

Joint warfare across time; case studies from the Hellenic ancient history

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Having today's priorities as our motive, we can light up new aspects of known events in military history. The objective of the paper is to integrate events of the past into broader historical forms, using the joint warfare criterion as the framework to illustrate them. On the basis of the geomorphology of Greece and especially in the Aegean region, the implementation of joint warfare is imposed almost unconsciously, as a physical and necessary strategic choice. Initially, looking back in mythology, the legend of the Argo expedition underlies the existence of an actual geostrategic policy aiming to unite the broader space of the Aegean. The expedition against Troy is the first historical case of an amphibious mission, as we would classify it in today terms, involving the landing of a force comprising thousands of men, against an enemy that was prepared to fight according to an established tactical process. Furthermore, it is the first historical conflict between the Greek civilization - that was structured on the sea power - and the Asian civilization, which was built on the land force. The paper intends to be a chronicle of some paradigms, where the most characteristic fact has been the confrontation of a continental force striving to achieve its exit to the sea, against a naval force that seeks to maintain under its control all the vital points of the coast and the islands, so as to monopolize the sea routes.

The Persian Wars

During the Persian wars the joint warfare conception that prevailed in the conduct of operations, is clearly demonstrated in the parallel battles of Thermopylae and sea battle of Artemision (480 BC), as well as in the landing operations in Salamis (480 BC) and finally, in Mycale (479 BC) where the sea battle was converted into an infantry one¹. The victorious battle of Marathon was only the first episode of a great

¹ "...if, frightened by the coming Persian threat, the Athenians surrendered themselves to Xerxes, no one would stand against the King at the sea. Even if the Peloponnesians had raised several levels of fortifications the allies would abandon them... because their cities would be captured one after the

struggle; the collaboration of a dual hegemony, Sparta possessing a superior army, and Athens, the dominant naval power, rescued Greece during the Persian campaign (of 480/479 BC).

The Battle at Thermopylae and the Sea Battle at Artemision²: According to the Great King's plan the Persian army would advance along the coastal routes while the navy would follow to block the likely hostile actions by the Greek fleet. When the Persians were reaching, the Greeks decided to confront them at the Thermopylae Straits on land and at the nearby cape of Artemision at sea, a very appropriate point for assembling the Hellenic fleet. At the level of strategic planning, a joint land and naval operation was decided; the army and the fleet were thus in a position to support one another effectively, in a defensive mission. Xerxes delayed his advance mainly because he also, had planned to launch a coordinated attack from land and sea. The likely aim of the Greeks at Thermopylae was to stop the advance of the Persian army for some time, until the outcome of the war was decided by the fleet at the sea. That was the mission that Leonidas served by his sacrifice. The simultaneous resistance at Thermopylae and the conduct of a parallel naval battle illustrate the conception of a joint strategic manoeuvre. Even more, at the operational level, there was an observer at Artemision, ready to sail and inform the army at Thermopylae of any adversities the navy could run into. However, the Athenian liaison to Leonidas camp at Thermopylae was the one who sailed to the cape and announced Leonidas death.

Landing Operation in Salamis: In preparing for the significant naval battle in Salamis, the Persian ships spread along a continuous line while military divisions lined up in the land close to the shore, so as to provide support to the shipwrecked. The Athenian hoplites effectively collaborated with the navy, forming amphibious assault echelons; following the retreat of the Persians, they landed in the occupied territory and crushed the isolated guard. That operation involving the transport of infantry and its forced

other by the naval army of the barbarians... I cannot see the walls having any benefit, were the King to be allowed to rule the sea." Herodotus, *Herodotus Historiae*, VII, 119, ed. Zacharopoulos, Athens [s.a.]

² "They sent infantry to Thessaly by the sea to guard against the invasion..." , *Ibid.*, VII, 172.

landing possessed the features of a real amphibious operation in contrast to similar operations in the past that either involved disembarking in a controlled area, or mere piracy.

The Battle of Mycale (479 BC): Greeks did not hesitate to take over a new initiative, when the Ionians requested their aid to cast off the Persian occupation. The Persians camped in the bay of Mycale, across the island of Samos and when the Greek fleet headed to the island, the Persian admirals decided to resort to the army's protection. They sailed towards Mycale, drew their ships ashore, joined their forces with the land army and fortified their camp by building a wooden wall. When the Greeks reached close to the Persian camp, they saw no one sailing against them but only ships drawn ashore; they marched against them and managed to achieve a victory setting on fire the Persian ships on earth.

