to this sea, but also considers that they would originate the Mauri, who establish themselves further to the west; on the other hand, he mentions that the future kingdom of Numidia is established further east than Mauretania, whilst stating that the Persians and Gaetuli originate the Numidians and are the closest to the Ocean, whereas the Mauri are closest to the *Mare Nostrum*, seemingly inverting the positions of Numidia and Mauretania. His presentation seems to be difficult rather than facilitate the understanding of where the *Mare Nostrum* begins and ends.

Strabo, who lives in the same century, will work the matter with a different approach. We have often observed his writings, especially in what regards harbours, as Strabo is a valuable geographic source; whereas Sallust dedicates himself mostly to the matters of war, Strabo talks specifically of Geographic matters. The period in which he lived and the moment in which he was born may have deeply influenced his work: born in Amasya, modern-day Turkey, he has a deep connection to the politics, philosophy and worldview of Rome¹⁰⁸⁶. He lives in a period of deep changes: in about eight decades of his life, he sees both triumvirates and the following developments, which will turn the Roman Republic and culminate in the rise to power of Octavianus. As a geographer he leaves an important work: aside from a detailed description of several locations, he allows us to observe, through linguistic marks, his own political and strategic thought, which is influenced by his affinity with Rome and its expansion policies. Until today, there is a debate on whether Rome adapted the term *Mare Nostrum* from «*he metera thalassa*», or whether it was a Latin innovation. It is a fact that Latin authors often seek the basis for their writing in former sources, written in Greek. Papastratis considers that Strabo would

¹⁰⁸⁵ See Pearson's map, which places the *Mare Africanum* immediately beneath Sardinia, close to Carthage. Pearson 2008, 13.

¹⁰⁸⁶ Dueck [2000] 2014b, 11 and Dueck [2000] 2014d, 85. It is possible, but not certain, that Strabo had acquired a status of Roman citizen. A considerable portion of his time was spent in Rome, the remainder in traveling. As Dueck mentions, in a great part of his work he dedicates himself to the expansion of the Roman empire, both in political and territorial terms. In Strabo, the notion of «*oikoumene*», or known world, is equivalent to the near totality of Rome. For a more detailed study see Dueck [2000] 2014a.

have been one of the first to introduce the term in Greek into the Roman world and suggests the hypothesis of it having been translated into Latin through it¹⁰⁸⁷.

The way Strabo proposes to limit the borders of the known world is particularly pertinent to this chapter. As stated by Dueck, Strabo observes the world starting from the sea, which serves as his advisor¹⁰⁸⁸. Like others before him (the source specifically mentions Ephor, for instance), the way the world is classified uses the sea as a point of reference. Strabo considers that this method facilitates the observation of territorial order. After the sea and geographic particularities come the rivers, which act as a natural border between territories. Dueck underlines the fact of the source attributing particular importance to what he calls «strategic information»: the sea, the rivers, the harbours and navigable routes are the main reference points. One can underline a value which transcends terminology: navigable rivers and seas, being a priority, occupy a detached place in the mentality of the Mediterranean world in the 1st century BCE. This comes in accordance with what we observed in previous chapters: the sources insistently mention rivers, perhaps even more so than harbours, and the majority of wars are fought at sea, not just in naval battles but through logistical operations. How much input the occurrences of the century have in Strabo would be an interesting point for further reflection. As it is, the concept of *Mare Nostrum* does appear in the *Geography*, such as in 3.1.7, where there is a distinction between the interior sea («our sea») and the exterior sea, the Ocean itself¹⁰⁸⁹. Perhaps more than any other work, Strabo displays an idea of a central Roman Mediterranean, as well as a central Mediterranean Rome.

However, the Mediterranean itself continues to be a non-uniform space. There are still terminological subdivisions within the sea, which seems conflicting, as the source begins by stating its globality. In Strab. 1.1.10, there is a precise description of what may be considered as the «interior sea» («τῆς θαλάττης τῆς ἐντός»). Beginning with the Pillars of Hercules, it connects Libya, Egypt, Phoenicia, Cyprus, Lycia, Caria, the region between Mycale and Troad, as well as the insular spaces. Therefore, the space occupied by the

¹⁰⁸⁷ However, for Papastratis, the term *Mare Nostrum* is a Latin innovation and not a copy from the Greek. Note that the equivalent term is already used in Greek from periods further back, long before Strabo; there may have been a Roman innovation regarding the connotation, but the idea of «our sea» itself is not innovative. See Papastratis 2008, 86.

¹⁰⁸⁸ Expression pointed by Dueck in his own translation (Dueck [2000] 2014 c, 40). In the Greek original, the expression is «σymboulon»: «οὕτω καὶ ἡμῖν προσήκει ἀκολουθοῦσι τῇ φύσει τῶν τόπων σὺμβουλὸν ποιεῖσθαι τὴν θάλατταν» (Strab. 8.1).

¹⁰⁸⁹ «(...) καθ' ὃν ἡ ἐντὸς θάλαττα συνάπτει τῇ ἐκτός». Strab. 3.1.7. In 3.1.3, the expressions «τῆς ἡμετέρας θαλάττης» and «ἡμᾶς θαλάττη». In 1.2.29: «τῆς καθ' ἡμᾶς θαλάττης»; the same in 1.2.31.

Interior Sea corresponds, longitudinally, to the Mediterranean Sea, but Strabo seems to have a preponderance for associating it to African and Asian territories. He does not associate it to Sicily, which is the first Roman maritime conquest: there are several references to the Sicilian Sea. Etymologically, there seems to be a certain distinction between the northern and southern banks of the sea: Strabo mentions, amongst others, the Thracian Sea (Strab. 1.2.20), the Adriatic and Illyrian Seas (Strab. 1.2.39), the Tyrrhenian and Sicilian (Strab. 1.3.11), the Sardinian (1.3.9), the seas of Pontus and the Cretan sea (1.3.4). To these will join other minor subdivisions of coastal areas, as well as the traditional distinctions between the Atlantic, the Interior Sea and the Euxine or Pontic (1.1-2). This observation does not necessarily mean that Strabo did not see a cohesion within the inner, «our», sea; even to this day, there are several nominal subdivisions which belong to the larger body of water. However, seeing the political situation, one can question whether there was more of a significance to it than there is nowadays.

Contemporary sources contradict themselves. Appian (App. *Mith.* 1) states that, before the conquest of Egypt, Rome would rule over a territory which extended from the Iberian Peninsula and the Pillars of Heracles to the Euxine sea, as well as the coast of Egypt and the Euphrates, and Africa up to Cyrene; in this period, by taking over Egypt, Rome would have ruled over all the interior sea («*τῆς ἐντὸς θαλάσσης*»). On the other hand, Strabo says that the seas which surround Egypt, Phoenicia and Syria are, first and foremost, the Egyptian and the Pamphylian (Strab. 14.6). Two men living in the same century have different visions on the division of both land and sea, but perhaps this is more of an issue in literature than the mental space of the Romans. Cicero, in the same time-frame, will use the expressions *Mare Inferum* for the Tyrrhenian and *Mare Nostrum* (Letters to Atticus, 8.3.2) in a seemingly interchangeable way, with «*infero mari nobis*», which would seemingly exclude the rest of the Mediterranean; in Cicero's time, this can hardly be supposed¹⁰⁹⁰.

Livy will too use the expression *Mare Nostrum*, but not abundantly. One of the scarce examples is Hannibal's speech: «*quae ex portu per mediam urbem ad mare transmissa est, plaustri transueham naues haud magna mole et mare nostrum erit, quo nunc hostes*

¹⁰⁹⁰ See Professor Blaise Nagy's entry available at <http://www.perseus.tufts.edu/hopper/text?doc=Perseus:text:1999.04.0004:entry=strabo&highlight=oikoumene> Cicero also uses a division between «*mare superum*» and «*mare infero*» (e.g. Philippics 12.9 and For Flaccus 13).

potiuntur» (Liv. 25.11.17). In these circumstances, Livy is speaking of a specific period during the Second Punic War, in the late 3rd century BCE. The author of the source did not see these events: born in the midst of the 1st century BCE and perished not long after the death of Octavianus, Livy is a representative of his own time-period, which underlines the importance of the expression. By putting the idea of the sea being the property of the enemy of Hannibal, hence of Rome, he seems to express an acknowledgement of this relation which goes beyond the Republic itself, cementing the idea of maritime power through a stylistic resource. In this case, however, we can yet again ask which is the *Mare Nostrum*. One can find the following expressions:

«(...) **nostri maris** ora omnisque ferme Hispania qua in orientem uergit Scipionis ac Romanae dicionis erat. nouus imperator Hanno in locum Barcini Hasdrubalis nouo cum exercitu ex Africa transgressus Magonique iunctus cum in Celtiberia, **quae media inter duo maria est**, breui magnum hominum numerum armasset (...)».

Western Hispania is nearly entirely under the power of Scipio, as is the coastal area of «our sea». The dividing point is Celtiberia, in the midst of both seas. Current consensus points towards Celtiberia being in the North of the Iberian Peninsula, somewhat close to the Pirenees¹⁰⁹¹. Livy establishes Celtiberia and not the Strait of Gibraltar as the division point between both seas. Although there is no explicit reference to which seas he is speaking of, accounting for context and previous sections, it seems likely that these are the Ocean and the *Mare Nostrum*. Hence, unlike Sallust, he does not divide the *Mare Nostrum* and *Mare Africum*, and does not mention other divisions either, although this is a singular instance. It is an occasion in which the terminology of *Mare Nostrum* incorporates *Mare Nostrum* and *Mare Africum*. Similarly, Tacitus will use the expression to compare the islands of the Mediterranean to those in the North Atlantic, by stating that Ireland, although smaller than Great Britain, is regardless bigger than the islands of «*nostri maris*» (Tac. *Aug.* 24); thus, the Sicilian sea, for instance, disappears as it is incorporated.

When one reaches Pliny-the-Elder and his *Natural History*, we will observe the source using the term, with greater abundance when compared to the previous. This is a work of the final decades of the 1st century CE, a period in which Rome would have already undergone the wars against the last enemy naval potencies and established its influence in the Mediterranean in a lasting manner. The idea of *Mare Nostrum* is present, for

¹⁰⁹¹ Saint Isidore states that the Celtiberians would have come from the eastern side of the Pyrenees, having established themselves on the banks of the Ebro river. See Sainero 2013, 104.

instance, in Plin. 6.41: «*multis gentibus eorum deductis illo a tigranes magno, sponte uero ad mare nostrum litusque aegyptium*». This quote states that the populations in the Arabian Peninsula would have migrated both to «our coastline» and the Egyptian. We reach the end of the 1st century CE with a mental division between the coastline which belongs to Rome and that of Egypt, which seems to question the idea of maritime unity in the mental space as it places the Roman province of Egypt in a marginal location¹⁰⁹². The term appears again in 6.47 as geographical subject and in 9.6 showing the migration route of the «*ballanae*». In the latter chapter, Pliny applies a plural expression, «*in nostra maria*», which may be exclusively stylistic, or to place the hypothesis of all the seas in Roman territory belonging to Rome. His intention seems closer to the first, however, as it is a sporadic occasion, and in 9.50, referring to the «*lolliginis*», he returns to singular.

