

Simulation of Naumachia and its reflection in Roman Art

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Abstract

This research study aims to shed light on a form of water-related combat display called naumachia. Water is vital to this type of display; in addition to the necessity of ships' presence, it is one of the essential elements of the performance. This type was held in artificial lakes created specifically for such displays, and natural bodies of water were also used in rare cases. Public structures also hosted this type of display. It is mentioned in some literary works but has attracted little research interest. The phenomenon raises several questions, including whether there is archaeological evidence of this type of battle occurring within or outside public buildings. Can we confirm that it happened, or were they merely mock battles with no basis in reality? Was it an innovation that originated in Rome alone, or did it spread throughout the Roman world? Are these naval displays called naumachiae rooted in history or based on imagination? Did the Roman era have a significant number of naval battles, or were they merely naval conflicts with no historical resonance? The research follows a descriptive and analytical methodology.

Keywords: displays, naval, battles, water, basins, ships, conflicts

Introduction

Some literary works mention a type of combat water spectacle, which may have begun as a form of training and preparation for war. Over time, it grew into a form of water display staged in basins designed particularly for this purpose, commemorating military victories and erecting structures, whether sacred, such as temples, or secular, such as amphitheaters. Its mention was somewhat shrouded in mystery, as it appeared in some writings of contemporary and later historians and was not directly reflected in art. As a result, it was ignored due to the problem related to it. The study raises several questions, the most important of which is whether the battles of naumachiae ever took place. Many people believe it is unreal, but why do literary sources mention it?

The Latin term naumachia / naumachiae is derived from the Greek νεών ἀμιλλα, which was supplanted by the Hellenistic term Ναυμαχία, meaning naval

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conflict.¹ Another theory is that it is derived from the Greek words *naus* ("ship") and *machesthai* ("fighting").² It also came to refer to the massive artificial lakes built for them.³ The name *stagnum* was used to refer to a fighting basin, specifically the basin of Augustus. In some sources, the same name is used to refer to this type of fight instead of *naumachia*.⁴ This type of spectacle was held in public buildings, particularly the amphitheater and theatre.⁵

Water displays were a staple of Roman entertainment, particularly during the Imperial period. Water-related performances in the Roman era included aquatic *venationes* (animal fights), *hydromimes* (dance displays in swimming basins), and *naumachiae* (mock sea wars), as some termed them. These displays differed from the usual spectacles staged in Roman arenas. As a result, new structures, such as artificial lakes, had to be constructed, or existing public buildings had to be modified to accommodate vast amounts of water. For example, in the later part of the Empire, walls were built around the orchestra and waterproofed, forming lakes known as *kolymbethra*.⁶ (The term will be discussed in the section on *naumachiae* sites—theatres).

The concept of *naumachia* involves the reenactment of naval battles or a simulation of ancient historical events. It used to be held due to recent events, such as temple dedications, public building openings, and military victory commemorations. *Naumachiae*—naval battles—were performed within natural surroundings but were later staged in temporary and permanent structures primarily intended for other purposes, such as amphitheaters and theaters. Therefore, many public buildings were modified to accommodate these types of performances. *Naumachiae* was later incorporated into the *ludi* (entertainment games), becoming one of a variety of performances held in the same place.⁷

¹ Liddell, Scott, 1843, 992

² Steltenpohlová 2018, 7

³ The term, 'Naumachia,' was applied both to the representation of a sea-fight, and to the place where it was given. *Ov., Ars.*, I. 171

⁴ Hazel Dodge used *stagnum* to refer to *naumachia*. Dodge, 2011, 63; According to Coleman the term *naumachia* can designate the site for a naval spectacle as well as the spectacle itself: "I shall attempt to avoid confusion by using the term *stagnum* for the site and reserving *naumachia* for the spectacle". Coleman, 1993, 50

⁵ For more about the terminology of *Naumachia*, see: Smith 1891, 224

⁶ Rogers, 2018, 70

⁷ For more about two major categories: *ludi circenses* and *ludi scaenici* see: Steltenpohlová 2018, 1-4; about being *Naumachiae* part of the games (*ludi*) see: 9, 13-14

Echoes of Naumachiae in Literary Sources

Naval combat was undoubtedly the most spectacular and exciting of all entertainments. The Romans gave this name to any imitation of a naval battle involving gladiators. However, it is unclear when the concept of simulating a naval battle as an entertainment spectacle first arose.⁸

The naval battles, or naumachiae, are discussed in literary works by Tacitus (56-120 AD), Suetonius (69-122 AD),⁹ and Dio Cassius (165-235 AD). The first recorded display of naval battles was that of Gaius Julius Caesar (100-44 BC)¹⁰ during the triumphal games of 46 BC, in honor of Caesar's quadruple triumph in the wars of Gaul, Egypt, Pontus, and Numidia. At his request, a basin, or artificial lake, was dug in the Campus Martius to accommodate this display.¹¹ According to Suetonius, the naval battle between Tyre and Egypt,¹² which has not been historically confirmed, was shown in an area known as 'the lesser Codeta' (Codeta Minor).¹³ The battle includes biremes, triremes, and quadriremes, equipped with rams,¹⁴ manned by 6,000 prisoners of war, 2,000 gladiators, and 4,000 oarsmen. These prisoners and the ships were brought to the basin to simulate a sea fight via a channel connected to the Tiber River. The battleground was a simple basin dug into the lowland of the Tiber, from which it was fed. The structure was unique, being a

⁸ It may have begun during the Republican era (509-27 BC), when Scipio Africanus (236-183 BC) created it for military exhibition and training (Dodge, 2011, 63). According to Dio Cassius, Sextus Pompeius (67-35 BC) held spectacles to celebrate his victory, staging a naval battle in the straits off Rhegium in southern Italy with prisoners of war; he also pitted wooden boats on one side against leather boats on the other, mocking the Roman general Rufus' scheme. γενομένου δὲ τούτου τὴν τε νῆσον πᾶσαν ὁ Σέξτος κατέσχε, καὶ τὸν Βιθυνικὸν ὡς καὶ ἐπιβουλεύσαντα αὐτῷ ἀπέκτεινε, θέας τε ἐπινικίους ἤγαγε, καὶ ναυμαχίαν τῶν αἰχμαλώτων ἐν τῷ πορθμῷ παρ' αὐτὸ τὸ Ῥήγιον, ὥστε καὶ τοὺς ἐναντίους ὁρᾶν, ἐποίησε, πλοιάριά τινα ξύλινα πρὸς ἕτερα βύρσινα ἐς τὸν τοῦ Ῥούφου κατάγελων. Dio 48.19.1 For more see: Coleman, 1993, 56; Dodge 1999, 235; Garelli 2004, 115; Dodge, 2011, 63

⁹ Suetonius is a reliable source because he had full access to the imperial archives as an aide to Emperor Hadrian. Garelli 2004, 118

¹⁰ ἐπεγένετο μὲν οὖν καὶ λοιμὸς ἐπ' αὐτοῖς πάσῃ ὡς εἶπεῖν τῇ Ἰταλίᾳ ἰσχυρός, καὶ διὰ τοῦτο τὸ ὅ τε βουλευτήριον τὸ Ὀσπίλιον ἀνοικοδομηθῆναι καὶ τὸ χωρίον ἐν ᾧ ἡ ναυμαχία ἐγεγόνει συγχωσθῆναι ἐψηφίσθη; Dio 45.17.8

¹¹ Garelli 2004, 115; Dodge, 2011, 63

¹² nauali proelio in minore Codeta defosso lacu biremes ac triremes quadriremesque Tyriae et Aegyptiae classis magno pugnatorum numero conflixerunt. Suet. Jul. 39.4

¹³ the Codeta Major was in the Campus, the Codeta Minor in the Transtiberine region: both derived their name from the abundance of mare's tail (equisetum) which grew there. See Smith 1891, 224

¹⁴ it is possible that the ram was a Phoenician invention. For more see: Smith, 2012, 79

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pond of water with no outlet. This indicates that the site was not intended to last, as stagnant water is prone to spoilage, posing a health risk. The fact that the pond was filled in several years after Caesar's death to prevent the spread of the plague gives us no idea of its size.¹⁵

Wooden platforms were set up for spectators. Suetonius described the spectator's excitement associated with this event: "Many people flocked from all directions. The crowd was so enormous that those who arrived had to spend the night in tents on the streets and alleys. Many people were crushed and fainted, and two senators were trampled to death".¹⁶

These performances took place during the Julio-Claudian (27 BC–68 AD) and Flavian (69–96 AD) dynasties, imitating the previous battle held by Caesar. Dio Cassius describes Augustus's (27 BC–14 AD) naval battle in 2 BC between the Athenians and the Persians in a massive artificial lake on the right bank of the Tiber River, commemorating the inauguration of the Temple of Mars Ultor ("Mars the Avenger").¹⁷ Unlike Caesar's battle, the performance was part of the games held to commemorate Mars Ultor's dedication rather than a military victory. Others claim that the dedication of the basin was directly related to Augustus' remembrance of his triumph at Actium, as well as the construction of the Temple of Mars Ultor.¹⁸

In his *Res Gestae*, a general summary of his exploits, he mentions that he fought with approximately 30 biremes and triremes armed with rams, along with numerous smaller vessels, and that around 3,000 men participated in addition to the oarsmen. The ships were transported into the basin via a channel connected to the Tiber River. He describes the basin as 1,800 by 1,200 Roman feet (about 536 x 357 meters), 400 yards long and 600 yards broad (on the right bank of the Tiber in Rome's Trastevere district),¹⁹ and holding 270,000 cubic meters of water.²⁰ He also