Delian League - I Athenian Coalition (478 BC)

The end of the Persian wars brought up a change of balance in the Greek territory. Even though Sparta was the undisputed leading military power, it was Athens that, having developed a powerful navy was found ready to take up the leadership role³. During the period of the first Athenian Coalition, the critical importance of controlling the Aegean, led to the development of a new strategy for the independent action of the navy to obtain the control of the sea. The ship was used as a weapon and not merely as a transporting means, assuming a joint action that served to project its power on the land, without though the requirement for the parallel movement of the army along with the navy. The two hundred Athenian triremes constituted an outstanding war fighting means, as they were wider than the old ones and especially designed "allowing space for moving along the deck". There was enough space for hoplites and archers on board, allowing them to move with ease on their decks. They were reasonably classified as warships and at the same time carriage ships suitable for carrying out landings with ease and speed even on shores that were occupied by the

³ "...the admirals decided to find resort by the Army", Ibid., X, 96.

enemy.

The Expedition to the River Eurymedon (469 BC)⁴: The assembly of the Persian army and fleet at Pamphylia, in 468 B.C., having the apparent aim to advance to the Asia Minor coast and the Aegean, served to activate and strengthen the Athenian alliance. The undertaking of significant operations against the Persians averted the danger of defections. It was imperative for that operation to succeed, as its outcome would determine the future of the alliance. Kimon was appointed the leader of the expedition to Asia Minor and he proved to be a competent general⁵. To him has been attributed the changes that were made to the Athenian triremes of that period so as to become wider providing more space not only for the rowers but for the hoplites as well. That change was deemed necessary as the struggle against the Persians was meant to assume an offensive form. Apart from their crews, the ships should also carry on board military forces capable of landing on ground and undertaking immediate action against the enemy. Kimon assembled three hundred ships at the city of Knidos in Karia. Of those, 200 were from Athens. Apart from the rowers, there were 5,000 hoplites on board those ships. Aboard the 100 allied triremes there were some archers as well. Kimon took advantage of the Persians indecisiveness to come into a naval battle against him before receiving reinforcements. They thought that the Greeks would not dare to launch an offensive in that position, considering that their fleet was well protected by the strong infantry that was deployed in the river's mouth. Kimon surprised them and forced them into a naval battle. Instead of the Persian ships sailing to the river's mouth, they turned to the opposite side. That fact proved fatal for the Persian fleet. Were they had managed to get to the open sea, they would have had a good chance of prevailing. Instead, they were soon ambushed. The fast Athenian triremes exploited superbly that confusion. They penetrated into the mouth of river Eurymedon and started to cause severe blows to the enemy ships by their plungers.

⁴ "In the same day the Athenians and their allies conducted a land and a naval battle by Eurymedon river at Pamphylia, against Persians, under the command of the Athenian General Kimon." Thucydides, History of the Peloponnesian War, I, 10, ed. Zacharopoulos, Athens [s.a.]

⁵ "...Kimon, like a powerful athlete brought down two contests in one day.", Plutarch, Kimon, 13, ed. Zacharopoulos, Athens [s.a.]

The Persians shot a great number of arrows from their ship decks. However, the land like method of conducting the naval battle had no chance of success against the more advanced Athenian tactics of using the plungers. On the same day, following the naval battle and despite the Persian fleet's annihilation, a strong Persian force comprised mainly of archers and infantry continued to be in the river flanks. They were deployed in a smooth and plain territory that was fit for the operation of the hoplites phalanx. The Greek triremes approached to the shore – their manoeuvre was possible because the river was navigable in its mouth – and Kimon ordered the landing and the hasty deployment of the infantrymen in a battle line up. The land battle that followed was fierce and the enemy force was crushed after a several hours fight in which the Greek phalanx proved its superiority. The dual victory at the river Eurymedon was significant in the sea as well as on land. Kimon who was the son of Miltiades, the winner of the battle of Marathon was influenced by the lessons of the Persian wars in developing his strategy and tactics. He persistently took over the initiative of operations, pre-empted his opponents in their bases and gained significant advantages acting with boldness and a deliberate study of all the relevant factors. The two hundred Athenian triremes constituted an outstanding war fighting means, especially for conducting joint operations on land and at the sea, as they were wider than the old ones and especially designed “allowing space for moving along the deck”, as Plutarch wrote. There was enough space for at least 25 hoplites on board each one of them, allowing them to move with ease on their decks. They were reasonably classified as warships and at the same time carriage ships suitable for carrying out landings with ease and speed even on shores that were occupied by the enemy.