The question of *nostrum mare* or *nostra maria*, although possibly stylistic, opens in itself room for reflection. If Rome has provinces that belong to it and allied territories, and with a consciousness of the existence of other bodies of water of big dimension such as the Red Sea, the Persian Gulf and even the North Atlantic space, only the Mediterranean is a *Mare Nostrum*. That may be owed to the proximity – Rome, through the Tiber, is connected to the Mediterranean in a far closer manner than to the Red Sea. However, why not creating a connecting element? Why not «our seas»? The question may be one of tradition and transition. All seas have a name far before the rise of Rome, even the Ocean. But the Mediterranean, throughout the centuries, is made of a political and ideological map which is divided in many segments, which may have facilitated the appropriation of the same and the mental disappearing of borders. There is the consciousness of an uninterrupted body of water, which is close to Rome and sustains its empire¹⁰⁹³. No portion of the Atlantic Ocean is part of the *Mare Nostrum* doctrine, even in locations where Roman sailors would have crossed; the Red sea will not be a *Mare Nostrum* either. In 13.43, the source takes up its very distinction¹⁰⁹⁴, but the Red Sea is still a separate entity, and it will be many centuries before there is a connection to the Mediterranean. The Red Sea will not be a *Mare Nostrum*, nor will the Black Sea.

¹⁰⁹² In the same chapter: «*a nostru mari usque ad palmyrenae solitudines diximus*».

¹⁰⁹³ In 12.48, the term appears in the plural again: «*discessimus a terris oceanum spectantibus ad conuexas in nostra maria*».

¹⁰⁹⁴ «*nascuntur etiam in mari frutices arboresque – minores in nostro – rubrum enim et totus orientis oceanus refertus est siluis*». There is a knowledge of the fauna and flora of the Red Sea and even the Indian Ocean; however, Rome does not ideologically take up these spaces, even if they are important to the empire's economy.

Still regarding the 1st century CE, the term «mare nostrum» appears in Quintilian's *Institutio Oratoria* (Quint. Inst. 5.10.21). This is a rhetorical work and this particular chapter dedicates itself with adapting one's speech to the situation. The author's intention is not to signal the particularities of maritime spaces, like Pliny did. Quintilian does not work the matters of sea domination in this particular case either. However, this sentence, dedicated to the sea, ends up being a way to acknowledge its diversity. The Sea of Rome, in spite of its dimension and capacity, is unable to provide all fish, and the source goes as far as to give examples, such as the «*helops*» and the «*scarus*». It is difficult to determine whether the source is addressing the entirety of the Mediterranean or one of its smaller segmentations, something which is significantly clearer in Juvenal (Juv. 5.92-98):

Mullus erit domini quem misit corsica uel quem
 Tauromenitanae rupes, quando omne peractum est
 Et iam defecit nostrum mare dum gula saeuit
 Retibus adsiuis penitus scrutante macello
 Proxima nec patimur Tyrrhenum crescere piscem,
 Instruit ergo focum prouincia, sumitur illinc
 Quod captator emat Laenas Aurelia uendat

In this case, *Mare Nostrum* is used in the specific context of the Tyrrhenian, and not in the ample context of the Mediterranean as a whole. In this satire, Juvenal writes a narrative which explains the need to order a «*Mullus*» (mullet) from Corsica or Sicily (Tauromenium), seeing as the insistent and exhaustive fishing of mullets would prevent the fish of the Tyrrhenian sea from reaching regular dimensions, thus leading to the preference for mullets ordered from the Roman provinces. Both Corsica and Sicily are treated as separate entities, as well as the maritime space that surrounds them: the fish of the Tyrrhenian are the ones not growing enough, not the fish of the Mediterranean as a whole. This text is of a different nature from the ones above, with its main intention being the satire of the relation between patrons and clients by comparing the different nourishment served to one and the other¹⁰⁹⁵. It is a localised problem, an issue of the *ciuitas*, not a matter of maritime domain. The place where the narrative develops is the Italian peninsula. But it adds to the idea of a diversified concept of *Mare Nostrum* and shows the incoherence even amidst the writings of a same period, long after the Roman expansion by sea was concluded.

¹⁰⁹⁵ See the analysis in Courtney 1980, 166-96.

Polybius, similarly to Strabo, will represent his own interpretation of the world's division¹⁰⁹⁶. He does not have his focus on making a geographic representation of space; on the contrary, Polybius's goals are well-defined in the first chapter of his work. What Polybius intends to observe are the issues surrounding power, the birth and growth of what we currently call an empire¹⁰⁹⁷ and which he calls the *δυναστεῖαι*, a term which is related to the idea of power and authority (in this case, political authority). Out of all the Mediterranean civilisations, Polybius, an individual of Greek origins, will present Rome as the supreme city-state¹⁰⁹⁸. It is the Roman power that will be the core of his work, as the source states the way it appears and develops as something «*παράδοξον καὶ μέγα*», extraordinary and of grand dimension. The terminology used by Polybius regarding the geographic points will show its particularities in the way he divides the world considering this purpose. Similarly, his work's panegyric tones may have influenced the way he refers to special notions, and it is possible that the idea of «our sea» in Polybius has a wider, more politically developed sense than in other authors. When Polybius makes his own geographic division of the «*oikoumene*» he splits the world in three parts, which roughly correspond to the three continents, Asia, Africa and Europe, thus keeping the idea of the three-way division of the «*oikoumene*» from past geographers, making it an intentional or unintentional contribution to underline the extension of Roman efforts in world conquest.

Regarding the maritime space, as we stated, Polybius seems to introduce somewhat of a difference and ideological innovation. The reference to the Pillars of Hercules is still present, like in all other geographical sources during ancient times, but he seems to create a new special division of seas and oceans. Polybius repeatedly mentions «our sea» (such as in Polyb. 3.37, in which one can frequently find the expression «*ἡμᾶς θαλάττης*»), as well as the «exterior sea» («*ἐκτός*»). The dichotomy between the interior and exterior sea often appears throughout chapter 3.37 («*ἡμᾶς καὶ τῆς ἑξῶ θαλάττης*»): there is a modification of the traditional ideas surrounding the interior, exterior and ocean. This is

¹⁰⁹⁶ Roller 2015, 139, considers that Polybius is often misinterpreted, and that there too little valuing of his geographic investment: according to the author, Polybius intends, «as a new Odysseus», to show the distant parts of the «*oikoumene*» to the remaining Greek peoples.

¹⁰⁹⁷ See Waterfield's Translation (McGing 2010, 54).

¹⁰⁹⁸ The same idea of Roman superiority appears in Dionysius of Halicarnassus: in 1.2, he considers that no city-state achieved the same feats as the Romans, who rule over the entirety of the known world. In his work, the «*oikoumene*» or «*limes*» extends beyond the Pillars of Hercules; Rome rules over all the maritime spaces, not only those within the Strait of Gibraltar, but also all the navigable portions of the Atlantic Ocean (D.H. *Antiquitates Romanae* 1.3). See Gutierrez-Masson 1993.

reinforced throughout the chapter (3.37.11: «τὸ δὲ παρὰ τὴν ἔξω καὶ μεγάλην προσαγορευομένην κοινὴν μὲν ὀνομασίαν»): everything which exists up to the Pillars of Hercules is «our sea»; everything beyond them is the «exterior sea»

Polybius' use of the expressions surrounding the Ocean is also not traditional. The west of the Iberian Peninsula was, during his age, a territory with lesser investment on the Roman side and, according to the source, occupied by barbarian tribes. Polybius stated that the «exterior sea», or «great sea», was still unnamed because only then was it beginning to be explored. Unlike former sources, which state that everything outside the strait of Gibraltar is the Ocean that encircles the world, Polybius creates a small but significant difference as he implies, even if subtly, an intention of greater investment in Atlantic navigation, and seems to reveal that the growing maritime presence west of Gibraltar may be responsible for the change of the toponymics. The Ocean is yet unknown, but when it becomes explored and thus well-known, it may receive a new name.

The matter of toponymic evolution face to the mental representation of borders may be observed in another excerpt. In Polyb. 3.37, we observed that he makes a description of the world just as he observes it in that very moment; for that reason, he introduces his idea of «our sea», seeing as Rome had already conquered, according to the source, all the known world. In 3.39, he continues to address the Mediterranean through two different expressions: «our sea» and «interior sea» («ἔσω θάλαττα»). At this point, Polybius narrates one of the most significant moments of the Carthaginian influence on the sea, describing the city as the leader or mistress («ἐκυρίεον») of the Mediterranean. In a first approach, addressing Carthage's sovereignty, he uses the expression «interior sea»; in a latter moment, still regarding the same topic, but elaborating his speech in what regarded the specification of the geographic space over which Carthage ruled, he uses the term «our sea», stating that Carthage had not only crossed the Pillars of Hercules but also dominated the shorelines of Iberia up to the Pyrenees. When he underlines the formal aspects of Carthaginian power, thus, that Carthage ruled over the shorelines of the Mediterranean, he uses «interior sea»; when, however, he develops on the subject and intends to use the Mediterranean to give geographic indications, he uses «our sea».

One may question up to which point this distinction has practical implications. When these events occur, the Mediterranean is not yet fully a *Mare Nostrum*, as Rome had not conquered enough territories along the sea basin to consider it as such; even if Polybius

states they had conquered the known world, he dies long before the wars in Numidia, the Mithridatic Wars and the confrontations in Egypt. Is this a coincidence or intentional on the author's side? Independently of Polybius' intentions, one cannot compare Carthage's view of the sea, or whether there is an idea of *Mare Nostrum* in the Punic World, given the lack of resources to do so, but if there was an ideological pretention of maritime domination on the Carthaginian side, the Roman conquest of the sea and the shore may have had a double meaning, both as a physical and ideological victory over the enemy.

6. What is, therefore, the *Mare Nostrum*?

Mare Nostrum has, in the 21st century, a meaning that greatly transcends the one that Greco-Roman authors gave it, over two millennia ago. The idea that the Romans saw the Mediterranean as a whole that belonged to them is so deeply rooted in our society that it is practically unquestioned. The geographic worldview of the Roman empire is seen as a whole in the contemporary age, something which is observed in Matz's words: «the Roman world view could probably be summarized in two words: *mare nostrum*, «our sea», which was their definition of the Mediterranean – and by extension, all the lands that bordered it»¹⁰⁹⁹. But this may oversimplify the question. The meaning of *Mare Nostrum* is, as we verified in this short study, as varied as the people who used the expression. Each author had his own idea of what it was, where its limits were placed, and it is often nearly indiscernible as geographic notions vary within the same source, within the same author and within the same era. In this regard, it would be important to develop further studies on the connection of the process of «romanisation» and the sea. As Matz states, Roman's mark of maritime domination is, in a way, translated through the infrastructures built throughout its basin, architectonic markings of the presence of this civilisation. We introduced what is only a mere approach to this matter in Chapter III, by observing harbours and lighthouses: there is, in fact, a development of the investment in harbour infrastructures, but there is also a fair number of sites which were pre-occupied and were not born from Roman influence. An analysis of Roman presence

¹⁰⁹⁹ Matz 2002, XX.

in the Mediterranean harbours in what regards, for instance, the matter of laws, would be one of the ways to further knowledge in this regard¹¹⁰⁰.