¹⁵ Coleman, 1993, 50; Garello 2004, 116

¹⁶ *ad quae omnia spectacula tantum undique confluit hominum, ut plerique aduenae aut inter uicos aut inter uias tabernaculis positae manerent, ac saepe prae turba elisi exanimatique sint plurimi et in his duo senatores.* Suet. Jul. 39.4

¹⁷ ὁπλομαχία τε ἐν τοῖς σέπτοις καὶ ναυμαχία ἐν τῷ χωρίῳ ἐν ᾧ καὶ νῦν ἔτι σημεία τινα αὐτῆς δείκνυται Περσῶν καὶ Ἀθηναίων ἐποιήθη· ταῦτα γὰρ τὰ ὀνόματα τοῖς ναυμαχοῦσιν'. Dio, 55.10.7

¹⁸ Coleman, 1993, 48-74

¹⁹ "Trastevere" comes from Latin, meaning "beyond the Tiber". It is situated on the right bank of the Tiber River

²⁰ *Navalis proeli spectaclum populo dedi trans Tiberim in quo loco nunc nemus est Caesarum, cavato solo in longitudinem mille et octingentos pedes, in latitudinem mille et ducenti, in quo triginta*

used the aqueduct (Aqua Alsietina) for the city's water supply, drawing water from Lake Martignano.²¹

Claudius (41-54 AD) conducted a battle on Lake Fucino, east of Rome,²² in 52 AD to celebrate the completion of the site's drainage and tunneling works, where the aqueduct draining Lake Fucino into the Liris River was completed.²³ However, this study suggests that Tacitus was referring to the preparations for the naval battle, not the reason for it. Therefore, the mountain between the lake and the river was dug out.²⁴ It is the only naval combat that occurred in a natural environment, as well as the only body of water where naval battle simulation was conducted in antiquity. Some have suggested that the reason for its establishment was simply to celebrate the emperor's victory in Britain, as no one had attempted to invade it since Caesar, based on Suetonius' account.²⁵ Gladiatorial contests were held before and after the naval battle. The gladiatorial fights took place on wooden planks on the lake, which was also used to host a banquet for the nobility.²⁶

The spectators sat around the lake, according to Tacitus: "The shores, the hills, and the mountain peaks formed a sort of stage, and it was soon filled with an innumerable crowd of people, attracted from the neighboring towns, and partly from the capital, out of curiosity or respect for the king."²⁷ 19,000 men, not all of them

rostratae naves triremes aut biremes, plures autem minores inter se conflixerunt; quibus in classibus pugnaverunt praeter remiges millia hominum tria circiter., Aug. Anc. 23

²¹ For more see: Coleman, 1993, 51, 53, 67; Junkelmann, 2000, 74; Garello 2004, 116; Dodge, 2011, 63-64; Goncharova, 2019, 107

²² The Fucine Lake was a large lake between 650 and 680 m (2,130 and 2,230 ft) above sea level and surrounded by the Monte Sirente-Monte Velino Mountain ranges to the north-northeast, Mount Salviano to the west, Vallelonga to the south, and the Valle del Giovenco to the east-southeast. Located in western Abruzzo in central Italy, the town of Avezzano lies to the northwest, Ortucchio to the southeast, and Trasacco to the southwest of the historic lake. Once the third largest lake in Italy after Lake Garda and Lake Maggiore, it was finally drained in 1878

²³ Dodge, 2011, 66

²⁴ Sub idem tempus inter lacum Fucinum amnemque Lirim perrupto monte, quo magnificentia operis a pluribus viseretur, lacu in ipso navale proelium adornatur, ut quondam Augustus structo trans Tiberim stagno, sed levibus navigiis et minore copia ediderat. Tac. Ann. 12.56

²⁵ Expeditionem unam omnino suscepit eamque modicam. cum decretis sibi a senatu ornamentis triumphalibus leuiorem maiestati principali titulum arbitaretur uelletque iusti triumphus decus, unde adquireret Britanniam potissimum elegit, neque temptatam ulli post Diuum Iulium. Suet. Cl. 17

²⁶ Steltenpohlová 2018, 13; Goncharova, 2019, 108

²⁷ ripas et collis montiumque edita in modum theatri multitudo innumera complevit, proximis e municipiis et alii urbe ex ipsa, visendi cupidine aut officio in principem. ipse insigni paludamento

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criminals, participated, along with triremes and quadriremes.²⁸ Dio Cassius reports the number of ships as 50,²⁹ whereas Suetonius, writing many years after the event, lists the number of triremes as 12.³⁰ He also notes that the battle was fought between the Sicilians and the Rhodians, who saluted the emperor with the phrase "morituri te salutant" ("those who are about to die salute you").³¹

This type of spectacle gained popularity in the second half of the first century AD because it was held inside amphitheaters rather than large basins as previously. Water battle spectacles were held in artificial lakes or basins until the middle of the first century AD. Things began to change under Nero's reign (54-68 AD); he staged two naval battles, signaling a new development. A naval battle was held in 57 AD in a wooden amphitheater on the Campus Martius, the first oval-shaped structure to be called an amphitheater. It was inaugurated by the final member of the Julio-Claudian dynasty. Although permanent structures for entertainment were already in use, temporary ones remained common.³² The other, in 64 AD, was held in a large basin

neque procul Agrippina chlamyde aurata praesedere. pugnatum quamquam inter sontis fortium virorum animo, ac post multum vulnere occidioni exempti sunt. Tac. Ann. 12.56. for more See: Dodge, 2011, 66-67; Steltenpohl 2018, 13

²⁸ Claudius triremis quadriremisque et undeviginti hominum milia armavit, cincto ratibus ambitu, ne vaga effugia forent, ac tamen spatium amplexus ad vim remigii, gubernantium artes, impetus navium et proelio solita. Tac. Ann. 12.56

²⁹ « Ἐν τινὶ δὲ λίμνῃ ναυμαχίαν ὁ Κλαύδιος ἐπεθύμησε ποιῆσαι, τεῖχος τε ξύλινον περὶ αὐτὴν κατασκεύασε καὶ ἱκρία ἔπηξε, πλῆθος τε ἀναρίθμητον ἦθροισε. καὶ οἱ μὲν ἄλλοι ὥς που καὶ ἔδοξεν αὐτοῖς, ὁ δὲ δὴ Κλαύδιος ὃς τὴν Νέρων στρατιωτικῶς ἐστάλησαν, ἢ τὴν Ἀγριππίναν χλαμύδι διαχρυσῶς ἐκοσμήθη. οἱ δὲ δὴ ναυμαχήσοντες θανάτῳ καταδικασμένοι ἦσαν καὶ πεντήκοντα ναῦς ἐκάτεροι εἶχον, οἱ μὲν » Dio 61.33.3

³⁰ According to Dio Cassius there were fifty ships on each side the discrepancy between his figure and Suetonius' can be resolved if Suetonius was counting only triremes whereas Dio Cassius included vessels of all types.

³¹ quin et emissurus Fucinum lacum naumachiam ante commisit. sed cum proclamantibus naumachiariis: 'haue imperator, morituri te salutant!' respondisset: 'aut non,' neque post hanc vocem quasi uenia data quisquam dimicare uellet, diu cunctatus an omnes igni ferroque absumeret, tandem e sede sua prosiluit ac per ambitum lacus non sine foeda uacillatione discurrens partim minando partim adhortando ad pugnam compulit. hoc spectaculo classis Sicula et Rhodia concurrerunt, duodenarum triremium singulae, exciente bucina Tritone argenteo, qui e medio lacu per machinam emerserat. Suet. Cl. 21.66

³² One of the reasons why temporary structures were called off was the recurring fires, which would often easily spread through the city from temporary buildings usually made of wood. One such case was Rome's great fire during the reign of Nero. For more See: Coleman, 1993, 56; Dodge, 2011, 66

in the Stagna Neronis, Nero's Golden House, which later became the Flavian Amphitheater, or the Colosseum.³³

According to Suetonius, Nero arranged a naval battle in which sea monsters swam,³⁴ the same event as that reported by Dio Cassius, when a theater was flooded with seawater, where fish, whales, and other marine creatures swam. Like Augustus, he organized a battle between the Persians and the Athenians, then drained the arena and conducted land battles between infantry³⁵ (see Figure 1). The other simulated battle was preceded by a hunt, followed by gladiator combat and a great banquet.³⁶

Titus (79-81 AD) held two water displays to commemorate the Colosseum's opening:³⁷ the first in the new amphitheater, as described by Suetonius, and the second in Augustus' *vetus naumachia*.³⁸ Emperor Vespasian (69-79 AD) began construction on the massive Flavian Amphitheatre, also known as the Colosseum, in 70 AD. The Colosseum was inaugurated in 80 AD, and a performance was staged within the arena -a reenactment of the Corinthian and Corcyrean naval forces.³⁹ According to Dio Cassius, Titus filled the theatre with water, brought horses, bulls,

³³ Smith 1891, 224

³⁴ hos ludos spectavit e proscaeni fastigio. munere, quod in amphitheatro ligneo regione Martii campi intra anni spatium fabricato dedit, neminem occidit, ne noxiorum quidem. exhibuit autem ad ferrum etiam quadringentos senatores sescentosque equites Romanos et quosdam fortunae atque existimationis integrae, ex isdem ordinibus confectores quoque ferarum et uariae harenae ministeria. exhibuit et naumachiam marina aqua innantibus beluis. Suet. Nero 12.1