The Expedition in Egypt (459–454 BC)⁶. In 462 BC, local rulers in Egypt asked for Athens assistance to their planned revolutionary operations against the Persians. The Greeks chased the Persians to Memphis where they initiated siege while at the same time, they won a great victory in a naval battle as they reached simultaneously from

⁶ “...disembarking from the sea at the Nile, the forces occupying both the river and Memphis’ shores...”, Thucydides, I, 111

the land and from Nile as well, by ships. The Athenians dominated in the region ‘by battles in the sea and on the land by victories and defeats’ for almost five years⁷. The revolutionaries and the Greeks that had remained in Egypt, found refuge to the island of Prosopitis, and stayed there for eighteen months, as the Persian generals did not dare to land on the island. The river was the greatest obstacle for approaching the island as the fleet was sailing around until they ventured a great technical project, building a system of canals to redirect the river waters and to join the island to the land, thus rendering the Athenian fleet of no use. Then the land army would be free to capture the island⁸.

Athens Naval Expeditions in Peloponnese (456 BC)⁹: During the same period Athens took over in a joint action of their army and fleet, a large-scale offensive initiative against the Lacedaimonians and their allies. The heavy casualties they had been inflicted from their previous operations had convinced them that the most appropriate method for conducting the war was using the fleet to carry out their offensives. That method enabled them to reach the enemy positions they had decided to strike, by sea routes. Thus, they retained the advantage of surprising the enemy and the flexibility to withdraw fast when large enemy forces approached. The naval expedition was concluded with complete success. The Athenians repeated the expedition the following year, assigning its leadership to Pericles. After he carried out landings in the north shores of Peloponnese, he expanded Athens influence further to the west.

The Samos Insurgency (440 BC)¹⁰: In the conflict that burst out between Samos and Miletus, Athens intervened in favor of Miletus, a weaker member of the alliance

⁷ Fighting on land and at sea, after defeating their enemy in both cases, they withdrew to their home land...”, Ibid., I, 121

⁸ “They dug canals to divert the river that flowed past both sides of this island, thus making the island an island no longer. The ships suddenly stranded on dry land...”, Diodorus Siculus, *Historiki Bibliothiki*, 11, 79, ed. Kaktos, Athens 1998

⁹ “Sailing round Peloponnese, they set fire to the Lacedaimonian naval station, they conquered a city belonging to the Corinthians and after landing they won a victory upon the Sikionians on the ground.”, Thucydides, I, 108

¹⁰ “Under the command of Pericles they encountered into a naval battle..., and after landing they besieged the surrounded by three walls city, by infantry as well as by the sea.”, Ibid., I, 116

having as goal to reinforce its leader role in the alliance. Until then, the Samians were loyal allies of Athens. They possessed a strong fleet and had been distinguished in jointly fought wars. In the spring of 440 B.C., the Athenians sent a part of their fleet under the leadership of Pericles against the Samians. They took the island's oligarchy by surprise forcing them to take refuge in Asia Minor. From there, they organized a hasty counterattack. The Athenians were fast to react by sending a new squadron of their fleet. In a fierce naval battle, the Athenians managed to achieve a great victory, dissuading any other city from defecting. That victory though was not decisive, as it did not brought up the enemy's complete crash. After the battle, the Samians sailed to their island, having still a strong fleet. The Athenians, after receiving reinforcements, landed on the island. The Samians were aware that they lacked in infantry, thus did not risk a battle in the open field. The Athenians besieged the city from the sea and the land. The news that Phoenician ships had sailed off in support of the Samians, forced Pericles to detach sixty ships from the fleet and sail to encounter the Phoenicians. Taking advantage of his absence, the Samians launched a hasty attack against the weakened Athenian fleet. They won in the naval battle and they gained control of the harbor and the surrounding sea region, strengthening significantly their defense by securing an abundance of supplies. That operation changed temporarily the balance. The island's resistance was prolonged and a greater effort was required by the Athenians to ultimately assert their domination on the island. Pericles returned and he prevailed in a swift naval battle against the Samians. He landed a force on the island and he laid a tight siege of the city in August of that year. He refrained from attacking the city walls to avoid having any more casualties. He decided to prolong the siege, disregarding the time and the financial cost. Especially in the last months, he used for the first time siege engines, the "rams" and "turtles" that were loaded on ship decks and they were employed to breach the city's walls. Following the surrender of their fleet and the destruction of the walls, the Samians were forced to sign a treaty.