Beyond the Pillars of Hercules ends the strategic and political domination of Rome, according to the sources. As we observed in Strabo and the prior Greek sources, the terminology of «our sea» exists before Rome expands itself into the sea, and the idea of some degree of shared identity within the Mediterranean seems somewhat present, expressed through the idea of the *oikoumene* for the Greek and in its physical expression for the Roman, one in which architecture, in all its shapes, shows the cohesion of the empire. As architecture is pointed as a mark of the Roman presence, this may justify, to an extent, the idea of a mental construction of a world which is, first and foremost, based on land, but the markings of sea romanisation are there nonetheless, to greater or lesser extent, throughout the whole sea. The unity of the Mediterranean seems, above all, to be expressed by a representation of «interiority», of a mass of *omnia maria* gathered within the known world. We know, on the contrary to the ideology expressed by the sources,

¹¹⁰⁰ Our work's purpose is not to analyse Roman law, which is a delicate subject that can lead into several possible interpretations; however, we shall include this footnote as an introduction to the subject. Out of the three main legal *corpora* of Rome (the Law of the Twelve Tables, the *Institutiones* and Justinian's code), there is scarce information. The *Institutiones* have a specific mention to sea domination, stating that both the sea and the coastline belong to all, and that all who wish to may live from what the sea can provide; they are subjected to the same laws (2.5). However, this is at 535 d. C., and was written long after the period we intend to observe. Most of the studies on this matter focus on the terminologies «*imperium*», «*dominium*», «*res communes*» and «*res nullius*», constantly quoting Celsus *Dig.* 34.8.3 («*litora in quae populus romanus habet, populi romani esse arbitror*»). This 1st century CE author uses the term «*imperium*» to address coastal areas, an «*imperium*» which belongs to the «*populus romanus*», allowing the people to exert its authority on these regions. In early periods, as stated by Gutierrez-Masson, «les juristes qualifient la mer et le *litus maris* de *res publicae*» (Gutierrez-Masson 1993: 300-301). However, praetors have the right of «*prohibitio*» regarding the building along the shoreline, which, according to the author, seems to be a contradiction. On the one hand, Celsus merely mentions the «*imperium*» for the «*litus*», not the whole of the sea; on the other, there may have been a distinction between «*imperium*» («la souveraineté de Rome sur la mer et le *litus*») and «*dominium*» (or property). Gutierrez-Masson prefers the latter and states that the prevalence of the «*dominium*» will only be verified for posterior periods, explicitly addressing the evolution of Roman sea legislation up to Justinian's code. There is a discussion on whether Rome, especially in early periods, sees the *Mare Nostrum* as property or a place to be safeguarded. The existence of a maritime freedom in theory does not have to be real in practice. For instance, during the 1st century CE, the fishermen of Tebtynis paid a tax of 200 drachmae; in Kerkesis, 360 drachmae (Marzano 2013, 251). According to Marzano, the legal and ideologic route intends to favour the freedom of use of the coastline by the Roman people, but this would have been a difficult situation to reach in practice and, as such, there are matters such as fishing which, in theory, is open to all, but in practice is controlled due to the large scale fishing devices (as we observed in Juvenal); the work analyses in a detailed manner the extraction of sea product and shows the variety of occupations connected to the sea, thus confirming once again its importance in daily lives (235-68). Aside from these three cases, there is also the Lex Rhodia, of which we have a mention in the *Digest*, for instance. This law addressed the matter of jettison («throwing goods overboard in order to lighten and consequently save the vessel»; Sánchez-Moreno 2013) and was adopted by Rome, not as «a *lex* (a "statute")» in the proper meaning of the term, but only a collection of practices and customary rules developed in the early Mediterranean in the Hellenistic period, applied not just to the sea but also to fluvial commerce», yet again showing Rome's connection to the Greek world in what regarded sea practices.

that Rome's domination does not end at the Pillars of Heracles. There is Roman presence throughout the Atlantic coastline of the Iberian Peninsula, there are interventions and later presence in the North of France and Great Britain and around the Black Sea. But these are not part of these «interiority». They are embodied into the empire, but their waters are not. This is perhaps what shows the connection between the Roman world and the Mediterranean more than everything else: it is the only sea with an associated notion of «interiority», of «belonging».

To whom, for whom, is this Mare Nostrum? The answer is as vast as the historiographic capacity to understand the heterogeneity of the Roman space. It would require an understanding, a detailed study, of the integration levels for each community in the Mediterranean and respective population during each period. This is not the purpose of our work, but in a future study it would be pertinent to observe to whom the *Mare Nostrum* of Rome matters most, whether inside or outside the Roman empire, throughout History. We have seen the terminology being used by several figures of literature, philosophy and politics. The life of the concept was conditioned by the ideological pulse of the citizens who wrote about it, to which they gave their contribution, reconstructing it with more or less subtlety. But what was the impact in the mentality of population, especially outside of Rome and the Italian Peninsula? The 1st century BCE is a moment of diaspora, civil wars, instability, division¹¹⁰¹. We cannot reach the thoughts of the ordinary Roman citizen, but perhaps we can observe their sensibilities. Further investigation regarding Roman art and Numismatics, and especially regarding the smaller objects of daily life, may provide more information in this regard.

The notion of «ecumenic space» is already well-defined in far-back periods in History, even before Herodotus expressed it: in spite of the ancient world having discussed its subdivision in practical terms, related to matters of terminology and demography, there is a transversal idea of the *oikoumene* being everything which is surrounded by the Ocean, the space that is known and, above all, inhabited¹¹⁰². Yuval Sahar establishes two geographic distinctions, one which corresponds to the «*cosmos*» and its inhabited and empty regions, and another which is the «*oikoumene*», the plan of a «physical, regional

¹¹⁰¹ In this regard, see Purcell's article (2005), which observes the way in which the different populations of the Mediterranean basin integrate, both ideologically and culturally, Rome's political panorama, following the start of maritime expansion.

¹¹⁰² Sahar 2004, 9-10.

and human» geography. The idea of *oikoumene* itself seems to imply the notion of foreign inhabited places outside of the known world, or, at least, to allow for its conception. Such is valid, especially, when one is observing the matter of the *limes* and the division between civilisation and barbarians. Once again, we bring Shahar's work, observed in a footnote above. Shahar establishes some subdivisions regarding his own interpretation of the *oikoumene*, amongst which its political and sociocultural aspects. For this specific case, we shall underline his definition of the political *oikoumene*: as the inhabited space, it allows to understand the «power of empires» through the regions they «control». In his own words, «the clearest and most unmistakable expression of the *oikoumene* as a political concept was a result of the swift and exceptional spread of the Roman Empire during the second century BCE». Thus, the Roman empire, during the peak of its territorial extent, is the one which gathers a larger portion of the geographic *oikoumene* and is therefore able to establish a unitary political *oikoumene*». Shahar states that the way to observe power for ancient empires is to observe which parts of the *oikoumene* are under its control: for Rome, this comes to be the near entirety. When Shahar proceeds to the explanation of the sociocultural *oikoumene*, he addresses the several interpretations which Antiquity gives regarding the development of civilisation and barbarians. As Rome occupies further into the *oikoumene*, the barrier and frontier of civilization is pushed for spaces further and further away, and the issue of the degrees of civilisation slowly uniformizes and disappears.

Throughout its expansion, Rome slowly attributes citizenship status which, however different between regions, contributes for the relative homogeneity of the juridical space, but the contribute of Rome goes far beyond it. The *pax romana*, the combats against piracy, the homogenisation of the known world, the expansion of language, architecture, all contributes for the uniformization of the *oikoumene*, and the creation of a unity that had never occurred before. This unity is, first and foremost, a Mediterranean unity. The views may have varied, and the Roman world may have thought its relation to the sea in a different way, but the mental relation of Rome with the sea is different from the practical. In practice, Rome rules over the *oikoumene*, of which the Mediterranean is the centre. Roman maritime presence goes far and beyond the Mediterranean Sea, but the Mediterranean is the centre and interior, the heart and core of the Empire, and for that reason, regardless of the great divergences in interpretation which do exist, it rightfully becomes Rome's own sea.

7. Was Rome a Thalassocracy?

«After Octavian won power, all the shores of the Mediterranean and all its islands were under Roman rule or within the roman sphere of influence: it was indeed *Mare Nostrum*»¹¹⁰³.

In its plainest form, the word Thalassocracy means «sea power» or power above the sea. As mentions David Abulafia, one currently considers that a Thalassocracy, or a sea empire, not only uses the sea as a communication pathway, but also as a connecting point between several territories, thus using the sea to facilitate territorial control¹¹⁰⁴. This definition seems to perfectly fit the growing Roman power, especially from the 1st century BCE. Rome seems to gather most of the conditions pointed by Abulafia for a functional thalassocracy: the control of insular spaces¹¹⁰⁵, the importance of commerce and naval power¹¹⁰⁶, as well as the investment in infrastructures¹¹⁰⁷. The author discusses the concept: if it is considered as a way to describe «empires that draw wealth from trade, (...) so physically dispersed that they depend on maritime communication», it is impossible not to regard Rome as a Thalassocracy. «(...) No one (...) ever managed to repeat what the ancient Romans had achieved: rule over the shores of the whole Mediterranean, the suppression of piracy, peace at sea – and all this lasting maybe 300 years». To Abulafia, Rome is effectively and undoubtedly a Thalassocracy, one that succeeds by eliminating all its rivals and putting a term to the power struggle.

Nonetheless, the idea of Rome as a Thalassocracy is often placed in a second plan and disregarded. This perspective is changing. In 2014, Ladewig published a revised version

¹¹⁰³ Abulafia [2011] 2014c, 208.

¹¹⁰⁴ Abulafia 2014b. The definition given by Constantakopoulou is similar. In this case, speaking of Eusebius of Caesarea, the author underlines the fact of this source pointing the Thalassocracies in their succession in Greek history, which may be one of the reasons why Rome does not make it (Constantakopoulou 2013). One may add that, in spite of Thalassocracy and Naval Power being frequently associated, they are not necessarily synonyms, a factor which should be considered: the idea of larger or lesser naval investment may however translate the growth of a city in a thalassocratic pathway. The more Rome develops its navy, especially the war navy, the more it will be present in the Mediterranean, controlling the sea routes, harbours and even the river spaces which connect the seas into the continents. However, even if their naval investment had not been significant, it would not mean they did not have naval power as a whole. Rome functions in different grounds from all the city-states which predate it, because it expands its influence to an unprecedented area in terms of dimension. As such, power structures must also assume different dynamics, and Rome's relation with the sea does not necessarily need to be created and bound to the mother-city. Naval power in the Roman world may have been constituted, for a great length in time, by its respective allies, the coastal cities with Roman citizenship, all the places with maritime tradition which will then become a part of the whole. Thus, Rome may have begun its construction towards a Thalassocracy without much naval power at all. See Nash 2016.

¹¹⁰⁵ See the examples regarding the Greek world in Abulafia 2014b, 139-40.

¹¹⁰⁶ Abulafia 2014b, 2014-42.

¹¹⁰⁷ Abulafia 2014b, 149. The author exemplifies with the harbour of Ostia and its importance for trade; however, he underlines that harbours are not sufficient to observe this question.

of his thesis, which focuses exclusively in observing Rome as a maritime potency, a naval power and a Thalassocracy. A substantial part of Ladewig's first chapter is precisely to underline the lack of work in this field and his distancing from the traditional views, which he calls stereotypical¹¹⁰⁸. Ladewig acknowledges Rome's singularity, by stating that «Roms Zugang zum Meer gestaltete sich hingegen deutlich umfassender und blieb in der Antike weitgehend einzigartig», that «Im Zuger der konzentrischen Ausweitung des römischen Einflusses in das umliegende Gebiet (beginnend in Latium) tangierte man unweigerlich sehr schnell die italischen Küsten, zuerst am tyrrhenischen Meer im Westen und bald darauf auch an der Adria im Osten». Rome's thalassocracy was born in a *sui generis* way, beginning on the surrounding areas of the Italian Peninsula and then expanding throughout the coasts to protect itself and access trade routes, something which would have been achieved with the aid of the already mentioned *coloniae maritimae* and *socii nauales*¹¹⁰⁹. By underlining the participation of these communities in the growth of Rome's maritime power, the author stresses the importance of the city's maritime history and connection, valuing rather than diminishing it due to this flexibility which Rome will have above its contemporaries.