³⁵ ἐν δὲ τινὶ θεάτρῳ θεὰς ἐπιτελῶν, εἴτα πληρώσας ἐξαίφνης τὸ θέατρον ὕδατος θαλασσίῳ ὥστε καὶ ἰχθύας καὶ κήτη 1 ἐν αὐτῷ νήεσθαι, ναυμαχίαν τε ἐποίησε Περσῶν δὴ τινῶν καὶ Ἀθηναίων, καὶ μετ' αὐτὴν τό τε ὕδωρ εὐθύς ἐξήγαγε, καὶ ξηράνας τὸ δάπεδον πεζοὺς πάλιν οὐχ ὅπως ἓνα πρὸς ἓνα ἀλλὰ καὶ πολλοὺς ἅμα πρὸς ἴσους; Dio 61b.9.5

³⁶ τοσαύτη δ' ἦν ἡ τοῦ Νέρωνος ἀκολασία ὥστε καὶ ἄρματα δημοσίᾳ ἤλαυνε. καὶ ποτε θηρία ἀποκτείνας ὕδωρ τε εὐθύς ἐς τὸ θέατρον ἐπωχέτευσε καὶ ναυμαχίαν ἐπετέλεσε, καὶ μετὰ τοῦτο τὸ ὕδωρ ἀφείλκε μονομαχίαν ἐπιδιέθηκε, καὶ τέλος ἐσαγαγὼν αὐτὸ αὐθις δεῖπνον δημοσίᾳ πολυτελές Dio. 62b. 15. 1

³⁷ For Titus naval battles See: Coleman, 1993, 67; Dodge, 2011, 65

³⁸ et tamen nemine ante se munificentia minor, amphitheatro dedicato thermisque iuxta celebriter exstructis munus edidit apparatissimum largissimumque; dedit et nauale proelium in ueteri naumachia, ibidem et gladiatores atque uno die quinque milia omne genus ferarum. Suet. Tit. 7.3

³⁹ Korkyra (also Corcyra Ancient Greek: Κόρκυρα) was an ancient Greek city on the island of Corfu in the Ionian Sea that is adjacent to Epirus. It was a colony of Corinth that was founded in the Archaic period. Korkyra was acting as a port of call on the sailing routes, especially to reach the Italian coast or to venture farther north. According to Thucydides, the earliest recorded naval battle took place between Korkyra and Corinth, roughly 260 years before his time, and thus in the mid-7th century BC. He also writes that Korkyra was one of the three great naval powers in 5th-century BC Greece, along with Athens and Corinth. Thuc. 1.29.1

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and other domestic animals trained to perform water displays, and transported people by ship. In 80 AD, he also utilized the Augustan Stagnum, known as the Vetus Naumachia. On the first day, once the lake was covered with a platform of planks and wooden stands were placed around it, he staged a gladiatorial exhibition and slaughtered wild creatures. On the second day, a horse race was held, and on the third day, the Syracusans and Athenians fought in a naval war. This combat involved 3,000 marines and was followed by an infantry engagement.⁴⁰

The rapidity and suddenness of the various water and land displays that occurred at the simulated battles of Nero and Titus defy logic. If we assume that remnants of previous naval battles, such as shipwrecks and corpses, remained in the basin, it would have taken longer than simply draining the water from the buildings to prepare the arena for the next spectacle. These structures were not only for naval combat displays; they were filled and emptied for the quick transition between water and land displays, as literary accounts indicate. Perhaps this was political propaganda promoting the emperors' powers, which surpassed those of the gods. Or Dio Cassius made an exaggerated impression. As he was recorded later, not at the time of the occurrence, and it was a type of propaganda with some exaggeration, an error is likely to have occurred. Perhaps, as some have proposed, temporary wooden planks were placed over the water-filled basins for land displays and then removed later.⁴¹

Domitianus (AD 81–96) staged two battles, one inside the Colosseum, around AD 85 (see Figure 1). Due to the small size of the Colosseum, Domitianus had his basin dug behind the Tiber River and surrounded by seating after the Augustan stagnum was abandoned.⁴² The other battle was held in November 89 AD.

⁴⁰ ἄνδρες τε πολλοὶ μὲν ἐμονομάχησαν, πολλοὶ δὲ καὶ ἄθροοι ἔν τε πεζομαχίαις καὶ ἐν ναυμαχίαις ἠγωνίσαντο. τὸ γὰρ θέατρον αὐτὸ ἐκεῖνο ὕδατος ἐξαίφνης πληρώσας ἐσήγαγε μὲν καὶ ἵππους καὶ ταύρους καὶ ἄλλα τινὰ χειροήθη, δεδιδαγμένα πάνθ' ὅσα ἐπὶ τῆς γῆς πράττειν καὶ ἐν τῷ ὕγρῳ,¹ ἐσήγαγε δὲ καὶ ἀνθρώπους ἐπὶ πλοίων. καὶ οὗτοι μὲν ἐκεῖ, ὡς οἱ μὲν Κερκυραῖοι οἱ δὲ Κορίνθιοι ὄντες, ἐναυμάχησαν, ἄλλοι δὲ ἔξω ἐν τῷ ἄλσει τῷ τοῦ Γαίου τοῦ τε Λουκίου, ὃ ποτε ὁ Αὔγουστος ἐπ' αὐτὸ τοῦτ' ὠρύξατο. ἑπέριξ λαβούσης, τῇ δὲ δευτέρᾳ ἵπποδρομία καὶ τῇ τρίτῃ ναυμαχίᾳ τρισχιλίων ἀνδρῶν καὶ μετὰ τοῦτο καὶ πεζομαχία ἐγένετο· νικήσαντες γὰρ οἱ Ἀθηναῖοι τοὺς Συρακουσίους 'τούτοις γὰρ τοῖς ὀνόμασι χρησάμενοι ἐναυμάχησαν' ἐπεξήλθον ἐς τὸ νησίδιον...² Dio. 66.25.2-4

⁴¹ For more See: Coleman, 1993, 57; Garelli 2004, 119, Steltenpohlová 2018, 40, 52-53

⁴² Spectacula assidue magnifica et sumptuosa edidit non in amphitheatro modo, uerum et in circo, ubi praeter sollemnes bigarum quadrigarumque cursus proelium etiam duplex, equestre ac pedestre,

To celebrate the emperor's military victory over the Dacians, the new basin was plundered for materials to rebuild the Circus Maximus, which was destroyed by fire.⁴³ Almost all combatants and many spectators were reported to have died as a terrible winter storm erupted, and Domitianus refused to let anyone leave, resulting in several deaths.⁴⁴

Emperor Trajanus (98-117 AD) built a new channel in the northwest expressly for water combat displays.⁴⁵ The basin was built in the area northwest of Castel Sant'Angelos, near the 8th-century church. The basin was smaller than Augustus's stagnum, with a capacity of at least 44,400 cubic meters. It is currently known as the Naumachia Vaticana, but no specific displays are documented.⁴⁶

Elements of Naval Battle -Naumachia Simulation:

- Human element

Participants in the performances and the audience

The naumachia display was bloody, with thousands of victims in a single bout. The conflict did not necessarily end with the death of the losers. It was a "mass combat," not an engagement between individual fighters, but rather a simulation of two military legions. The combatants were called *naumachiarii*.⁴⁷

The combatants were often non-volunteers who were condemned to death. The participants were untrained and unwilling. They were not professional athletes, but rather criminals and prisoners of war who had been sentenced to death or *damnati* and were awaiting execution. Some were slaves, for whom such spectacles provided a good profit, and they might also gain their freedom upon victory. However, free men sometimes participated as well. Some men were pardoned for

commisit; at in amphitheatro nauale quoque. ... edidit naualis pugnas paene iustarum classium, effosso et circumstructo iuxta Tiberim lacu; atque inter maximos imbres perspectavit. Suet. Dom. 4.1-2

⁴³ Coleman, 1993, 55

⁴⁴ “ἐποίησε. τοῦτο μὲν γὰρ ἐν τῷ ἵπποδρόμῳ μάχας καὶ πεζῶν πρὸς ἀλλήλους καὶ ἵππέων αὖ συνέβαλε, τοῦτο δὲ καὶ ἐν καινῷ τινι χωρίῳ ναυμαχίαν ἐπετέλεσε. καὶ ἀπέθανον ἐν αὐτῇ πάντες μὲν ὀλίγου δεῖν οἱ ναυμαχήσαντες, συχνοὶ δὲ καὶ ἐκ τῶν θεωμένων· ὕετο γὰρ πολλοῦ καὶ χειμῶνος σφοδροῦ ἐξαίφνης γενομένου οὐδενὶ ἐπέτρεψεν ἐκ τῆς θέας ἀπαλλαγῆναι, ἀλλ’ αὐτὸς μανδύας ἀλλασσόμενος ἐκείνους οὐδὲν εἶασε μεταβαλεῖν, καὶ ἐκ τούτου ἐνόησαν οὐκ ὀλίγοι καὶ ἐτελεύτησαν.” Dio 67.8.2-3

⁴⁵ for distributing the city's water supply between the end of the Republic and Trajan's reign. see: Taylor, 2000, 201-248

⁴⁶ Dodge, 2011, 66 For more about naumachia see: Goncharova, 2017, 5-6

⁴⁷ Smith 1891, 225

fighting too vigorously. These battles, designed to ensure the survival of the strongest, undoubtedly provided an incentive for violent combat. There were rules of justice and punishments ranging from reprieve to complete clemency as incentives. A few were sentenced to a violent death without any opportunity to resist, and the condemned had the chance to save themselves by demonstrating a compensatory skill or physical courage. Such opportunities certainly did not guarantee a better outcome for the participants, but one thing was certain: cowardice was an invitation to a swift and shameful end.⁴⁸

The presence of guards was essential due to the large numbers of spectators arriving in the city for the spectacles; therefore, they had to be regulated by patrols. Soldiers serve as orderlies during naval battles. In Tacitus's account of Claudius's Naumachia, he says, "He lined the perimeter of the lake with rafts so that there was no means of escape."⁴⁹