The Peloponnesian War (431–404 BC)

In the Peloponnesian War the Spartans prevailed when they finally succeeded in the balanced development of the infantry and navy, since during the several years of that war they maintained their superiority in the infantry while, in collaboration with their allies, they developed a navy capable to face the Athenian fleet. In contrast, the Athenians remained committed to their initial strategy, believing that the dominance at sea would lead them to prevail. The Peloponnesian War lasted for twenty-seven years and it was to surpass all the previous wars among the Greeks by its scale and intensity. The war's objectives, its severity, and its consequences over the whole of Greece, even the fact that Thucydides recorded its events, make that war a unique milestone in the history of ancient Greece. During the opening hostilities the Athenians lacked sufficient land forces and avoided the open confrontation on land, while the Spartans did not possess a strong fleet and did not wish a confrontation at the sea.

The Athenian Landing Operations in Peloponnese (431-430 BC)¹¹: During the summer of the first two years of the war, while the Lacedaimonians looted the broader Attica region, the Athenians landed their forces in the enemy territory. Warships were transformed to enable the transport and the landing of cavalry units. While the hoplites were occupied cutting trees and ravaging the country houses, the archers could safely set on fire the fields by shooting fire arrows; the cavalry served to inspect the land region, notifying the infantry for the likely approach of enemy units.

The Naval Battle at Naupactus (430 BC)¹²: In the second year of the war, the Lacedaimonians found the navy of Peloponnese not adequate and ordered their allied cities of Italy and Sicily to build ships, each according to its population. In the Acarnania operations, the Spartan sent a fleet and infantry. On the appearance of the Peloponnesian fleet, the Athenian fleet's admiral Formion boarded his crews aboard the ships and started to sail along the Aetolia coast. Along with the fleet, the

¹¹ "The Athenians sent the one hundred ships, as soon as those were ready to sail, around the Peloponnesian coast with one thousand hoplites on board and four hundred archers...", Ibid., II, 23

¹² "...the Mesenians aiding and intervening entered armed into the sea and boarding on the ships they were fighting...", Ibid., II, 91

Messenian army advanced. It was the part of the army that the Athenians had stationed there during the war's first year for its reinforcement. The Peloponnesians seeing that the fleet was sailing in a single line and even close to the coast, which was what they desired more than anything, they suddenly turned and managed to circle the most of the ships. They forced them to burst into the land destroying them. The Mesenians managed to rescue some of them. They went into the sea with their weapon and climbing to the ships they fought from the ship decks. Yet the Athenians suddenly chased the Peloponnesian fleet with those ships that had been rescued and recaptured the ships they had lost. Athenian and Peloponnesians raised trophies each considering himself from his own side to be the winner.

The Mytelene Siege (428-427 BC)¹³: The Athenians put an end at Mytilene's insurgency by sending one thousand hoplites, especially trained in the naval skills and even more they were rowing by themselves sailing to the island. On their arrival, they built walls around the city and went on to a tight blockade. Once again, the Athenians confirmed their dominant role by a coordinated siege from land and sea.

Athens Great Expedition in Sicily (Aug 415-Sep 413 BC)¹⁴: In Sicily, the Syracusians led by the Spartan Gylippus and a Corinthian naval squadron proved to be shrewder and more competent. They converted and transformed their ships to gain the advantage in the form of the naval battle they already knew it would follow and into which they would force the Athenians to fight under the adverse terms they sought to impose on them. The Athenians held themselves as the absolute masters of the sea and that no fleet could oppose them. Nicias was aware and he warned the Athenians of Gylippus plan to launch an attack against the walls by his infantry on the land and by his ships at the sea. The Athenian fleet derived its strength from the supremacy of its ships and the vigour of the crews. The long stay at the sea though had adversely affected the ships and the crews. Withdrawing the ships on the shore was not feasible