The focus of Ladewig's work is not an analysis of harbours nor the navy; however, he considers a fleet «ein wesentliches Merkmal einer Thalassokratie – egal welches Zeitalters» (335). In spite of its frailties, Rome manages to achieve the «Ausschaltung maritimer Konkurrenten» (340). Ladewig's work goes beyond the *Mare Nostrum* and the Mediterranean, however, and observes Rome's growth as Thalassocracy into the Black Sea and the Atlantic Ocean in all its extent. He underlines Roman naval presence outside of the Strait of Gibraltar at least from the 2nd century BCE, with campaigns in the Iberian Peninsula and later expeditions which he states may have taken Sertorius in search of Atlantic islands, either the Canaries, Madeira or Porto Santo (85), a voyage which was stopped but planned nonetheless, one which occurs after the death of Polybius and his notions of a future name for the unknown maritime territories; he mentions Caesar's expeditions to Great Britain, which he considers have long been overlooked by historiography; he underlines the importance of the sea during the Civil Wars. Whereas

¹¹⁰⁸ Ladewig's chapter is an updated case-study for the matter and, therefore, we abstain from repeating a work which Ladewig has already intensively taken up. The author underlines the importance of the studies of Raimund Schulz, Bruno Bleckmann and Helmut Berves to pave way for these new interpretations.

¹¹⁰⁹ Ladewig 2014, 23. The author also furnishes a detailed study on naval command for the duration of the Roman history, particularly for the periods prior to those we observed in our study, with a section dedicated to the legates (130).

the main focus of our work has been to observe the building of Roman sea-power through its military and physical components, Ladewig's work closely follows chronological, political and administrative events; however, there is a shared intention to draw importance to these subjects which previously had little to no investigation, and through different paths the conclusions have been similar. Ladewig goes as far as to call the last civil war between Octavianus and Antonius «das thalassische Ende der römischen Republik» (233), accentuating the importance of the sea to establish the transition into the empire¹¹¹⁰.

Nonetheless, this historiographic absence began long before modern historiography. When Eusebius of Caesarea writes his *Chronicle*, in the 4th century CE, Rome already presents seven centuries of maritime investment. Throughout that period, it expanded beyond its natural borders and became a Mediterranean power. However, when we observe this list, Rome is not there. When one speaks of Rome, the sea often appears as a dilation of the terrestrial platforms, a complement to its main economic activities, which are, by tradition, agriculture and herding. The idea of Rome as a thalassocracy is not even presented¹¹¹¹. And yet, can one consider Rome as inferior to other maritime potencies of the Mediterranean? It occupied several strategic points, amongst which the main islands of this sea, Sicily and Sardinia; it developed itself in a way which allowed it to control circulation and trade routes¹¹¹². Why was it relegated to a second plan in the general view of thalassocracies from ancient times until recently?

Rome will incorporate the inheritance of the people who came before, amongst which are the already mentioned Etruscans, who built their own Thalassocracy surrounding the Tyrrhenian sea. As mentioned by Abulafia, the Tyrrhenian was the Etruscan «interior» sea. Rome and Etruria follow opposite paths: whereas Etruria turns towards the land when the sea opportunities begin to falter, Rome invests on the sea when land is no longer enough to fulfil its objectives, whether we consider them those of security or expansion¹¹¹³. Rome is not a maritime city, but a river settlement, and yet its strategic

¹¹¹⁰ The author, however, considers that the term *Mare Nostrum* was established at least as far as Caesar's days and that it was used fixedly in the works of Livy, Pliny, Pomponius Mela and Tacitus, not underlining the distinction between the several sectors of the sea within the sources.

¹¹¹¹ Marzano 2013.

¹¹¹² In a vast empire, sea dislocations are a mandatory component for its very existence (Millar 2004).

¹¹¹³ Abulafia 2014a. Abulafia attributes the term «Thalassocracy» especially in a chronological manner: the chapter he dedicates to them is precisely «Thalassocracies, 550-400 BC» and regards the question of the Medopersian wars and the Peloponnesian war. In another article, mentioning Etruria, he states that it has often been considered as a Thalassocracy but in particular shapes. Abulafia 2014b, 144.

thought will turn towards the sea. This strategic thought leads to investment on the navy, which allows it to become, according to Polybius, an important naval power in only two decades¹¹¹⁴. The theme of Maritime Power is shown throughout his work, especially during the first book, leading some authors to believe that the purpose is to enlighten the growth of Roman power in the Mediterranean (Mitsis 2013, 36, for instance). And yet, not even Polybius considers Rome as a potency in naval war. Even after the First Punic War, Polybius keeps stating that Carthage is superior to Rome at sea, and that Roman excellency resides in land operations (Polyb. 6.52).

All of this, however, occurs before the 1st century BCE. This is the century of change, which both embodies traditional naval action and goes beyond its limits. We observe constant movement of the Roman fleets at sea and in rivers, we observe a large-scale campaign against piracy which is wide enough in its implications to lead to the creation of the Lex Gabinia, and we have the first campaigns in the North Atlantic. Caesar's expeditions may not contribute to make Rome a Mediterranean Thalassocracy, but give a new expression to naval power to a Mediterranean civilisation outside of its core sea. After Rome's first victory against Carthage, Rome turns to the Iberian Peninsula, and from this moment onwards will work to incorporate all the remainder provinces of the Mediterranean¹¹¹⁵. Regardless, some of the moments in which a Roman fleet is in action happen far away from this sea, both along the European rivers and Great Britain: as stated by Abulafia, the instability within the «heart of the empire» was not, in itself, enough to disturb the peace at sea¹¹¹⁶. Abulafia justifies the lesser importance which is usually attributed to the Roman navy (in comparison to the Greek) through three factors:

- 1) The fact that Rome did not participate in many naval battles of great dimension following the Punic Wars. However, in spite of the substantial number of land battles by comparison to naval affairs, and acknowledging that Rome's large-scale naval battles seem to have occurred prior to the 1st century BCE (as we observed, Actium is more of a retreat than an actual battle), there is still confrontation in the Mediterranean, the Roman navy is active (perhaps more than ever before) both in this sea and the North Atlantic, and one must not reduce the role of a navy in a

¹¹¹⁴ Polyb. 1.20. In the first book of *Histories* he narrates the whole of the First Punic War, and one can observe Rome's transformation through his view, Rome which, according to him, had never turned towards the sea.

¹¹¹⁵ Roller 2015, 140.

¹¹¹⁶ Abulafia [2011] 2014c, 208-11.

war to its battle capacity, but also relate it to the matter of logistics, not to mention the several campaigns for maritime safeguard.

- 2) The idea that the fleet is not fundamental throughout the era of *pax romana*. This is debatable and can be looked in the inverse direction: the fleet was not only fundamental to the *pax romana* – as we observed, several positions defend that the main element to safeguard a large empire is communication, in this case a fleet that connects the common element, which is the sea – but also to pave the path which allowed for its construction.
- 3) The idea of the naval service not being considered in the same rate of importance as land service. This is a point which is more difficult to rebuke, especially as it is more subjective. Perhaps this is one of the main contributors for modern-day thought on the Roman navy: a Romanised point of view which does not place the city-state outside its own mental structure¹¹¹⁷. However, in practical terms, Rome does not disregard naval investment, and its commanders seem to have understood the importance of conjugating the naval and terrestrial capacity of an army: such is the case of Julius Caesar, to which Lucan, 1st century CE author, refers as «*en adsum uictor terraque marique Caesar*» (Luc. Ph. 1.201-2)¹¹¹⁸. This is a poetical work, but Caesar's image reaches the imperial period as one who was proficient in both, in spite of his issues against Pompeius' fleet.

8. A brief note on Naval Triumphs

«Durch die zunehmenden militärischen Interventionen auf dem Meer, die Etablierung maritimer Kommandos, die Siege zur See und den zunehmenden Bau von Kriegsschiffen erweiterte sich der „Kosmos“, in welchem das römische Heer agieren und ein römischer Feldherr triumphieren konnte. Das Meer verlor immer starker seine Bedeutung als bloßer Transportweg für Truppen oder Handelswaren. Stattdessen rückte die See als Bühne für das Erlangen von *virtus* und für den Gewinn von Kriegsbeute in den Fokus der römischen *nobilis*. Diese Entwicklung berührte auch die sacral rituelle Wirklichkeit der *res publica populi romani*».

¹¹¹⁷ One may add another factor which, in spite of being related to the first centuries of expansion, is still relevant: the first province which Rome conquers is Sicily, an insular territory. As mentioned by Erskine Rome's problem with Carthage begins because the former no longer exclusively focuses on its continental interests and turns towards Sicily, which would allow, amongst other points, to control the main maritime routes in the Mediterranean. Rome fights for maritime domination during a considerable period of its history. Professor Erskine considers the Roman victory in Zama, during the Second Punic War, as something which «transformed Rome from an Italian power to a Mediterranean power, whose authority now extended well beyond the Italian peninsula to include Spain, Sicily and Sardinia». In fact, Rome's process of Mediterranean conquest goes from West to East, first putting an end to the Punic domains and only after to the Hellenistic kingdoms (Erskine 2010, 16-17 and 21-22).

¹¹¹⁸ The same idea in 1.306-7: «*terraque marisque Iussus Caesar agi*».

The matter of Roman Triumphs, in particular the naval, is one that would deserve its own particular observation, in-depth, in future studies. It seemed pertinent to include a few topics on this regard, as a way to complement some insight on Rome's vision regarding the sea. When observing the list of the *fasti triumphales*, one can find a disproportion between naval triumphs and the remainder: during the 3rd century BCE, there are about fifty regular triumphs and six naval; during the next century, there are three naval triumphs; during the 1st century BCE, there are no records. For this, one can find several justifications, amongst which the greater prevalence of land battles by comparison to the naval counterpart. However, one can question whether the traditional triumph would have been more valued. The period during which one finds a greater prevalence of Naval Triumphs is that of the First Punic War, with at least six being celebrated, of which the first happens in 260-259, the first of its nature. Following the First Punic War, there are only four registered: 228-227 BCE (victory against the Illyrians), 189-188 BCE and 188-187 BCE (both against Antiochus) and 167-166 BCE (victory against Perseus and Macedonia). The larger proportion is clearly for the period of the first Punic War, a moment of significant growth of the Roman navy and the city's expansion outside of the Italian Peninsula; more than that, as can be seen in Polybius, it is the underlining of Rome's growing importance as a naval power against Carthage. The affirmation of Roman naval power is, during this period, also a matter of ideological affirmation against the enemy, one which had a supremacy for centuries. Later, Rome no longer seems to have a need to prove itself and others that it has a strong naval capacity.