A large number of soldiers or overseers with high combat skills were necessary to regulate the convicts' behavior to avoid any rebellions while also preventing them from attacking the audience. The extent of their intervention in the parade varied depending on the actual occasion.⁵⁰

The emperor and his wife witnessed the performances, and the nearby hills provided natural seating for the large crowds. Seating arrangements in entertainment venues were organized based on social rank. The lowest rank (slaves and commoners) sat farthest from the arena, while those of great standing (knights, senators, and the emperor) sat closer.⁵¹

Participating forces

Six forces were identified as having participated in six naval battles, each fleet representing a naval power in ancient Greece or the Hellenistic East: the Egyptians and Tyrians represented Caesar's forces; the Persians and Athenians

⁴⁸ For more about participants of Naumachiae performance see: Dodge 1999, 207; Junkelmann, 2000, 66; Steltenpohlová 2018, 17-20

⁴⁹ in ratibus praetoriarum cohortium manipuli turmaeque adstiterant, antepositis propugnaculis ex quis catapultae ballistaeque tenderentur. reliqua lacus classarii tectis navibus obtinebant. Tac. Ann. 12.56

⁵⁰ Steltenpohlová 2018, 20-21

⁵¹ Steltenpohlová 2018, 25

represented Augustus and Nero's forces; and the Sicilians and Rhodes represented Claudius's forces. Titus's forces were represented by the following four divisions: the Syracusans and Athenians in the Augustan Basin, and the Corinthian and Corcyrean navies at the Colosseum. (See Figure 2) Displaying famous military naval battles from history was also a matter of propaganda. Historical subjects served as a means of proclaiming their "intellectual property and the culture of the conquered lands."⁵²

Caesar's early naval battle simulations were particularly a celebration of military victory, honoring his quadruple triumph in the wars of Gaul, Egypt, Pontus, and Numidia. The first simulations were based on a fictional theme. Completely devoid of historical reality, the Egyptian and Tyrian forces could only emphasize Caesar's unchallenged power over all the fleets of the Roman world. The battle was also intended to evoke the dictator's overall naval successes.⁵³

However, from the perspective of this study, the battle may recall the Siege of Tyre in January-July 332 BC during the Wars of Alexander the Great (334-323 BC). The siege occurred after Alexander's defeat of the Persians at the Battles of Granicus (334 BC) and Issus (333 BC). Only Tyre was beyond Alexander's reach because there was an island in front of Tyre where sailors were supplying the city with provisions. The siege lasted for seven months, after which he headed south along the Mediterranean coast to Egypt. He found the island of Pharos and linked it to Alexandria. Fearful of repeating his previous mistake, he connected the city to the island. He was the principal source of motivation for the Roman emperors, those who were inspired by his campaign in the East and emphasized it in the naval demonstrations. The Romans revived the decisive wars in history.⁵⁴

During the Augustan era, spectacles were not presented in conjunction with military victory, but rather as part of the games held to commemorate the dedication of the temple of Mars Ultor. However, others associate the event with the commemoration of his victory at Actium. Athenian and Persian forces represented the two sides in the battle. The Augustan spectacle reenacted the naval Battle of Salamis, which took place in the Saronic Gulf of Greece in 480 BC between an alliance of Greek city-states and the Achaemenid Empire, ending in a decisive Greek victory, as the Greeks defeated the massive Persian fleet. Nero staged a reenactment

⁵² Berkowitz, 2017 ,42

⁵³ Berlan-Bajard 2006, 330

⁵⁴ For more about Siege of Tyre see: Freewalt, 2014, freewalt.com/freewaltfamily/jason_erika/documents/BattleReport--Tyre332BC-JasonFreewalt.pdf

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of the Battle of Salamis between the same two sides inside the wooden amphitheater.⁵⁵

Emperor Claudius held a naumachia to celebrate his military victory in Britain and to complete drainage works. Claudius planned a battle between the Sicilians and the Rhodians.⁵⁶ This may reflect one of the naval conflicts that occurred during the Sicilian Wars, or Greco-Punic Wars, a series of wars waged between Carthage and the Greek city-states led by Syracuse for control of Sicily and the western Mediterranean between 580 and 265 BC.⁵⁷

Titus staged the naval battle inside the Colosseum between the Corinthian and Corcyrean forces, a clear reference by Kathleen Coleman to the fight that sparked the Peloponnesian War in 434 BC.⁵⁸ However, the study suggests that it was a simulation of the Battle of Sybota (Σύβοτα) between the Corcyra and Corinth forces in 433 BC.⁵⁹

Titus simulated a naval battle between the Syracusans and the Athenians at the Augustan Basin. Many believe that Titus reenacted Athens' catastrophic attack on Syracuse in 414 BC. However, the "Athenian" victory is indicated, which is a deviation from historical fact.⁶⁰ The Athenian siege of Syracuse in 414 and 413 BC was an epic two-year battle that ended in the defeat and destruction of the Athenian army, putting Athens on the defensive in the renewed fighting of the Peloponnesian

⁵⁵ Dodge, 2011, 63-64

The Battle of Salamis was a naval battle fought in 480 BC, between an alliance of Greek city-states under Themistocles, and the Achaemenid Empire under King Xerxes. It resulted in a victory for the outnumbered Greeks. For more see: Rees 2018, 27-36

⁵⁶ It may reflect a simplification of the struggle for West Sicily circa 580-576 B.C. between colonists from Cnidus and Rhodes on one side, and an alliance of Phoenicians and Elymians on the other, as stated by Coleman, 1993, 69

⁵⁷ Carthage created its hegemony in part to resist Greek encroachments in the established Phoenician sphere of influence. Phoenicians initially (750–650 BC) did not choose to compete with the Greek colonists, but after the Greeks had reached Iberia sometime after 638 BC, Carthage emerged as the leader of Phoenician imperialism. During the 6th century BC, mostly under the leadership of the Magonid dynasty, Carthage established an empire which would commercially dominate the western Mediterranean until the 2nd century BC. The Phoenicians in Sicily and the Elymians had united to defeat the Greeks of Selinus and Rhodes near Lilybaeum in 580 BC, the first recorded incident in Sicily. For more about conflicts between the Greek colonists and the Phoenician settlements in Western Sicily see: Domínguez 2006. 253-357.

⁵⁸ Coleman, 1993, 60-61

⁵⁹ For more about sybota battle see: Rees 2018, 41-52

⁶⁰ See: Coleman, 1993, 67; Berlan-Bajard 2006, 15; Dodge, 2011, 65

War. It was a series of fierce naval battles fought off Sicily. In September 413 BC, all the besieged Athenian ships were burned and sunk. The Athenian army attempted to flee by land, leaving many wounded, but was forced into battle and defeated.⁶¹ However, from a study standpoint, which may be consistent with the outcome of the event, it is possible that it was a reenactment of the Battle of Syracuse (or the Battle of the Anapus River) in 415 BC, which represents an Athenian victory achieved near the shore south of the city of Syracuse.⁶²

Interestingly, the Romans were not involved in any simulated naval battles. Although these staged naval battles were ostensibly for entertainment, they served their primary purpose: as a form of mass execution for convicts and prisoners of war. Furthermore, the result of the battle was unpredictable, and they avoided decisive naval battles for fear that the consequences would be undesirable.⁶³ These spectacles were a matter of life and death for the participants, whose survival was determined by skill and chance. Viewer satisfaction would be diminished if the ending were known in advance, thus diminishing the suspense⁶⁴. (See Table 1.)

⁶¹ Thuc. 6.91. <https://uir.unisa.ac.za/server/api/core/bitstreams/bf88cfe6-ef2b-4f19-af49-a66fb5f4911f/content>; For more on this contradiction see: Coleman, 1993, 49; Fields, 2008, 7-12; Rees 2018, 89-104; Steltenpohlová 2018, 49

⁶² For more about the sieges of Syracuse by the Athenians. See: Evans, 2009, 74-106; Fields, 2008, 54

⁶³ Coleman, 1993, 72; Garello 2004, 122

⁶⁴ Ewigleben 2000, 74

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| Generals | Purpose | Date of Naumachia | Site of Naumachia | Historical battle represented |
|----------------------------------|-----------------------------------|-------------------|---|--|
| Caesar | Quadrable triumph | 46BC | An artificial lake on Campus Martius-Codeta minor | Siege of Tyre (332BC) |
| Augustus | Mars Ultor-battle of Actium | 2BC | An artificial lake on the right bank of the Tiber | Battle of Salamis (480BC) |
| Claudius | Victory in Britain-drainage works | 52AD | Fucino lake | Sicilian Wars-Punic Wars (580-576BC) |
| Nero | Extravagance | 57AD | Wooden amphitheater at Campus Martius | Battle of Salamis (480BC) |
| | | 64AD | Basin in the Golden House of Nero- stagna Neronis | - |
| Titus | Opening of the Colosseum | 80AD | Colosseum | Peloponnesian war (434BC) or battle of Sybota (433BC) |
| | | 80AD | Stagnum Augustin – Vetus Naumachia | The Athenian siege of Syracuse (414-413) or the Anapus River battle (415BC) |
| Domitianus | Opening of the Colosseum | 85AD | Colosseum | - |
| | Military victory over Dacians | 89AD | New basin behind the Tiber | - |
| Trajanus | - | - | basin northwest of the Castel Sant'Angelos - Naumachia Vaticana | - |
| No Roman battle depicted. | | | | |

Table 1: A table displaying Roman generals who participated in simulated naval battles, supported by the purpose, date, site, and historical battle they represented. Done by the researcher.