¹³ "...entire Mytelene was besieged both by land and sea.", *Ibid.*, III, 18

¹⁴ "The Syracusians... during the operations of the same day attacked the Athenians with their infantry and navy.", *Ibid.*, VI, 39

because the enemy, having a superior force and cavalry was always in a position to attack them. From the other side, a great effort was required to convince the Syracusians to risk a confrontation with the best navy of that time. Even though possessing a smaller fleet, the Athenians were very experienced sailors and they were outstanding in the execution of daring and especially skilful manoeuvres. As the Athenian army was advancing against the Syracusians, the fleet was reaching in the Great Harbour. On his arrival, Gylippus lined up his army and he was challenging the Athenians to a battle in the open field. The first defeats were succeeded by a victory. The Syracuse fleet was reinforced with newly built triremes and it started to be prepared and to challenge the Athenians to a battle. The Athenian fleet was already facing crew shortages and failures from the deficient maintenance of the ships. After a series of decisive clashes on the land and at sea, the Syracusians decided to take action against the Athens stronghold at Plimmyrio, carrying out a joint and coordinated operation against which the Athenians managed to prevail after a fierce battle. The Athenian army left the fortifications of Plimmyrio and moved to the shore to watch the naval battle and to defend – in the case of emergency – against any landings by the enemy ships, to capture their crews and to aid the Athenian ships that would withdraw to the shore. The Syracusians took advantage of the Athenians absence to attack the three forts from the land and to capture them. The Athenian fleet, having lost the potential for replenishment retreated inside the Great Harbour, close to the walls, losing the freedom of movement and the offensive initiative (May 413). After the constant interchange of victories and defeats on land and at the sea, the Syracusians sought to block the entrance to the Great Harbour by ships lined up between Plimmyrio and Ortygia to confine and block the Athenian fleet. Once the Athenians realized their plan, they boarded their army on all the ships. They had decided to come to a battle and even to burn their own fleet and to depart from the land in case they were defeated. Nicias manned one hundred and ten triremes. He boarded several archers and spear throwers on the ships and he lined up the infantry along the shore in a far-reaching front to encourage the ship crews. Even though the greater weight on a ship was a disadvantage in naval battle by hindering its steering, that would be an advantage for the unavoidable infantry-like battle that would follow aboard the ship decks. The clash between the two fleets inside the harbour would not

be an actual naval battle but it would be actually an infantry battle carried out from the ship decks. Consequently the skilled steering of the ships and the performance of manoeuvres ceased to be a priority. Nicias was based on the infantry for winning the battle. He urged them not to leave an enemy ship before throwing its crew and army into the sea. Respectively, the sailors that usually were ordered to withdraw their ship to the shore in the case that was damaged; now they were ordered to abandon that practice, as the enemy occupied the greatest part of the land. The Syracusians were aware of the iron hooks that the Athenians were using to snatch the enemy ships and to hold them, giving the time to the infantry men on board to battle as they would do on land. Thus they coated their ships prows with leather for the hooks to slide and not to be snatched. The Syracusians lined up a part of the seventy-five ships they possessed in the unblocked part of the harbour. The rest were lined in a circle around the coast so as to attack the Athenian fleet in the front and from the sides. At the same time, were the ships to come close to the shore, the infantry would move to join in. The battle was the fiercest of all that had been given in the course of the expedition. The Athenian fleet was soon found to be on disadvantage. Being trapped inside the harbour, they could not carry out the manoeuvres for which they had been so skilful. With the exception of the Salamis strait, never before had so many ships battled in so limited space. Soon the battle turned into several separate clashes. Very few ramming were carried out. Not only there was no space for the ships to retreat back as to attack with speed but also being intermingled among the enemy ships, they could not carry out the offensive manoeuvres. The battle was conducted with bows and spears between the ships crews that were fighting one another from the decks. From the coast, the two armies were watching the battle's tight development with tension and anguish. The Athenians were defeated and several of their ships resorted to the fortified part of the coast where the infantry had been lined up during the battle to rescue those crews that were forced onto the shore by the enemy. In the course of their retreat from the land, the Athenians were exposed to the outstanding cavalry and "pellis" infantry of the Syracusians without being able to respond even though they too possessed similar units.

Combat Power and the Rise of the Navy: The Epitaph (Funeral Oration) that was

delivered by Pericles to praise those killed during the first year of the Peloponnesian war, illustrates the Athenians pride for their successes. Primarily though, the Epitaph constitutes the declaration of the war's ideological background and operational strategy. Pericles, as a politician and a general, envisaged the likely plans of his enemy: "Neither the building of enemy walls in our country nor their navy are worthy to cause fear on us... From our naval experience we know more for the land war than they know for the naval matters from their experience in the land war. How farmers can possibly achieve something worthwhile, since we will always have them besieged by several ships... More than anything else, the navy relies on experience and it cannot be seen as a matter of a lesser priority when the chance arises...Because the sea dominance offers a great advantage".¹⁵

The Athenians were defeated in the war since they were trapped in the conception that the mere dominance at the sea would lead them to prevail, while the Spartans early realized the principle of joint warfare.