The scarce importance given by Rome to naval triumphs seems to have an equivalent in the scarcity of publications on this regard. As stated by Dart and Vervaeke, most of the works are focused on the land counterpart. With the growth of studies on this subject, especially when approached through the new perspectives, there is a possibility for the matter to be observed more closely in the future and extract further conclusions. Dart and Vervaeke, for instance, try to follow this non-biased maritime approach. In the second paragraph of their article, they establish as their priorities the observation of a naval triumph as part of the Roman tradition, the verification on whether there is a connexion between the chronological distribution of the triumphs and the idea that Rome only has significant participation in naval combats during the First Punic War; the study of similarities and differences between several types of triumphs; and the inclusion of naval battles which, in spite of their absence from the *Fasti*, may have been celebrated as

triumphs. The authors place their temporal barrier as the triumph of 29 BCE, the last of its kind, in celebration of the victory in Actium¹¹¹⁹.

Dart and Vervaeke collaborate with the idea that Rome no longer feels the need to show its naval supremacy from the 1st century BCE onwards and justify it: «This remarkable concentration of major naval operations between 260 and 167 thus perfectly coincides with the transformative century when Rome reduced or destroyed all its major rivals in the Mediterranean». Their point of view is that Rome, after conquering Carthage, no longer has the need to underline its naval supremacy, as there is no rival to contest it and thus there is no need for a demonstration of strength. The theory may translate what could have been the political, military and strategical thought of Rome in this regard, which seems focused on the «great moments», the «big feats» that the entire empire should observe. In a nearly contradictory stance, the only city-state which achieves the feat of expanding its empire in a way to control the whole Mediterranean never explicitly extols it. If Rome does not think of itself as such, the fact seems well-grounded in Roman life: even though they do not seemingly find fulfilment in the role of masters of the sea and are not valued by ancient sources as such, that does not mean they were not. Perhaps Rome did not have a need to underline its role because it was in such a way evident and irrefutable that it became a common place.

However, one may also question whether Rome undervalued naval triumphs regarding the matters of the *dignitas* of the Roman people, especially during the 1st century BCE. In previous periods, Rome acknowledges and values its naval feats. The Senate itself, in 260 BCE, decides to create the distinction of Naval Triumph and, as stated by Dart and Vervaeke, it does not seem inferior to the regular triumphs: the ritual was essentially the same, with iconographic and symbolic adaptations (2011, 275). Rome's first acknowledged naval victory, won by Gaius Duilius, seems important to such an extent that already in Augustan periods there is the creation of a Triumphal Column in its honour. The undervaluing in which the sources could make us incur, especially the *Fasti* list, may be only apparent, since two-hundred years after this victory it still weighs in the mentalities of the prominent political figures of the city, a factor particularly important to Octavianus and the propaganda surrounding Actium. On the one hand, the Column seems

¹¹¹⁹ Even if the sea is the place of Civil Wars during both triumvirates, the Battle of Actium allows Rome to become the undeniable naval potency of the Mediterranean (Black 2009, 4-6).

to establish an idea of continuity between past and present victories; on the other, after nearly a century of silence from the sources in the valuing of naval combat, it reappears yet again in a circumstance of weight.

In what regards the 1st century BCE, one can also add that in spite of a formal absence of Naval Triumphs (as far as the sources show), that does not mean the victories were not celebrated. Pompeius had a significant intervention in the Mediterranean, as we observed, and he will celebrate, in 61 BCE, a large-scale Triumph, which Dart and Vervaet call «exuberant». This does not appear in the lists of a naval triumph and is registered as Pompeius' victory in the Middle East¹¹²⁰. In spite of the apparent land focus, the triumph still underlines the episodes connected with a combat of piracy. The expression used by Pliny seems to reinstate that Pompeius freed the sea from piracy and returned the «*imperium maris*» to the Roman people, using the expression «*restituisset*». The idea of restitution in itself implies that the object which is returned has belonged to the Roman people before, which means that, as far as this mentality goes, it was already a part of its space. On the other hand, there is the expressed idea of an «*imperium maris*»: if Rome has *imperium* on land, it also has it at sea. This expression, perhaps more than *Mare Nostrum*, seems to imply a relation of power between the Romans and the sea, as it is clearly non-geographic.

Ladewig has yet another position. The author considers that the increase of naval investment in all regards (command, fleet, harbours), would have extended the «*Cosmos*» in which a general could triumph, transforming the sea from a mere place of communication and routes into something which would have acquired a centre stage for the Roman «*nobilis*» to acquire «*virtus*» as well as war spoils¹¹²¹. Contrary to Dart and Vervaet, he attempts to explain the lack of Roman naval triumphs *regardless* of intense naval participation during the 1st Century BCE, and one of the factors he underlines is that many of these were won by consular legates, as we observed in chapter I, rather than the top-hierarchy commanders. He exemplifies with the case of Agrippa, who did not celebrate his successes in Mylae, Naulochos and Actium but instead gathered them within Octavianus' triumph, and was later awarded the *corona rostrata* and a blue flag. The

¹¹²⁰ As seen in the consular lists and mentioned by Dart et Vervaet 2011: 276: «*cum oram maritimam praedonibus liberasset et imperium maris populo Romano restituisset ex Asia Ponto Armenia Paphlagonia Cappadocia Cilicia Syria Scythia Iudaea Albanis Hiberia Insula Creta Basternis (...)*».

¹¹²¹ The author gives a deep insight on the context surrounding the first naval triumph and its importance as the first naval battle, from which Rome attains not only a victory but also considerable war spoils.

author states that it was common for consuls to include the naval achievements of their legates within their own triumphs. There is a seemingly growing tendency during the 1st century BCE to incorporate naval and land victories into a whole, thus accentuating the tendencies of the idea of «*terra marique*», something which we have also observed above regarding Caesar, putting an end to the separation of the two elements¹¹²².

9. The ever-absent word

The word «Thalassocracy» does exist in the Graeco-roman writings, but it is not a frequent one. One of the few occurrences is in App. BC. 2.10.65 and applies not to Rome itself, but the private person of Pompeius: he and his allies are the «*θαλασσοκρατοῦντας*», masters of the sea. The term is used for many centuries to express the idea of a maritime empire, but it does not have a significant presence in Roman literature and even less receives a Latin equivalent; furthermore, when it does appear, it is connected to an individual, upon which sea power is focused. Pompeius and his allies have the capacity to become «masters of the sea» because their naval capacity is, according to Appian, superior to that of Julius Caesar¹¹²³. The political changes of the 1st century BCE may have some degree of connection to this factor: the Roman Republic is heading to its final years and transforming into another political system, in which power initiates a process of agglomeration. Rather than being severely split through several organs, it focuses on the figure. Appian refers to Caesar, in BC 2.17.118, as «*γῆς καὶ θαλάττης προστάτην*», he who had commanded, had precedence, over both land and sea, reinstating the concept of «*terra marisque*». It seems that the city-state does not rule over the known world, but that it is Caesar who privatises power and focuses it on his own figure¹¹²⁴.

In the following passage, Appian renews the image of the totality of the Roman world in its power sphere:

¹¹²² Ladewig 2014, 245-50. The author proceeds with a more detailed explanation of Naval Triumphs and the preservation of their memory through, for instance, numismatics.

¹¹²³ As we observed for the Civil Wars period, the struggle for power balance is also taken to the sea, and amidst the people who support Pompeius are those with a maritime tradition. According to Appian, the importance is not in naval combats themselves, but in Pompeius' capacity to control logistics and transports.

¹¹²⁴ In another chapter, there seems to be a contradictory explanation, which states that Caesar would have expanded the Roman power, decentralizing it; in 2.21.150, the personification of power seems diminished. It cannot be said that the idea of power privatisation does not exist, however, as Appian states that Caesar concentrates this power in his person; and whereas there is a Roman power, it seems to exist independently of people, and is thus something which can be transmitted.

«τὴν τε Ῥωμαίων ἰσχύν, γῆς ἤδη καὶ θαλάσσης ἐκ δύσεων ἐπὶ τὸν ποταμὸν Εὐφράτην κρατοῦσαν, ἐχειρώσατο βία καὶ φιλανθρωπία πολὺ βεβαιότερον καὶ πολὺ ἐγκρατέστερον Σύλλα βασιλέα τε αὐτὸν ἀπέφηνεν ἀκόντων, εἰ καὶ τὴν προσηγορίαν οὐκ ἔδεχeto. καὶ πολέμους ἄλλους καὶ ὁδε διανοούμενος ἀνηρέθη».

The power of Rome, its strength («*ἰσχὺς*»), through Caesar, extends, on land and sea, from the west up to the Euphrates. It is one of the most significant images of totality. In terms of representations of power, the image of a territory which is limited by the sunset is ideologically powerful, and introduces a new approach in what regards chronologies: there is a «before» and «after» Caesar, and Appian considers that through him Rome grows exponentially and becomes the true leader of the *oikoumene*. If there is no concept of «Mediterranean world», this passage of Appian is close to it; without using the words *Mare Nostrum* and «thalassocracy», they are implicit. There is an idea of unity, singularity, within the sea, bound by the natural course of the day (the sunrise and the sunset), which is hardly found in other sources. But this panegyric of Caesar, in practice, can only make sense when one observes the Roman investments of all those who came before him and all those who will succeed him, unifying the efforts of Roman politicians and commanders to create a thalassocracy, a naval empire and a *Mare Nostrum*. And yet, perhaps it is this very representation which has kept Rome's thalassocratic component relatively unobserved on detail. Ancient Thalassocracies, such as that of Athens and Carthage, are sea-based empires, but the limits of Roman influence go beyond these precursors¹¹²⁵. Rome forms a large-scale empire over land and sea alike, covering aspects

¹¹²⁵ Observing a few works on both the Athenian/ ionic thalassocracies and the Roman empire may give some example as to this point. For instance, Grant (2013, 70) states that «The whole subsequent course of Greek history was dominated by the strife between the land empire of Sparta and the sea empire of Athens»; then D. Kagan (1978, 68), says that «As long as the Spartans had a secure base on land, they could refuse naval battles while sending off armies by land and, by eluding the Athenian navy, even by sea to cause further rebellions from Athens». Then there is Miller (1971, 45), who observes ancient sources and concepts and states that «thalassocracy is not merely an objective fact – the most prosperous maritime state at the time: thalassocracy means the possession of a fleet and an aim, a concentration of force and purpose» and Hood-Whitesell (2018, 379), stating that a thalassocracy «most often refers to an island or a coastal entity dependent on trade to sustain its population», and that there is a scholarly disagreement regarding «whether the term should be confined to a particular historical era and location, such as the ancient Mediterranean world, or apply thalassocracy to places in the modern era». Rawlings (2010, 253), when making his proposal of a chapter regarding the Carthaginian thalassocracy, proposes to observe «the Punic naval landscape embodied by its network of harbors and naval bases, the resources of the state, the organisation and structure of fleets, and their modes of operation», and speaks of a «Punic naval ideology». All these examples, which are merely a few amidst many that can be provided, contrast with the observation of the Roman empire: Heather (2007, XI) states that «the Roman Empire was the largest state western Eurasia has ever known», going from «Hadrian's Wall to the River Euphrates», whereas Ermatinger (2004, 67) argues that «Rome's decline ended seven centuries of political, economic and cultural unity in the Mediterranean and northwest Europe, which had produced the world's largest empire to that date» (67). Hekster (2015, 1-2) says that «The Roman Empire was among the largest and longest-lasting states in West European history», and that «at its peak, it covered territory from southern Scotland to northern Mesopotamia», an area with «heterogeneous populations» and «notable rebellions». Home, in his 2013 study regarding the

that former Thalassocracies did not approach. Even in what regards the sea, it goes beyond: Rome is present in the Mediterranean, the centre of the known world and the ecumenic space, but it is also present in the Atlantic, where it has several interventions and to where it will extend navigation. There are Roman armies crossing into Great Britain, traveling along the coasts of current-day Portugal and Spain, fighting populations in Northern France. There is Roman military presence along the European rivers. Before Rome, there are no known cases of a Mediterranean civilisation with a *limes* that includes both the inner sea, the Atlantic ocean and the main fluvial courses. In the wider outlook over Rome's progression and History, seas and rivers are but one of many components which, however, should not be disregarded in their importance to the construction of the Roman world.