- Inanimate element Participating ships

Surviving literary sources provide no description of the mechanisms or engineering used. Archaeological artifacts do not provide any confirmed artistic remains. Archaeological evidence is limited to basins too small to have been used for naval battles and vessels of bireme, trireme, and quadrireme sizes, accommodating only a few small boats. The types of vessels used in naval battles have been identified. During Caesar's display, biremes, triremes, and quadriremes were used. During the battle of Augustus, biremes and triremes were used, while Claudius used triremes and quadriremes. The types of vessels used by the other commanders are not identified. (See Figure 3.)

The term "bireme" is derived from the Greek word *δυήρης*, which refers to a ship with two rows of oars, attributed to the Erythraeans.⁶⁵ It measured 80 feet (24 meters) long and 10 feet (3 meters) wide and had a crew of 120 oarsmen.⁶⁶

The word trireme is derived from the Latin word *triremis*, meaning "three-oarer," consisting of three rows of oars on each side. It was the dominant vessel in the Mediterranean from the 7th to the 4th century BC, especially among the Phoenicians, Greeks, and Romans, until it was replaced by the quadriremes.⁶⁷

The trireme was a mainstay of Greek naval warfare, playing a crucial role in the Persian Wars, the establishment of the Athenian Navy, and the Peloponnesian Wars. The trireme was first used in combat in the sixth century BC, when the tyrant Polycrates of Samos is claimed to have provided forty triremes to the Persian conquest of Egypt in 525.⁶⁸

The trireme consists of three rows of oarsmen on either side of the ship. Triremes, which are extremely lightweight and maneuverable, are thought to have evolved from ancient Greek galleys such as biremes. The exact origins of the trireme are unknown and debated. Thucydides states that the trireme was invented in the late

⁶⁵ Smith, 1882, 890

⁶⁶ The Assyrian wall reliefs from the palace of Sennacherib in Nineveh, dating to ca. 700 BCE, show such a Phoenician Bireme with oars. Casson, 1995, fig. 76; Smith, 2012, 80, fig. 5-1

⁶⁷ Casson 1995, 57–58. The triremes originated in Sidon between 701 and 676 BCE see: Ahrenberg, 2015, [II -- Ahrenberg -- 2015 -- Invention and Evolution of the Trireme.pdf](#)

⁶⁸ Καμβύσης δὲ ἀκούσας τούτων προθύμως ἔπεμψε ἐς Σάμον δεόμενος Πολυκράτεος στρατὸν ναυτικὸν ἅμα πέμψαι ἑωυτῷ ἐπ' Αἴγυπτον. ὁ δὲ ἐπιλέξας τῶν ἀστῶν τοὺς ὑπώπτευε μάλιστα ἐς ἐπανάστασιν ἀπέπεμπε τεσσαεράκοντα τριήρεσι, ἐντειλάμενος Καμβύσῃ ὀπίσω τούτους μὴ ἀποπέμπειν. Hdt. 3.44.2

eighth century BC by the Corinthians. Ameinocles of Corinth built four of these ships for the Samians.⁶⁹

Diodorus of Sicily (1st century BC) later interpreted these claims in his *Bibliotheca historica*, stating that the trireme was invented in Corinth and later transferred to Sidonia.⁷⁰ However, Diodorus concedes in this same work that the oldest warships may have been produced earlier in Phoenician ports; thus, the earliest triremes were most likely created in Phoenicia. Clement of Alexandria (2nd century AD, 150–215 AD), citing earlier works, explicitly attributes the invention of the trireme to the Sidonians⁷¹.

Tiremes and biremes were typical vessels of the Roman navy. These warships were large and had a certain capacity. Tiremes were approximately 35 meters long and 10 meters wide with the oars extended, and to float, the water had to be 1.20 meters deep. The crew consisted of approximately 150–170 oarsmen and 80 marines.⁷²

The Carthaginians invented the quadrireme,⁷³ which was later adopted by Dionysius of Syracuse around 400 BC. The Athenians appear to have had several quadriremes in their navy by 330 BC, as they gradually abandoned the production of triremes and replaced them with quadriremes.⁷⁴ These were 130 x 25 feet (39 meters long and 4 meters wide) and had a crew of 200 oarsmen and 90-100 marines. It is reported that Alexander used it during the siege of Tyre;⁷⁵ this brings to mind Caesar's naval battle between Egyptians and Tyrians, in which he used quadriremes.

- Spatial element

Simulation sites of Naumachiae

The placement of the naumachia varied. Initially, they took place in a river channel, such as Caesar, Augustus, and Domitianus' naval battles in basins

⁶⁹ φαίνεται δὲ καὶ Σαμίους Ἀμεινοκλῆς Κορίνθιος ναυπηγὸς ναῦς ποιήσας τέσσαρας· ἔτη δ' ἐστὶ μάλιστα τριακόσια ἐς τὴν τελευτὴν τοῦδε τοῦ πολέμου ὅτε Ἀμεινοκλῆς Σαμίους ἦλθεν. Τηυξ. 1.13.3

⁷⁰ ἀκούων γὰρ ὁ Διονύσιος ἐν Κορίνθῳ ναυπηγηθῆναι τριήρη πρῶτως, ἔσπευδε κατὰ τὴν ἀποικισθεῖσαν ὑπ' ἐκείνων πόλιν αὐξῆσαι τὸ μέγεθος τῆς τῶν νεῶν κατασκευῆς. Diod. 14.42.3

⁷¹ York, 2020, n. n

⁷² Junkelmann, 2000, 74; Fields, 2008, 37, Smith, 2012, 83

⁷³ Plin. Nat. 7.57; Diod. 14.41, 42

⁷⁴ Smith, 1882, 891

⁷⁵ Smith, 2012, 85-86

emanating from the Tiber River. Later, they were held in natural lakes, such as Lake Fucino, such as Claudius's naval conflict. A naval battle in 161 AD could have also occurred in a natural environment, such as the Battle of the Gadara River, south of the Dead Sea. This is demonstrated by the presence of a huge basin near Tel Samra's port, complete with a promenade and breakwater of 1,600 feet (487.68 meters) in length. This hypothesis is reinforced by the frequent depiction of ships on the region's currencies during this period, which may be evidence of the city's maritime character, not necessarily naumachia.⁷⁶

The practice evolved, with performances taking place in temporary structures, such as those erected by Nero, and eventually in permanent structures such as some theaters and amphitheaters, the most famous of which is the Colosseum, as well as naval battles staged by Titus and Domitianus. These performances were held in the capital, Rome, but evidence suggests they also took place in other cities in Italy and its provinces.⁷⁷

The Greek term kolymbethra (kolymbēthra, κολυμβήθρα) refers to "basin," an architectural term that refers to the depth and shape of a theater's orchestra. Instead of being on the same level as the seats, the orchestra is significantly lower, forming a water-resistant basin. However, not every theater with a kolymbethra was a theater for water performances. Water catchment theaters may have been, as Allison Lee suggests.⁷⁸ It is important to distinguish between kolymbethra and naumachia theaters. Both types of theaters are filled with water to exhibit spectacles that depend significantly on water. The first type of theater hosted various types of water performances, and it had a more comprehensive use than the second type, which was limited only to naval battle displays that were popular throughout the Roman Empire since the first century BC. It was eventually held in modified theater buildings.⁷⁹

There are a number of theaters in which the orchestra was modified later in its construction to be prepared for naval battles. Perhaps the most important reasons for these hypotheses are the deepening of the orchestra and the construction of the

⁷⁶ Nun, 1999, 18-31 For about naumachia at Gadara see Berlan-Bajard 2006 51-52, 375

⁷⁷ "Naumachiae were not confined to Rome: on the contrary we can have no doubt that they took place in many provincial amphitheatres. In the amphitheatres at Capua and Nîmes, for instance, the arrangements for flooding the amphitheatre have been traced". Smith 1891, 224

⁷⁸ Catchment theaters were found in "water needy" environments, such as the theaters in Thugga and Bararus (Tunisia). The theaters had cisterns beneath their stage buildings that were fed by surface water runoff from each theater cavea and orchestra. Lee 2015, 7-8.

⁷⁹ Lee 2015, 6, 47

podium wall, such as the Dàphne/Harbiyat theater in Turkey, dating back to the last quarter of the first century AD, which was severely destroyed in 341 AD as a result of a violent earthquake and was rebuilt. Frank Sear indicated that the theater was used in the naval battles or Naumachiae,⁸⁰ and the first to state this was Donald Wilber during the excavations of 1933-1936, but it was not possible to determine the function of many of the channels.⁸¹

Excavations have shown the existence of a stream behind the great theater in Scythopolis (present-day Beisan in Palestine). The principal channel is located below the orchestra and may have served as a basis for a water tank. However, in ancient times, efforts were made to divert the water away from the theater rather than into it!⁸²

Laborde Léon in 1830 explicitly referred to the Wadi Sabra theater in Petra as a site for naumachia performances. This interpretation, advanced by early travelers, still influences some modern scholars, including Arthur Segal, who suggested that water could be transported to the orchestra for use in naval combat displays.⁸³ However, an archaeological examination of Wadi Sabra in the 1980s, which concentrated on the water conduit system, called into doubt this early conclusion. It was unable to determine the source of the water or its flow but later admitted the difficulties of the flow to the orchestra.⁸⁴ The orchestra is located 2.50 meters below the bottom row of seats,⁸⁵ surrounded by a wall 2.20–2.65 m high.⁸⁶

Within the Campania region of Baiae, the Augustan theatre of Pausilypon contained a square basin that probably served a water display rather than a

⁸⁰ Sear 2006, 319

⁸¹ Wilber, 1938, plan v. 57–94.