Alexander the Great (336-323BC)

Alexander's Campaign in the Aimos Peninsula (335 BC): The strategic vision of Alexander the Great was permeated by the joint warfare orientation of conducting operations and that concept was evident in all the manifestations of his strategic thought, through a dynamic combination, when necessary, of land and naval forces. In the spring of 335 BC, the Macedonian King initiated a campaign against the Thracians and the Trivallians, in an attempt to secure his northern borders, ahead of his coming invasion to the Persian Empire. Even though the battles of that campaign cannot match the campaigns that followed, those nevertheless were hard and of great importance, requiring substantial military competencies and the coordinated action since the fleet sailed to the Dardanelles while the land forces moved through Thrace. When Alexander reached the river Istros (Danube), he met with the ships he had ordered to sail through Byzantium, due to the precise geographical knowledge that he possessed. The Macedonians used the ships to build an expeditionary bridge, through

¹⁵ Ibid., I, 142–143

which, men and horses crossed the river. The ships were loaded with archers and heavily armed infantry and they likely carried siege engines and supplies that were hard to transport from the land.

The passage to Asia Minor (334 BC): A year later, Alexander set off for his great achievement. When he reached the European side of Hellespont, he offered sacrifice wishing that his campaign be more successful from that of the Greeks in the Trojan War. At the same time, his entire expeditionary corps was transported in 160 galleys and “several other round ships”. Alexander himself led the “flagship” and as tradition says, he launched his spear to the ground before landing, symbolically declaring the capturing of the land, from the sea.

The Siege and Fall of the city of Miletus (334 BC): After liberating the cities of Ionia on the Asia Minor coast, Alexander advanced with his infantry, the archers and his cavalry, settled his camp and decided to break down the walls of the Miletus Acropolis. The city’s siege was achieved by its coordinated isolation from land and the sea; the siege engines were already arranged around the walls, while the fleet was entering the harbour.

The Siege and Fall of the city of Tyre (332 BC): During the winter of 334/3 BC, while Alexander was crossing the mountainous regions of south and central Asia Minor, the Persians decided to mobilize their fleet in an attempt to launch a counterattack in the Aegean, in the mainland of Greece and Macedonia. They had the conviction that Alexander was struggling in the interior of the Persian Empire. Although Alexander had captured and he was occupying the whole Asia Minor western coast, the Persian initiative in the Aegean could act as to cut off the main expeditionary corps from mainland Greece and to isolate it in the Asia Minor land; especially if the control of the Hellespont Straits was lost. Alexander became exceptionally worried by this development and he ordered the reformation of his fleet. He judged that chasing Darius further inside Persia was not sensible, before securing his rear by establishing his control in eastern Mediterranean. However, he could not secure the dominance of that region for as long the Persians maintained Egypt and

Cyprus under their control and Tyre's stance was in doubt. Were the Greek army to advance towards Babylon and Sousa, the Persians could transfer the war to Greece. By occupying Tyre, they were securing the dominance of Phoenicia and the shift of the Phoenician fleet that made up the best part of the Persian navy. An immediate consequence would be the accession of Cyprus to the Macedonians. The combined Macedonian, Phoenician and Cypriot fleet would easily take control of the sea, securing the success of the expedition they were planning in Egypt. The capture of Tyre was thus critical for achieving the objective they were planning that was the demise of the Persian state. Tyre was built on an island stretching along the coast. At the nearest point, the distance from the coast was 700 meters. Tyre had two harbors and the city was surrounded by strong and high walls in all sides, especially in the eastern side, across the coast. Capturing the city was a particularly hard task, as it was a strongly fortified island that in contrast to Alexander, it possessed fleet. In addition, the Tyrians also possessed the necessary resources, a large number of mercenaries, abundant siege engines and skilful technicians to withstand a long siege. The operations for conquering Tyre began in January of 332 BC. The sea's interposition was the most important of the elements making up the city's defensive strength. To overcome that obstacle, Alexander decided to build a pier joining the island to the coast and converting it to a peninsula so as to deploy his army up to the city's walls. Also, the siege of such a strongly fortified place was demanding the building of perfected siege engines, most prominent of which were the exceptionally high towers. Yet, the city's capture would finally come from the sea. The Tyrians mobilized all those capable of fighting and trained them for fighting on the city's walls and at the sea. When the pier reached at a shooting distance from the island, the Tyrians started to shoot with catapults and bows from the city walls against those working on the construction. At the same time, boats armed with catapults and manned by archers and sling shooters were sailing close to both sides of the pier, shooting from close distance, causing heavy casualties and deterring the work on the construction. The great achievement of building the siege towers and their installation on the pier altered the situation. Equipped with powerful shooting machines and properly manned, the towers enabled the Macedonians to fire against those defending the city from the walls and against their ships. That ensured the unhindered progress of the