One must be cautious when attempting to reconstruct historiographic views on a subject. Whether Rome is or not a Thalassocracy is mostly a matter of perspective. Athens and Carthage were undoubtedly Thalassocracies, albeit not mistresses of the entire sea; Rome, on the other hand, was mistress of the Sea, but there is still questioning as to whether it is a thalassocracy. The answer may lie in the importance one attributes to the criteria of Rome's flexibility. To build its mastery over the Mediterranean, Rome had to rely on others, even if partially, for a large period in History. Can investigators claim Rome is not a thalassocracy, seeing the significant degree of dependency it had well into the 1st century BCE and the transition into the empire? Or is Rome, on the other hand, an

British colonies, retrieves a quote from Headrick (1981, 174-75) where the latter is analysing the evolution of maritime power. Headrick states that «among empires, the most unusual is that of the sea», and lists «the Minoans, the Greeks, the Phoenicians, and the Vikings»; Athens and Rome are absent, as he proceeds to state that «only once has there been a truly global thalassocracy», namely Great Britain. Headrick is observing the evolution of maritime power, one which will subsequently turn into a global empire, and Rome is not included in the list of authority structures with a significant sea domain which then extends to the known world. Slightly different cases are found in Sobecki (2008, 32), for instance, who states that Rome would have «expanded the maritime infrastructure of the Aegean thalassocracy to span the entire Mediterranean», thus uniting all the Mediterranean, parts of the Atlantic and the Northern Sea; although it is not a direct reference to a Roman thalassocracy, there is the notion of sea control, its extent and implications. This idea is continued in a more marked way by Steinby (2014, 1), who refers to the period of the Second Punic War as «the contest for thalassocracy» and calls it a «serious maritime conflict», won by Rome at sea and thus enabling the city-state to gain control over the «western Mediterranean»; this was subsequently consolidated during the Third Punic War, in which Rome «had conquered all their enemies at sea, both in the west and in the east». There are differences in the way each power is represented. A Thalassocracy is directly related with power over the sea, and the Roman Empire's power extended beyond that: it influenced the Mediterranean Sea, the Atlantic Ocean, the large rivers, as well as an area which covers three continents. This geographic magnitude (together with political, legal, cultural and ideological aspects which are not the object of this dissertation) may detract from the notion of thalassocracy, as what Rome constructed went beyond the thalassocracy. Even if D. Kagan's book is entitled *The Fall of the Athenian Empire*, this same empire is mostly connected to the sea. However, if Athens can be an empire through being a thalassocracy, can the Roman thalassocracy not be one of the many aspects of its empire?

example of adaptability, resilience and persistence, a power which understands the importance of maritime control and, by concerted efforts, achieves it regardless of its natural difficulties? The central idea of this work in what regards Rome's naval feats is flexibility, which leads us to the last question, kept unanswered in the hope that future questioning, investigation and reflexion upon the matter will reply to it. Is Rome's unique flexibility enough to make it a Thalassocracy?

The 1st century BCE for Rome:

- 1) The idea of *Mare Nostrum* exists long before Rome's investment at sea, amongst the several maritime communities, but it develops and matures in several ways. In the Greek world, the concept begins by being connected with Geography, culture and identity, and only later will it achieve a political side, with Thucydides; in the Roman case, this will be accompanied by authors like Polybius, Livy and Appian. The political *Mare Nostrum* must, however, be observed with care when one looks at the Roman sources, as there is not a strong construction of the sea's political importance as one can observe in Thucydides or Pseudo-Xenophon.
- 2) As we observed in this chapter, Rome had begun participating in Mediterranean affairs long before the first century BCE. It had its first interventions at least in the 4th century and it was connected with Etruria, which had a long-standing naval tradition. The 1st century BCE is, therefore, not the outbreak of Rome's sea presence (it had long established its domain over insular and coastal territories all throughout the Mediterranean sea and those bodies of water connected to it) nor the first moment of its existence as a power with naval capacity (as it had its own established navy from at least the First Punic War – in a traditional view – and likely before, although not to the same standards, in what can be a conceptual matter).
- 3) The 1st century BCE is, however, one in which Rome's naval power undergoes exponential growth. The number of conflicts which imply naval dislocations is significant and Rome will be fighting against one of the last large naval powers in the Mediterranean, the kingdom of Pontus. It will acquire fleets, there will be a shift in the traditional attribution of naval power (as seen by the powers granted to Pompeius in the middle of the century), and it is also a period of investment in the support infrastructures, with the growing number of harbours and an

investment in lasting materials such as hydraulic concrete, which, however, was not universal.

- 4) Rome slowly redefines its relationship with the sea through the centuries and its seeming initial disadvantage grows in the opposite direction. As stated by Blits, Rome's geographic situation is «conveniently close to the sea, [but] the city was not so near as to be exposed to the perils of foreign fleets and the disadvantages of the sea». It is one of the few city-states that entirely achieves to take advantage of the Mediterranean without compromising itself.
- 5) «Had all Greeks domesticated the Mediterranean Sea to this extent?» This is a question posed by Harris. The diaspora of the Mediterranean populations is well-accounted for. The Phoenicians turn to the West and create colonies, from which grow cities such as Carthage; the Greeks will occupy the south of the Italian Peninsula and parts of the Mediterranean islands. But they do not «domesticate» the sea in the same way Rome will later achieve. Rome constructs its space and conceives it outside of its own city boundaries. After the creation of the first Roman province in 242 BCE, others quickly follow, occupying the whole of the Mediterranean. The Roman domains are simultaneously surrounding the sea and surrounded by it – three continents and all the islands in between. Whether this is a domestication can be questioned, but if «*domesticus*» is what belongs to the house, the home, the Mediterranean is more a part of Rome than it was to the prior thalassocracies. As Freeman states, «the Romans, of course, were fully aware of the unity of the sea as they were the first civilization to control all of it».
- 6) Rome's role at sea is not as much of glorious feats in naval battles, but of a warrant of safety and peace of coastal populations, trade and of its own political interests. Its naval power is not born exclusively from the city itself, but from all its allies and the peoples which it conquers through the centuries. It does not fit the traditional view of a thalassocracy and probably does not think of itself as such. But Thalassocracy is not a common word in ancient times, and the very notion may be anachronistic, as it is more frequently used by the researchers of the 20th and 21st centuries than the people who lived in this time. Thalassocracy may be a malleable concept, and, if we consider it as Abulafia defined it, as a civilisation that uses the sea to control the entirety of a vast empire, Rome being a thalassocracy cannot be argued against.

FINAL CONSIDERATIONS

The method through which this work was organised included the option to present conclusions throughout the four chapters of this dissertation, in order to facilitate the understanding of a general coherence throughout the study. Therefore, if these final considerations will take into account the main points of this work, the conductive thread which guided the investigation, it will also include two key elements: the difficulties which may have limited it and the points which we consider would be pertinent to develop in future works, some of which have been presented, albeit lightly, throughout the chapters.

One of the expressions which is used more often in this thesis is «one may question». That is one of the core problematics when studying, as we proposed, «Military History and Naval Power in Rome». The problem presented itself in different ways for each chapter, but for a substantial part of the work, the greatest issue was that it would not deal with something physical, something visible. When, in chapter I, we studied ancient commanders and their logistics at war, we were basing ourselves on the accounts of ancient authors; as much as geographic and archaeological cues can be added, such as cases of sieges and traces of army dislocation, there is no possibility to actually see the Roman army dislocating itself. There were often situations in which the possibility of navies accompanying the armies were raised, but there is still great difficulty in confirming this through extra-textual evidence. In the years to come, with further archaeological discoveries along the coastlines and rivers, allied to the clues of iconography and epigraphy, it is possible that these hypotheses may be confirmed or contradicted.

The information left by the sources in itself seems insufficient to completely understand naval command. It allowed us to understand some of its subdivisions, to advance further into the evolution of power distribution throughout the century of change that was the 1st BCE, but there is much that seems to escape our understanding in this moment and that would require further studies to fulfil. There were conclusions, however, which we managed to achieve. We could verify a determinant factor for the first century BCE, which is the constant and simultaneous presence and absence of Roman commanders in the navy. The higher commanding hierarchies are there, but only in name; their legates will be the ones to truly carry out naval affairs throughout this period. As much as the legates, one can presume that the lower hierarchies of command would have been equally

significant, if not more important, as they would be more present in battle, but there is not much textual evidence to sustain it.

Another factor that was verifiable, in what regards command, was the constant reliance on allied fleets. This is not surprising, as historiography has long treated Rome's reliance on the *socii nauales* and the *coloniae maritimae* to provide fleets and sailors. The difference resides in the fact that the Roman commanders will begin to earn fleets in their own right, starting from Sulla's victories against Mithridates of Pontus. From Sulla to Caesar and Pompeius, there is a growing affirmation of the commander in the navy, and textual evidence shows the implications in the Roman mentality, one in which these generals, who are seldom admirals, are masters of land and sea. Pompeius and his son Sextus will be one of the notorious exceptions in terms of effective naval command; Pompeius, however much he delegated during his campaigns, was seen as the true *thalassocrata*, and his son would continue his campaigns to the point of taking Sicily. The shift in the needs of naval command comes from the shift on the fight for the Mediterranean itself, which turns from external to internal, and the last civil war is fought at sea as much as it is on land.

The lack of actual naval battles makes it difficult to understand the concrete proficiency of Roman commanders at sea, but only in appearance. Rome's maritime wars were fought not only in terms of technique, but in terms of strategy. A significant part of Rome's naval command is one of logistics, of establishing and cutting supply lines, of taking key-locations which would enable the army's survival. Rome thinks the war at sea in a different way from its predecessors, not as a sequence of battles to be won, but as something to avoid battles as much as possible. Even Actium was a retreat, or began as such. Therefore, Roman command reflects three key-values in the 1st century BCE: delegation (higher ranking commanders delegating the maritime tasks in individuals of lower rank, whereas taking up their successes and including them in their own Triumphs), logistical management and production values. The latest is related to the capacity a commander had to supply the fleet, not own with ships but with crew, often the most problematic element: where there was enough material to build ships, demography was not providing them with sufficient men. Each faction through the civil wars develops its own preferences regarding ship types, a tradition which seems to begin in a bicephalous manner from the early decades of the century.

The general course of the Roman navy accompanies that of the Roman army, in the sense that there seems to be a growing privatisation of power or property. The fleets begin to belong to individuals, rather than the city-state; there are privates involved, and as the civil wars continue to happen, the traditional allies have to take a party, or not take any at all; decline involvement, or choose a side. There is a choice made for a figure, rather than a political entity, which is one of the most significant shifts in the Roman navy throughout the century and will influence naval command.