⁸² Retzleff 2001, 159-160; Other modifications to the theater's water supply occurred during the reign of Justin I (518-527 CE) when the orchestra area was restored and an aqueduct was inserted in the western half, apparently to rehabilitate the orchestra for water performances in general, not Naumachia. Opinions differed about the dating of the theater between the Augustan and Severan eras. For more about water channels see: Shimon, 1978, 77-105; Mazor, Atrash 2015, 181-187; For more see: Sear 2006, 306

⁸³ Laborde, 1836, 196; Segal, 1995, 94

⁸⁴ Retzleff 2001, 159

⁸⁵ Segal, 1995, 94

⁸⁶ Sear 2006, 314

naumachia. The basin measures $6.15 \text{ m} \times 4 \text{ m} \times 0.62 \text{ m}$ in depth ⁸⁷ (Figure. 4). Publius Vedius Pollio, the son of a freedman and a friend of the Emperor Augustus, owned the majority of the city's architectural structures, including the theater. He bequeathed all his possessions to the emperor after his death.⁸⁸

In many cases, the presence of water sources led early travelers to believe that the theaters were used for naval battles, but later surveys and archaeological excavations of some theaters revealed that the associated aqueducts were designed to direct water out of the orchestra rather than into it.⁸⁹

These performances were also held in some of the amphitheater buildings. Speaking of the amphitheater, William Smith adds that the entire arena was filled with water on certain occasions and transformed into a "naumachia," where ships simulated naval battles. Therefore, the arena was surrounded by a high wall, the "podium"⁹⁰.

Archaeological evidence has revealed the Pergamon Amphitheater, likely used for small-scale performances of naumachia and water ballet. Its entire dimensions range from 136.2 to 107.40 meters, with the arena's length ranging from 51 to 37 meters. Excavations in 2018 revealed a 13-cm-thick waterproof floor within the arena, as well as drainage channels. Because the building is near a stream, it is thought to have served as a venue for naumachiae - naval conflicts. It dates back to the early second century AD.⁹¹

The Kyzikos Amphitheater was also built on a riverbank and measures 180 x 155 meters. It was utilized in naval battle performances. Its construction began during the reign of Hadrian and was completed and rebuilt following the earthquake of 155 AD.⁹²

The basins at the Mérida (Augusta Emerita) and Verona arenas were large enough to host small-scale aquatic spectacles. It has been claimed that the buildings at Mérida, Spain, and Verona, northern Italy, were fitted to introduce water into the arena since the basin was lined with waterproof mortar. Wooden boards may cover the basins during ground combat demonstrations, such as gladiator displays. Many have, however, disagreed with this viewpoint. They were not designed for naval

⁸⁷ Segal, 1995, 38-39, Sear, 2006, 130. For more see: Gunther, 1913, 29-39

⁸⁸ Busen 2017, 141

⁸⁹ Retzleff 2001, 158

⁹⁰ Smith, 1882, 52-3

⁹¹ Baykara 2012, 40; Çoksolmaz 2024, 201

⁹² Çoksolmaz 2024, 200

conflict, though the arenas could accommodate some small boats, but rather for nonviolent aquatic displays.⁹³

The amphitheater of Mérida dates back to the late 1st century AD, during the Flavian Dynasty.⁹⁴ It is located on a hill east of the city theater. The eastern part of the building was partially underground, while the central and northeastern sections were built above ground.⁹⁵ The arena is separated from the seating by an *opus quadratum* wall, built over several years. The building's most distinctive feature is a large, broad central moat running along its longitudinal axis. It widens in the middle to form a large square space connected by three water supply and drainage channels: two along the main axis and one along the sub-west axis.⁹⁶

The amphitheater in Mérida included a shallow, cross-shaped basin dug beneath the arena. The basin, which was 64 m long and 44 m wide, was just 1.25 m deep, making it shallower than the basin at Verona. It was quite shallow and accessed via stairs. (Fig. 5-6). The basin has drainage channels, and the walls were lined with *opus signinum*, making it watertight.⁹⁷ The basin's water supply came from two aqueducts on the west side that connected to the San Lazaro aqueduct. The presence of a water supply indicates that it was utilized for aquatic performances in general, not *naumachia*. The panels covering the arena were removed for aquatic activities, and the basin could accommodate a modest number of small boats.⁹⁸ According to the study, it is a symbolic exhibition in combat proportion to the basin's area, rather than an actual simulation. (Figure 7)

The basin of the Verona Amphitheatre, which dates back to the Julio-Claudian dynasty, was largely rectangular and included various drainage systems. It was roughly 36.13 meters long, 8.77 meters wide, and 2 meters deep in its center.⁹⁹ Two axial channels connected it. The first, which flowed beneath the arena's western portico, was not connected to the drainage system and required an aqueduct to fill the basin. The eastern channel was deeper and intended to drain water into the Adige

⁹³ Cabello, Galán. 1994, 247; Dodge 1999, 233,35, Vélez et al., 2002, 78

⁹⁴ For dating by Radiocarbon results on mortar carbonate see: Ringbom. 2020, 187-195

⁹⁵ The structure has sixteen entrances, three of which are main: two on each side of the longitudinal axis and one at the western entrance. It has three main entrances, from the north, south, and west. The spectator seating consists of two levels. Inglese et al., 2010, 100

⁹⁶ Inglese et al., 2010, 100

⁹⁷ Cabello, Galán. 1994, 250; Cruz, Pizzo, 2012, 88

⁹⁸ For more see: Coleman, 1993, 57; Junkelmann, 2000, 34; Dodge, 2011, 67-68

⁹⁹ Deniger 1997, 33

River.¹⁰⁰ These basins must have been designed for aquatic spectacles, but they were too tiny for naval battles—*naumachiae*, albeit on a smaller scale.¹⁰¹

Domitianus needed his vast basin for naval battles, not for the small spectacles that the amphitheater could only allow; full-size ships could not pass through the arena entrances. Domitianus lined the Colosseum with *opus signinum* with mortar and strengthened it with drains.¹⁰² However, no permanent water supply system was established to flood the arena.¹⁰³ The Colosseum's 4,241 cubic meters of water could be filled in approximately 34 to 76 minutes (1 hour and 16 minutes).¹⁰⁴ This was possible because the Colosseum's capacity would have been smaller compared to the Basin of Augustus, which took approximately two to three weeks to fill.¹⁰⁵ This contradicts the literature, which indicates a quick transition from land-based to aquatic performances. Water was piped into the Colosseum by the *Arcus Neroniani*, a branch of the *Aqua Claudia*. An engineering analysis was made to determine the possibility of flooding the Colosseum arena and draining the water within a set timeframe to allow for the representation of naval battles;¹⁰⁶ however, there are significant gaps in the evidence.¹⁰⁷

If we take the dimensions of a trireme (approximately 35 x 4.90 meters) with extended oars occupying an area of 10 square meters of space on the sides. Thus, two full-size triremes might have been accommodated in an area the size of the Colosseum (87.3 meters by 54.3 meters). However, this would have only allowed

¹⁰⁰ Coleman, 1993, 57

¹⁰¹ Hydromime, a more common type of water performance, could have taken place in these basins, possibly in smaller venues like theaters and amphitheaters. Spectacular performances based on "aquatic" mythical themes, musical interludes, and synchronized swimming most likely originated in Campania in the first century BC before spreading to theaters throughout the Roman world. A few Roman buildings, like those in Verona and Mérida, included basins for this function. Berlan-Bajard 2006, 217–73, 297–303, 444–553.

¹⁰² For reconstruction of the arena plan see Rea, R. et al. 2000, 311–339

¹⁰³ Dodge, 2011, 66

¹⁰⁴ For more about hydraulic system of the Colosseum see: Crapper, 2007, 184–191

¹⁰⁵ Steltenpohlová 2018, 15

¹⁰⁶ Grout, James. The *Naumachiae* of Titus and Domitian. *Encyclopaedia Romana* [online]. [accessed 2025-1-3]. Available at: http://penelope.uchicago.edu/~grout/encyclopaedia_romana/gladiators/naumachiae.html

¹⁰⁷ For more about the network analysis of the distribution water system within the Colosseum, see: Crapper, 2007, 184–191

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for a symbolic simulation of a naval conflict, rather than a full-scale simulation in the Augustus Basin, which covered around 536 x 357 meters. Many full-size ships would have been unable to maneuver. In any case, the ships, which measured about 35 meters long and 5 meters square, would not have fit through the amphitheater's gates. Thus, the triremes must have been smaller versions.¹⁰⁸ (see Figure 8).

The artistic evidence for depicting naumachia scenes is not conclusive. The pictorial models suggest several possibilities, including depicting naval conflict scenes.¹⁰⁹ The study accepts the concept that battle simulation took place within permanent structures that were modified like theaters, which the artist expressed in the frescoes found inside the Casa dei Vettii in Pompeii, dated 62 AD, in the triclinium, which decorates the north wall. The paintings are currently preserved in the Archaeological Park of Pompeii, Campania, Italy. The house of the Vetti family in Pompeii was discovered in 1894, after a violent and sudden eruption of Mount Vesuvius in 79 AD. The house of the Vetti family is located in Regio VI. There are twelve surviving paintings depicting mythological scenes. Few studies have dealt with house paintings without mentioning the paintings under study (See figure 9).