work. Then the Tyrians carried out an ingenious strategem. In a surprise attack, they converted a horse carrying ship into a fire ship. They brought it alongside the towers by the joint action of other warships and they set it on fire so as to spread the fire to the towers. Archers from the warships shot against those who came close, trying to put the fire off. Also Tyrians on small boats landed on the pier and burned all those siege engines that were not already on fire. Alexander ordered the construction of new engines and the widening of the pier. He himself went to Sidon to recruit all those ships that he possessed. His fleet was made up by more than two hundred ships from the Greek cities, Cyprus and Lycia. It had to be reorganized and be prepared for a naval battle. Alexander's successes and the overall strategy he had employed on land worked on the sea as well, as he had estimated. The possession of the coast and of all naval bases from the Hellespont Straits to Phoenicia had resulted in the dissolution of the Persian fleet, the accession of the Cypriot and the Phoenician ships and the shift of the naval dominance to the Macedonians. The Tyrians were capable seamen and they possessed a strong fleet. They had decided to confront Alexander in a naval battle. However, they changed strategy on seeing the number of his ships. They retreated within the city's harbors, blocking the entrance to those harbors by ships arranged close to one another. Alexander did not proceed to launch an immediate offensive. The Cypriots with their ships anchored to the north of the city while the Phoenicians moved to the south, thus surveying both harbors and completing the city's blockade from the sea. Apart from the decisive reinforcement and strengthening the fleet, the accession of Cyprus and of the Phoenician cities served so that several mechanics from those countries join Alexander's force, aiding to build a large number of siege engines in a short time. Some of those engines were installed on the pier while others on horse carrying ships and on other relatively slow ships that were not fit for a naval battle. The besieged built wooden towers to fight from high above the ground. They defended by shooting arrows, included flamed ones. To block the enemy ships from reaching the walls, they threw several large stones into the sea around the walls. After a surprise attack against his fleet, Alexander rushed to launch an offensive. He coordinated the battle from aboard his ship, with great success. The superiority of his fleet that was made even more convincing after the last battle facilitated the use of the siege engines against the Tyrian walls, not only from the pier – that was extending up

the city by that time – but also from aboard the ships, enabling the perimetric offensive. The ships carrying the siege machines approached the most vulnerable part of the walls. After causing a sufficiently extensive breach on the walls, those retreated letting other ships carrying bridges to take their place and mount bridges on the breached part of the walls so as to facilitate their capture. At the same time, according to the plan, Cypriots and Phoenicians attacked the harbors they had been assigned, while other ships equipped with catapults and manned with archers were sailing along the walls at arrow's distance, not revealing the points they would use to carry out their offensive. Alexander's army simultaneously attacked from the pier and nailed the defenders at that point of the walls. Finally, when the Tyrians withdrew inside the city, trying to regroup and counterattack, the Macedonians advanced against them and crashed their resistance in a swift battle. Tyre fell in July 332 B.C., following a seven-month siege, only after Alexander's fleet gained the naval superiority. The city's fall was ultimately realized by an offensive that was carried out from the sea, even though the great effort of the besiegers had been concentrated on building the pier to assault the city walls from the land as well. Nevertheless, its contribution to the ultimate success of the endeavour was critical, as the day-to-day fighting around the pier to stop, or to ensure its construction caused the constant attrition of the Tyrians. The severe threat that the pier comprised for the city forced the Tyrians to use their elite forces and several of the technical means and resources in the eastern side of the wall, at the expense of their defensive efforts at the seaside points. In addition, the pier served as an artificial arm, offering protection to Alexander's fleet from the winds. The course and the final outcome of the siege were critically influenced by the craftsmanship and particularly by the competition between the mechanics for the design and the building of ever more advanced war machines. The Macedonian superiority in the plain military field along with the concurrent critical reinforcement of the fleet ensured the fall of the impregnable until then city of Tyre. That was an important war trophy that bolstered and further spread Alexander's fame. Alexander's timely and critical decision to reconstitute his fleet to obstruct the Persian attempts of isolating him – as he was operating in the interior of Asia Minor – enabled him to combine and to exploit the particular advantages stemming from the joint operation of the land and the naval forces at the level of strategic planning, as well as at the tactical

level when that was dictated by the physical characteristics of the position that he was trying to capture.