There are a few points which we would have liked to study further and that we raise as suggestion for future studies. First and foremost, crews. As we proposed to treat the matters of command, we abstained from developing this problematic further. Our mentions are mostly of numbers, origins and terminology, rather than the actual life of a crew aboard of a Roman ship. This is probably one of the most elusive subjects, but through archaeology and, especially, experimental archaeology, there may be further conclusions to be had in the matter, some which may be helpful to explain matters of navigation in itself, such as how flammable materials seem to have been transported inside ships without there being many accounts of accidents. Historical sources only tell us a part of what happened, and that is something we attempted to keep in mind throughout our study: some of the most important parts are not what the sources tell us, but what they do not mention, whether due to it being obvious or for political, moral, philosophical or personal reasons that elude us. A crew's life on board, together with added data and estimation on its demography, would be a relevant future project.

Another valid approach is one of which we abstained in this chapter due to the nature of this thesis. Each commander we presented has his own path and evolution through naval command, from Pompeius' campaigns in Cilicia to Caesar's expeditions in Galia, Germania, Iberia and Britannia. Each of these would provide enough source material to create a study on its own, and from here there is the possibility of analysing each individual commander's course in the military and relate it to their practices at seas and rivers. As our chapter intended to analyse command in general, it was not possible to follow this approach; however, it would bring plenty of material for the following years and provide new perspectives in the lines that have been appearing amidst researchers, especially those that follow Ladewig's work.

When, in Chapter II, we turned our attention to ancient ships, there was available archaeological and iconographic evidence that we lacked for the matters of commanders.

This chapter had, therefore, an apparent advantage regarding Chapter I. However, this was only apparent. We have samples of ships, none of which is completed and all of which have deteriorated to some extent. Ship components are missing, and the materials that would decompose more easily, such as the sails, are absent. If it weren't for the representations in frescoes and mosaics, we would presume that ancient ships were colourless, massive wooden constructions that crossed the sea and all looked very much alike; however, there are indications that not only the ships but the sails and even the oars had colour and were often extensively decorated, through sculptures and painting of nautical and apotropaic motifs. Archaeology cannot, to this day, give us an example of what would have been the true form of an ancient ship. There are, however, several reconstructions, the most famous being the *Olympias*, but even the well-known trireme raises as many questions as it provides answers, as seen by the several trials, the issues with sound and coordination. The true image of a fleet dislocating through the sea may have been entirely different of those we are used to imagine, even if exclusively on the matter of colour, and we lack further information on standards, sounds and instruments.

There is a substantial number of transport ships, cargo vessels, fishing vessels, many of which we have presented in our study. But one must also acknowledge the fact that most of them are not Mediterranean. The conditions of preservation in rivers or swamp areas are different from the ones we find at sea, with the «*Teredo navalis*» corroding the remains of ancient shipwrecks, of which we often only have the cargo; the craft itself has entirely disappeared. They provide us enough information to understand sizes, cargo capacity and even velocity, but it would be essential, in the upcoming years, to take up further experimental projects to understand one matter which is difficult both through archaeology, iconography and historical sources: navigability. Through 3D models and more experiments at sea, one may find more answers to how a ship behaved during dislocation. A ship is meant to move, but that is precisely the most difficult element to understand, especially when we join elements such as night navigation and war engines. Both of these problematics are amongst those which we would like to see treated in detail in future works, but they require further methods that we presently lack.

Naval power and military history necessarily involve studying warships, and this field revealed itself even more problematic than transports. As much as transports were important to carry army troops during war, we do not have any exemplary of triremes, quadriremes or quinqueremes, *hemioliai* and *triemioliai*, liburnes and lembos. There is

the exceptional case of the Marsala shipwrecks, which are currently preserved and have been studied, but even these are questioned regarding their nature, and the portions which have been preserved are insufficient to allow us to classify them and understand much about their function, format and capacity. What the Mediterranean fails to provide may appear in the following years: shipwrecks are constantly being found, and there is always the chance that a new discovery will change the paradigm, even more so now that the Black Sea project is advancing and finding a number of ancient shipwrecks which may greatly overpass the ones we have in the Mediterranean. This would allow us to verify, amongst other things, the actual formats of the larger warships against the smaller, which, in turn, may provide input on why exactly the smaller ship-types seem to have been so successful in battle against the larger in the long run, and perhaps give some stronger confirmation as to the actual decline of large warships through the first century BCE.

The most singular case in our analysis of the Roman navy throughout this period is Caesar's expedition to Great Britain, not only in terms of command, but in terms of ships. We will verify a growing investment in shipbuilding throughout the century, particularly during the latest civil wars; Caesar was one of the pioneers. Whereas before Caesar there are many mentions of fleets being hired or taken from Roman allies, he orders the construction of ships several times during his campaigns; what is more, he orders them to be built *in loco*, creating enterprises far from the Italian Peninsula. His two campaigns to Great Britain seem to be significantly less successful than the sources would have us believe, but Caesar and his army show resilience and attempt to overcome obstacles through the introduction of new ship-types, borrowed from the Northern Atlantic peoples. These ship-types were not extremely influential in the Mediterranean, although there are mentions of similar constructions being ordered later in the century, but they are a display of flexibility, a concept to which we shall return further along these final reflexions. From the point of view of command, Caesar is not greatly distinguished from Sulla: he delegates. However, in what regards the naval capacity itself, Caesar is different from those commanders whose fight had been exclusively in the Mediterranean, perhaps forced by the circumstances, as he was one of the first to engage in contact with the Atlantic populations. His flexibility will be seen from his first moments in the Iberian Peninsula up to the second crossing into Great Britain, and is one of the factors that distinguish him in his relation to naval matters. Caesar's Mediterranean fights, however, are very much

the same as those of his counterparts: struggles for logistical control, supply lines and taking key-points.

Perhaps the chapter with most base material was that of harbours. Unlike ships and command, they leave undeniable physical evidence that, in many cases, has lasted through the centuries; in many others, however, it has not. The existence of many natural harbours has enabled the people who made their living from sea-bound activities to travel without the need for man-made structures, something which acts as a barrier for the researcher, as there is often scarce possibility of understanding the how, where and when of their usage. But as far as man-made harbours go, there are plenty, which allow us to observe the growing Roman investment in them both through archaeological and historical evidence, with renewed efforts in the middle of the first century BCE. This study has observed the birth of man-made harbours around the city of Rome, the development of Rome's investment and the new building programs, accompanied by the usage of long-lasting substances, as is the case of the *pozzolana*, a use that was far from universal but that was widespread enough to create surviving harbour structures not only in the Italian Peninsula but across the Mediterranean.

Harbours are the land counterpart of ancient navies, and the structures which allow for the sustainability of ships and fleets alike. They work in a connected network of storage, logistics and infrastructures that allow the maintenance of ships out of water for determinate periods, safeguarding them from decay and deterioration; they are the safeguard of the crews, through their connection with storage reserves; they are the points that connect sea-travelling, both where it begins and where it ends. In a future study, it would be interesting to observe the connection between harbours and the *horrea*, to see where the main cereal storages were set throughout the Mediterranean and to understand how this point connects to the Roman expansion and to ancient sailing routes. Equally important would be further investment in the smaller, intermediary points throughout the Mediterranean, smaller anchorages such as Malta and other islands and islets which may have served as middle ground during longer sea-journeys, a place for protection against meteorological conditions or for restocking the ship with drinkable water and food for the crews.

One detail of the study's analysis of harbours is that shipbuilding programs can be traced prior to the second half of the century, if historical sources can be believed. According to them, Julius Caesar, rather than Octavianus or Agrippa, would have been one of the first

to consider this expansion of naval infrastructures on land. If we take this as truthful, it shifts the paradigm, and the Roman expansion at sea, more than something that would have appeared as necessary, would have been planned and projected. Other possible plans and projects may elude us, as there may be no records that justify them, but they are a possibility, one that cannot be entirely set aside. When studying ships, we observed the growing distinction between public and private, the concentration of ship ownership, or at least of ship command, in a few selected figures. As we observe harbours, the matter of what is private and public appeared yet again. From figures who enter harbours as private citizens to Octavianus' entrance in Brundisium as the adoptive son of Julius Caesar, harbours seem a location where the distinction between these two sides of Roman politics and Roman life are fulfilled to a great extent. This is a subject that we would have liked to study further, one which would require dwelling upon Roman law and thought, two fields which are of difficult analysis and elusive, but which would allow us to better understand the role and function of a harbour in the *limes* between public and private, and how that extended to the navy itself.

The lack of information on Roman ship sheds and shipyards is one of the major issues to understand the structure of a harbour. There are infrastructures we can observe, which are still standing; we have walls, cutwaters and lighthouses, all marks of human presence and human interaction with the sea. Regarding the latter, as it is one of the most visible, one of the most important for communication, we regarded a significant portion of the chapter. There is plenty to be said regarding lighthouses, their position, their function and reason, however. But, more significantly, we observed their importance as architectural marks, or even as potential signs of romanisation. There is a lot to be debated on the nature of Roman harbours vs Romanised. As we verified, there are plenty of locations across the sea that were not originally Roman, nor built by Rome; they could never be, as Rome starts its life by the river. However, as Rome expands, it incorporates these places into its own influence, often contributing for building and renovation. To debate whether these harbours can be considered Roman is the same as questioning whether a person born in any part of the empire is a Roman, even with Roman citizenship. There is an incorporation of the source work of others into the Roman world. The degree of Romanisation of each individual harbour is another study which we suggest for the future, as an important element to further research on these matters: to observe the evolution of those harbours which are born long before Rome's career at sea, to verify the infrastructures which came

before Rome, if at all possible, and to see how the Roman presence has influenced the sites.

The last chapter of this study dedicates itself to the subjacent issue of the problematics. We observed Rome's growing investment in militarising itself towards the sea, we saw the importance of the navies during both external and internal wars, the difficulties and successes of the city's maritime connection and history. These are all but contributes towards a vaster problematic and a question that transcends the flow of this work, and the reason behind it being titled *Mare Nostrum*. Through analysing the navy, the harbours and the commanders, we attempted to reach further insight on some of the many directions in which one can observe Rome's relation to the sea. This is one of the reasons why the last chapter is the one with most questions. Was the Mediterranean truly a *Mare Nostrum*? Was Rome a Mediterranean power? Was Rome a Thalassocracy?

We finished the last chapter with that question left standing. At first, we analysed matters of language: where the idea of «Our Sea» began and how it developed through the ages amongst Greeks and Romans. The lack of material sources makes it difficult to understand how it worked for other Mediterranean powers, such as Carthage was; however, it is a subject that deserves further investment and development, and a study which focuses exclusively on the matters of *Mare Nostrum* and how each civilisation felt the concept within its mental universe would be important in the years to come, particularly if it was made from a perspective of Compared History and evolved into the problematics of the Middle Ages, Early Modern and Contemporary times. Even if exclusively focused on the Ancient civilisations, it would be a valuable effort towards further clarification of the relation between people and the sea.

As we followed through our linguistic analysis, evaluating the concepts of *oikoumene*, *hemetera thalassa* and *mare nostrum*, observing the idea of a Thalassocracy and developing views on the relation between the ancient people and the sea, we observed something which is significant: not only do the Greek sources seem to apply a significantly heavier conceptual importance to the idea of *Mare Nostrum*, but they also develop more on the importance of naval power. Authors of the Roman times acknowledge the connection, but it is more sporadic and still seems to be questioned. It is rare to find writings that attribute to Rome the same role at sea as the Greek city-states had beforehand; not as rare to find Roman commanders being praised in their maritime feats, perhaps something yet again related to the matter of the privatisation of authority.

The most noticeable conclusion that we may derive from this is that Rome does not extensively reflect upon its relation to the sea.