The house's murals follow the fourth style of Pompeii, showing ships with rams at their front, topped by soldiers armed with shields and perhaps spears. The study suggests that the house's paintings are closer to simulating depictions of naval battles, based on the presence of masks above the ship scenes, indicating that these ships were part of the simulation that took place within the orchestra of the modified theaters. The house was named after its owners, two successful freedmen: Aulus Vettius Conviva-Augustalis and Aulus Vettius Restitutus.¹¹⁰ This may reinforce this hypothesis, as it may have been a source of pride and identity. The freedmen might have been proud to have participated in such performances, reflecting the manifestations of transition from slavery to freedom. This hypothesis may also be supported by the presence of a mural depicting Leander and his lover, Hero, who lived on the banks of the Dardanelles Strait. Leander longed to be with his lover, so he swam across the strait every night, guided by torches placed by Hero in a tower on the shore. One night, a storm extinguished the light, causing Leander to drown. In her astonishment, Hero threw herself into the sea behind him. This scene has been

¹⁰⁸ Coleman, 1993, 61; Garelli 2004, 121

¹⁰⁹ For these examples See: Coleman, 1993, 55

¹¹⁰ Severy-Hoven, Beth 2012, 545

repeated, and studies have reported its reenactment inside the Colosseum,¹¹¹ when the condemned were forced to reenact myths and assume the roles of legendary figures to save their lives.¹¹²

Conclusion

Naval battle spectacles required far greater resources than other forms of entertainment and were therefore reserved for exceptional occasions, closely associated with the emperor's celebrations and victories. A common feature of all spectacles was their extravagance; thus, they were held only occasionally. Organized naval battles became a display of imperial power. It was a mass massacre; hence, the study suggests that naumachia was a method to execute convicts and criminals.

Most simulations took place within a historical context, with the outcome sometimes manipulated, as some see it. Analyzing such performances reveals the underlying meanings. They served as an effective tool for political propaganda and conveying hidden messages to the audiences. Naumachia was a call for Roman propaganda through entertainment. The Romans celebrated their ideology of dominance through violence, bloodshed, and terrorizing the populace. People would gather to watch simulations that included violence, blood, and, often, the death of participants. The outcome of these battles was not certain and unpredictable. As a result, no Roman battle was depicted for fear of defeat and the breaking of Roman dignity. Their motive was to impress by trying to reproduce or create a real naval battle and evoke the distant past. Therefore, land was transformed into water, ships were introduced, and sometimes the path of history was affected. It was far from entertaining.

Simulated naval battles are a mysterious phenomenon that may seem closer to reality to some, while remaining a fantasy to others. However, I believe there is some reality to it because they were mentioned in literature. There are also some indications of its actual occurrence, such as the deepening of many arenas and their surroundings by high walls. However, even if these indications exist, it is not necessary that these arenas served as naumachiae. Perhaps they served as a water

¹¹¹ Quod nocturna tibi, Leandre, pepercerit unda desine mirari: Caesaris unda fuit. Cum peteret dulces audax Leandros amores et fessus tumidis iam premeretur aquis, sic miser instantes adfatus dicitur undas: 'Parcite dum propero, mergite cum redeo. Mart. Spect. 25, 25b <https://www.thelatinlibrary.com/martial/mart.spec.shtml>. Clamabat tumidis audax Leandros in undis: 'Mergite me, fluctus, cum rediturus ero.' Mart. Epig. lib.14.181

¹¹² For more about Leander see: Coleman, 1993, 62-63

Simulation of Naumachia and its reflection in Roman Art

display, rather than as naval battles. The number of naval battles mentioned in literary writings is about ten, involving seven Roman leaders: Caesar, Augustus, Claudius, Nero, Titus, Domitianus, and Trajanus. The emperors Nero, Titus, and Domitianus, each held naval battles twice. (See Figure 10.)

Naval battles simulations were held in basins or artificial lakes connected to rivers, as well as inside natural lakes and temporary and permanent buildings. Artificial basins were used six times to simulate naval battles, such as those carried out by Caesar, Augustus, Nero, Trajanus, and the second battle held by Titus and Domitianus. Natural surfaces were used once, such as the simulation held by Claudius. Simulations were carried out inside the Colosseum as a permanent facility twice, the first in the era of Titus and then Domitianus. Temporary structures were used only by Nero. (See Figure 11.)

It is worth noting that not all the warships used in the naval battle simulations are mentioned. Only the types used during the simulations of Caesar, Augustus, and Claudius are mentioned (see Figure 3). This is because Caesar and Augustus held the simulation in artificial lakes, whereas Claudius implemented it in a natural environment. Therefore, the vast space allowed them to use these large types of ships, such as biremes, triremes, and quadriremes. As a result, the sources are silent on the types of ships used for naval battle simulations within permanent structures. They may have been miniature versions that fit the size of the buildings.

The mention of the naumachia was shrouded in mystery. It was mentioned in contemporary writings such as those of Tacitus and Suetonius, but later sources, such as Dio Cassius, recounted earlier accounts. He relied on previous sources, which coincided with the period of architectural modifications to the permanent buildings where the naumachia was performed. The study, through wall paintings, has demonstrated that the simulations of naval battles may have occurred as early as the Augustan era, as some theaters that hosted these performances date back to this period. Therefore, the idea of theatrical modifications may have arisen in the first century to accommodate naval battle simulations and other aquatic performances. However, further additions occurred during the following centuries, from the second to the fourth century.

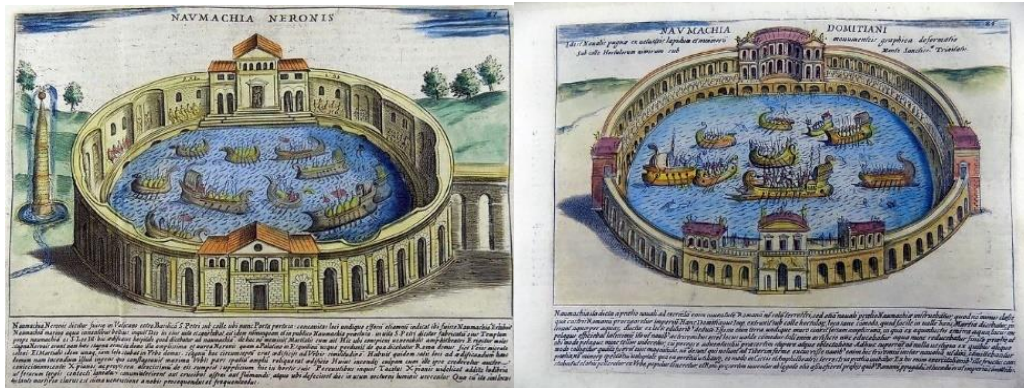


Figure 1: Paintings by Renaissance painter Lauro Giacomo (1550-1605) representing naval battles during the reigns of Nero and Domitianus in Rome's Colosseum. Historians are still debating about them.

Lauro, 1614,113, 118, Lauro, Alto, 1625, 200,202

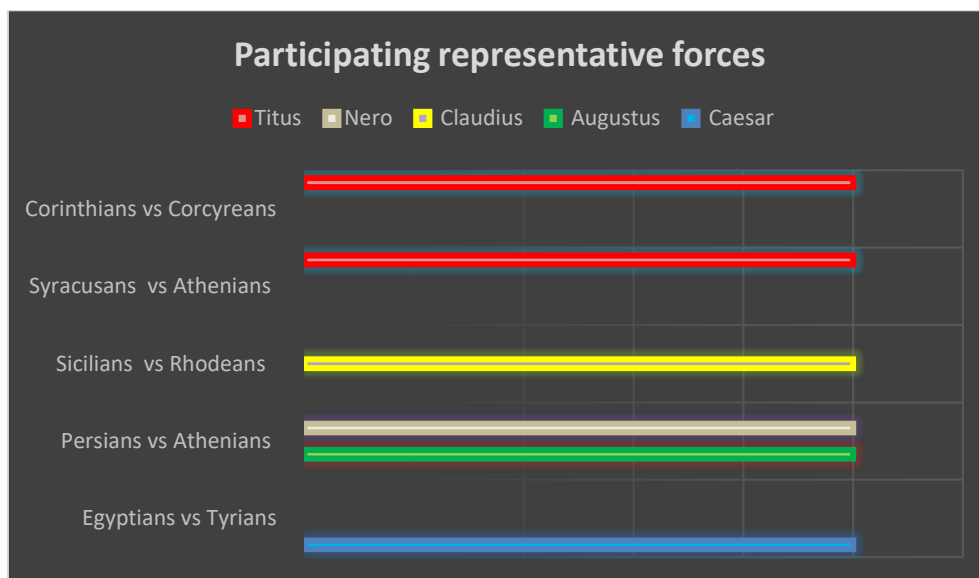


Figure 2: The diagram depicts the forces involved in the maritime war simulation from Caesar to Emperor Titus.

Done by the researcher.

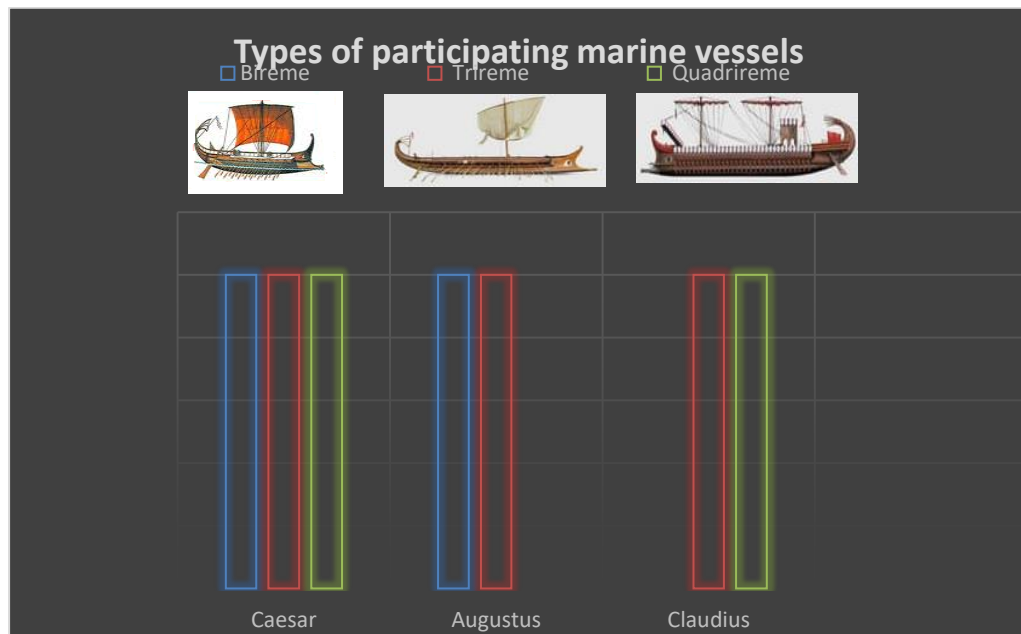


Figure 3: A diagram depicting the types of ships used to simulate naval battles based on literary sources.