Does this mean, however, that this relation was inexistent, that it was not present in the minds of those who lived in this era? No. In our fourth chapter, we abstained from presenting our own replies to the questions posed, as we believe that the matter, in itself, still deserves considerably more research and data before many answers can be attained. However, as this is the space for final reflexions, we shall give our current position, considering what we have studied and interpreted, with the ever-present premise in investigation that it may quickly be changed by further discoveries, further studies, different methodological approaches and historiographic interpretation. Rome's relation with the sea is there, and it is clearly visible. That is the word that defines it above all else. Perhaps more than its predecessors, Rome makes its presence in the Mediterranean visible, clear to the eye even after two-thousand years. We can observe their harbours, but more than that, we can observe the motifs found in objects of daily life, coins and mosaics and, above all, what are believed to be «souvenirs». Aside from maritime motives (which often come in the shape of ships, lighthouses or sea-life), Roman art often shows not only the sea in itself, but in its relation to Rome, within the orbit of the *polis*, through the ships that sailed across it and the harbours that grew along its shoreline.

This ever-present theme, whether more or less extensive, is unmistakable, and Rome's relation with the sea has its own characteristics. When we observe the Roman navy and the Roman commanders, we cannot exclusively focus on the Mediterranean, and thus have to steer beyond from the problematics of *Mare Nostrum*. We observed the Roman fleets along the rivers, particularly along the large European river courses; we saw vessels that were not part of the traditional Mediterranean fleets and yet played an important role in Roman expansion. We saw Rome's interventions along the Atlantic, along the Iberian Peninsula, the north of France and the south of England, far from the Mediterranean, but with an indispensable role of the fleet. Rome goes beyond the *Mare Nostrum* as it expands away from the traditional centre of the world, and as it advances, we observe Roman commanders and crews intervening. These fleets are Roman, but not Mediterranean, and thus place Rome in a unique position against its counterparts, as it is present in the Mediterranean, the Atlantic and major river courses.

But the Atlantic is not a *Mare Nostrum*. Perhaps it may have been. As we have seen in Polybius, the *Oceanus* lacked a name in its own right, but it was not attained as it was not

explored – yet. This concretisation never came to be, as we do not have evidence of the Atlantic ever having been considered as part of the Roman *Mare Nostrum*. Rome was there, but it was the outer rim of its world, rather than a part of the centre. A vision of a central Mediterranean, which is inherited from its counterparts, is one which accompanies Rome throughout its History of expansion. As much as Rome does not reflect upon the implications, that is, as much as Rome does not theorise it, it is an ever-present reality. Rome's presence at sea is more practical than theoretical, more effective than idealised. Which leads us to our final questioning, the one with which we end chapter IV. Can Rome be a thalassocracy without claiming to be one? Can there be a Roman *Mare Nostrum* without Roman acknowledgement? As the natural ending point to our investigation, we left the question unanswered, to make it an open statement which will, hopefully, lead to plenty of analysis and reinterpretation in the following years. In our final reflexions, however, we will attempt to reply to it, as they are a reflexion upon the core part of our work.

Considering all that was interpreted and observed in the four chapters that make this dissertation, Rome can be considered as a thalassocracy. This may be a matter of language, of how to define an idea or a concept. Depending on how each researcher views it, the word Thalassocracy may have a better or worse use when applied to Rome. However, if a thalassocracy implies power over the sea, if it implies control and authority over the sea mass, there is no possibility of not considering Rome as such. Rome's maritime power went beyond those of Athens and Carthage. Its impact over the sea was not a localised influence of small scale, nor was it exclusively trade based. Through its growing empire on land, Rome encloses and encircles the sea, which becomes surrounded by Roman territories along all its shorelines. It is not possible to not consider Rome as a thalassocracy when observing the ultimate conclusion of its territorial expansion. The question to when exactly Rome becomes a thalassocracy is more difficult to answer, however. Was it during conquest, or only when Rome achieves to control the entire territories? One can affirm, with relative degree of certainty, that Rome was not a thalassocracy in the beginning of the first century BCE, and that it has become a thalassocracy in the very end. But it is difficult to find the turning point. There were several.

Rome was at sea long before this time period, and one could consider that the first signals for its future as a sea empire are set in 264 BCE, when the First Punic War begins.

However, to use occurrences of the past to justify a future outcome is a dangerous premise. There have been discussions on Rome's imperialism prior to the wars with the Carthaginians, as is seen, for instance, in the works of Arthur Eckstein and Andrew Erskine, and many questions have been raised on whether Rome intended to expand for defensive reasons, imperialist views or both¹¹²⁶, but whichever way researchers face the answer, that does not justify the ultimate outcome. In 264 BCE, whether Rome did have imperialist intentions on Sicily or not, whether it had long-term projects on Mediterranean domination, it would have been impossible to predict, with an absolute degree of certainty, what would have been the ultimate conclusion to its politics. Seeking justifications for a Roman thalassocracy in a retroactive manner can induce investigation in a fallacy. Rome moves into the 2nd century BCE through war, one which is both on land and sea; the city faces maritime rulers, it engages in further wars against Carthage and Macedonia, and it slowly develops a growing maritime presence. It dominates the Mediterranean islands, it defeats Carthage and imposes its presence, it maintains its alliances with sea-bound populations and maritime peoples. But it also reaches the 1st century BCE with virtually no significant development – and, more importantly, with no self-induced development – on naval resources.

Whether Rome had a navy before the Mithridatic wars or not is a matter of discussion, but what the sources show us is that it was still depending upon allies to face the king of Pontus. There is a distance between what the sources give us and the factual reality, as there always would be for all historical records and periods, and it is the historian's job to interpret them; however, it seems difficult to deny the Rhodian presence. Rhodes was there throughout the First Mithridatic War, the first significant site to be attacked. The Roman commanders sought ships in several locations. Sulla struggled with his naval resources. In circa 80 BCE, Rome still does not have enough naval development to create a strong basis of military power in the Mediterranean that would justify its lack of reliance on former allies. Whether this reliance on foreign navies ever disappears is also debatable, but it seems the last decades of the century show a growing moment of growth for Rome's maritime capacity. Is this an actual reflexion of Rome's investment, or the result of the incorporation of maritime locations? An analysis of the legal incorporation of several former allies into Rome's political centre would be necessary to further understand the

¹¹²⁶ See, for instance, Arthur Eckstein's article «Polybius, the treaty of Phyllinus and Roman accusations against Carthage» (2010, *Classical Quarterly* 60).

matter; as it is, and as we were basing our study on a military point of view, we cannot presently answer to this question.

We can, however, leave a series of observations. Whether Rome incorporates foreign navies or not, the 1st century BCE has undeniable growth in this regard and as we have affirmed above. At a certain point, we reach Rome's final extension as a maritime empire, but without knowing exactly the point in History where it has begun. There is, however, a signal of when Rome has assumed its role as thalassocracy, and that is the last civil wars of the Roman Republic. When Rome's fight in the Mediterranean is no longer against foreign enemies, when the city reaches a point in which it dominates the sea to an extent where the power struggle resides within several Roman factions rather than Rome against the others, in that stage, we can affirm that Rome has already become a thalassocracy. There are no longer external competitors. There are external allies, with Egypt having joined the faction of Marcus Antonius, which can lead us to question the extent to which foreign powers were invested in this last struggle, but the main competitors and commanders were from Rome. Since the fall of Mithridates, it is difficult to find candidates to effectively oppose Roman sea power (not including the particular case of Sextus Pompeius, for instance, who gave significant issues to Octavianus and Marcus Antonius), which is shown not only through the more obvious lack of large-scale wars at sea, but through something less evident.

Following the fall of Mithridates, Rome, or more precisely, Pompeius, becomes the responsible for safeguarding the sea. The *pax romana* extends to the Mediterranean. The lack of maritime competitors allows Rome to take up a role that had not been assumed in its full extension by the prior thalassocracies, across several locations along the sea. Through safeguarding safety at sea, Rome is indirectly showing its predominance: the Romans are now the safeguard of the *Mare Nostrum*, the warrants of peace, trade and navigation. They assume themselves as such, or at least assume Pompeius as such. The role of protecting the *Mare Nostrum* is claimed by Rome in a visible manner. As protector of the sea, Rome truly fulfils the idea of *oikoumene*, of *mare nostrum* and of Thalassocracy, without ever having claimed itself as such. In this we have a bicephalous Rome, a dichotomy between practical and theoretical, between a mental distancing which is only apparent and far from the practical impact in daily lives. Rome was the Ancient civilisation which more closely assumed the full meaning of a Thalassocracy, without ever having reflected upon its role as such.

This brings us to our final affirmation on what defines this work, and what defines Rome as a power at sea. There is a word which has been ever-present and that shows, above all others, the most evident Roman characteristic in our investigation of what we have called «military history and naval power in Rome»: flexibility. First and foremost, Rome always demonstrates a capacity for flexibility. Roman commanders are resilient, aware of traditional fighting methods, knowledgeable in strategy and logistics, but they are also, first and foremost, flexible. As Rome grows, it faces challenges that were unequalled by other ancient civilisations, and it is able to overcome them through its capacity to overcome its difficulties, frequently at the expense of the strength of others. Where Rome lacks naval power, it seeks allies. For the first few centuries, Rome builds its maritime role through the naval strength of others. When Rome faces its last large-scale naval war in the Mediterranean, it still relies on others to achieve its goals. Rome hires ships from others and uses the harbours that others have made. When travelling into the European continent, Rome transforms the landscapes through which the army travels. Roman architecture extends to riverbanks, if need be, at least as early as Gaius Marius and the *Fossae Mariana*e. When Julius Caesar struggles in the North of Europe, he overcomes the difficulty by building new ships, different from those known in the Mediterranean. Rome's role at sea is a constant effort to overcome and to adjust. Ultimately, the most important seems to be the outcome, rather than reflexion. And Rome excels in flexibility, whether it is in the Mediterranean, the Atlantic or the rivers.

In conclusion, Rome, achieving the last form of a long-standing tradition of maritime power as the sustain of supremacy, is the final and longest Mediterranean Thalassocracy, the true concretisation of *Mare Nostrum* and the absolute outcome of the traditional visions of the geographical *oikoumene*. But limiting the Roman naval power to the Mediterranean would be to ignore a vast part of its history that, however dislocated from the concretisation of the *Mare Nostrum*, is essential to understand the unique characteristics of its navy, commanders and support infrastructures. One cannot understand the construction of the *Mare Nostrum* without looking outside of its centre, whether observing Atlantic campaigns or external alliances within the Mediterranean itself. One cannot understand Rome's role in the Mediterranean without looking at the foreign parties in this construction. In sum, Rome builds a *Mare Nostrum* from the *Mare Alterum*, in a shift which departs from its traditional organisation of power and reflects upon that of the Mediterranean. And the fact that it constructs all of that without effective

theoretical consideration – at least, that has reached our days – focusing on the practical aspects, leads us to conclude that Rome's concretisation of a Thalassocracy is not theoretical but physical, an outcome more than a mental consideration, which became ever-present in the minds of all to such an extent that, without it ever having given much consideration to it, it reaches the 21st century in the common assertion of the collective memory as the true builder and achiever of what it means to have an united Mediterranean empire, the very conclusion of a long process of thalassocratic empires that kept collapsing, until Rome could unite them all and create, in all its effectiveness, in all its differences and similarities, in its resilient tradition but also in its flexibility, the Roman *Mare Nostrum*.

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