Done by the researcher.

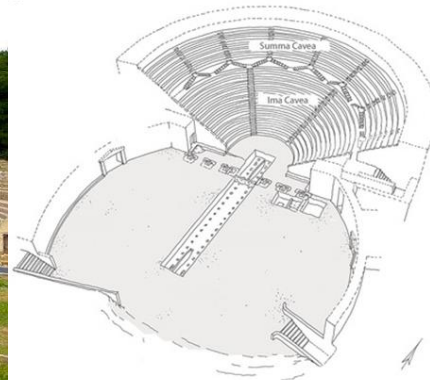


Figure 4: The Pausilypon Theatre in Campania
Taylor, 2016, fig. 5, Busen 2017, 141, fig. 3-4

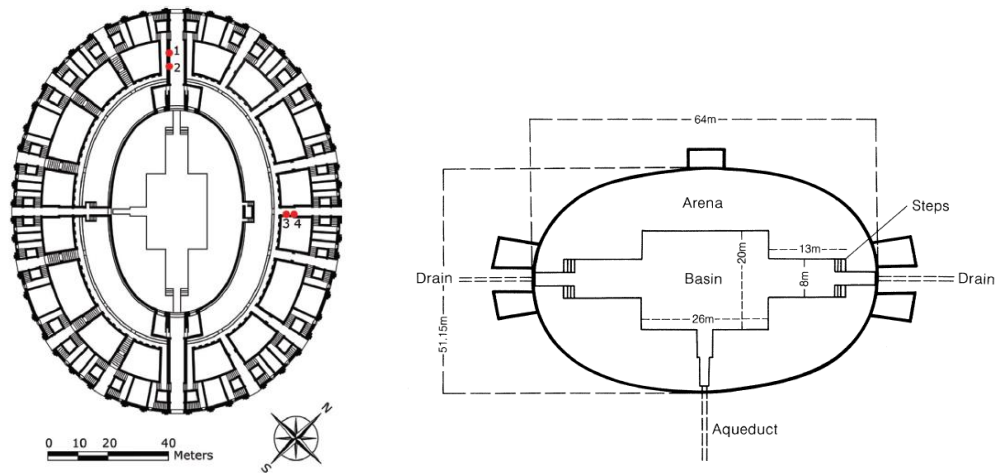


Figure 5: Amphitheatre of Augusta Emerita, in present-day Mérida, Spain
Ringbom, 2020, 188, fig. 1



Figure 6: Amphitheatre of Augusta Emerita, a Roman colony founded in 25 BC
in Mérida, present-day Spain
Dodge, 2011, 67, fig. 21



Figure 7: Amphitheatre of Augusta Emerita, in Mérida, present-day Spain
Coleman, 1993, 58, fig. 3; Inglese et al., 2010, 100, fig. 1; Cruz, Pizzo, 2012, 90, fig. 11

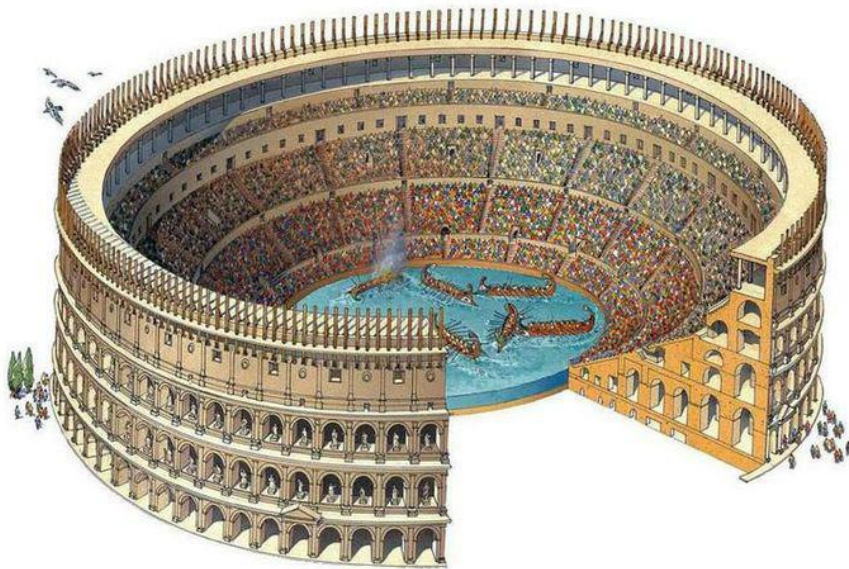


Figure 8: An imaginary drawing of naval battle displays inside the Colosseum.
Lee, 2015, 5, fig. 1.1



Figure 9: Paintings of the House of the Vettii VI 15,1 Pompeii North wall of exedra p

<https://pompeiiinpictures.com/pompeiiinpictures/R6/6%2015%2001%20exedra%20ne%20p3.htm>

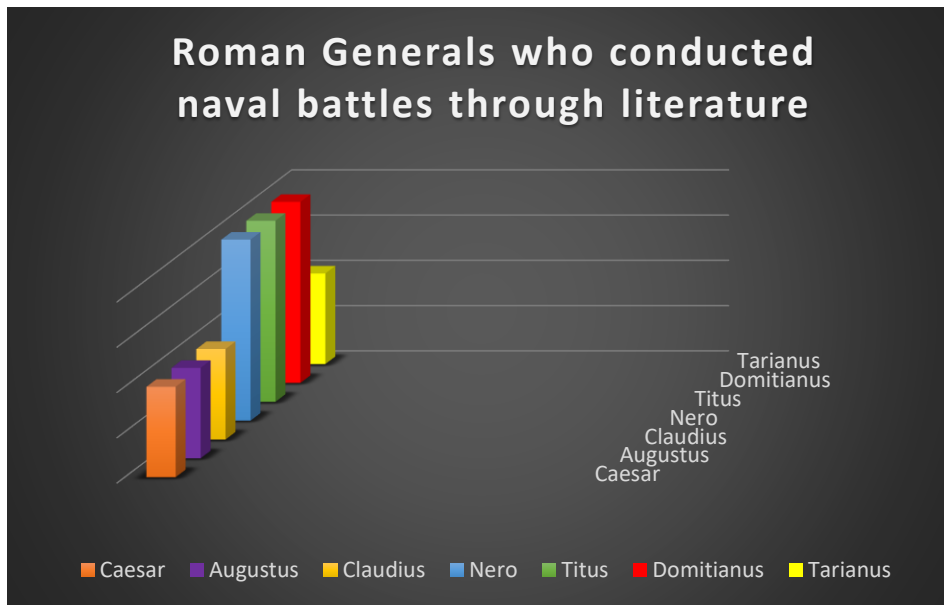


Figure 10: A chart listing the names of the Roman generals who participated in the naval battle simulations.
Done by the researcher.

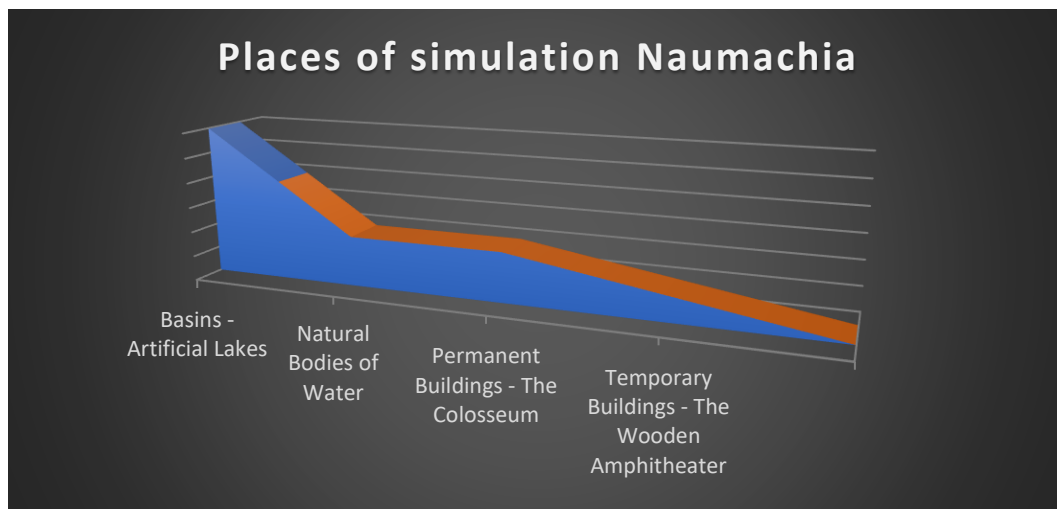


Figure 11: A graphic illustrating the areas for naval conflict simulations .
Done by the researcher.

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