Nearchus Periplus (326-323 BC): The cooperation between the army and the navy was illustrated not only in the battlefield but also in the course of an adventurous historical journey, the Nearchus periplus. Alexander appointed Nearchus as admiral of the navy and commanded him to sketch in every detail the coastline while looking for the possibility of establishing naval bases. In his original, truly far-reaching plan, Alexander meant to combine his own route with that of his ships.

Alexander's Descendants; the Rhodes Siege (305-304 BC): Alexander's death in 323 BC caused his generals to entangle in a long struggle for the terms and conditions of dividing up the empire and the dominance in the vast empire that Alexander had created in the eve of the Hellenistic period. A dominant event in that struggle was the siege of Rhodes by Demetrius, son of Antigonos. As the cities that a few decades earlier were competing for leadership in Greece had declined, Rhodes was among the new cities that emerged and already constituted great cultural and trade centers. Rhodes' place in the middle of the trade route between the Aegean and Alexandria led the city develop special relations with Ptolemeos of Egypt. That contributed to the city's strengthening and prosperity and to the Antigonos intention to place the city under his rule. He estimated that by taking control of the city, he could achieve Egypt's isolation. Antigonos son, Demetrius was well known for his ability to conquer fortified cities by siege; in July 305 BC, he recruited 200 warships and 170 cargo ships, an army and crews that totalled 40.000 men. Another 1.000 commercial and pirate ships followed, aiming to lute the rich harbour. The fleet sailed to the Ialysos bay where the army landed and camped in a location a little further to the east. Fortification infrastructure ensured the camp's communication with the Ialysos bay and the harboured ships. The choice of the particular bay is attributed to its spaciousness. Demetrius exploited that space and its morphology with proper modifications so as to offer safe shelter to a numerous fleet. Also, the highlands above the bay were suitable for setting a camp. From there he could control the main coastal route between the city and the rest of the island, survey the south side of the walls and

ensure the safe communication with the shore and the fleet by the appropriate fortification works. Demetrius intent of using the land force jointly with the fleet and the use of the each one's advantages in the particular geographical space is illustrated in the planning and it is later confirmed in the operations. The city of Rhodes was built in the northern part of the island, forming an irregular triangle that faced to the North. The western and eastern sides – where there were three spacious and fortified harbors – were oriented to the sea, while the city's south side on the land was opposite Demetrius camp. The offensive operation started from the east so as to isolate the city from the east and to stop the Rhodes ship raids. The walls on the seaside were more vulnerable and the siege engines that were built to attack the city from that side were impressive. The bulky and hard to move “turtle” structure was loaded on two cargo ships that were tied to one another. The same thing happened for the two four story towers that were higher than the city's walls. To protect the siege engines a reinforced floating barrier was built. The boats and the lighter ships were fortified and Cretan archers were boarded on those, with the mission to obstruct the Rhodians that were trying to construct the city's walls higher than the towers of Demetrius. Fierce fights followed, new complex warfare constructions were designed and attacks were carried out from soldiers that were siding the walls from ships and they were climbing on them by ladders. But these did not manage to bring the desired effect. The constant failures and the winter that was approaching postponed the naval operations. The city seemed impregnable from the sea and thus Demetrius turned to its siege from land. He recruited several technicians, labourers and capable engineers to build siege engines and the impressive “elepoli”. In the spring of 304 BC, Demetrius chose to attack the city from the south and at a point that was close to his artificial harbour. He ensured his potential to launch a coordinated attack from the sea and the land and he started to advance his engines. The Rhodians did not restrict themselves only to defend the city. They built a secondary wall at the point of the attack but they also benefited from the freedom of movement that they had regained on the sea to obstruct the supplies to the besiegers, using their fleet. Since Demetrius failed to invade the city using bribery, he prepared a plan for a coordinated offensive. According to that plan 1.500 men would neutralize the guards of the extensive breach on the city's walls and they would invade the city at night. As soon as these would

open wider the breach while obstructing the defensive forces, they would launch the coordinated attack from sea and the land. The plan finally failed as the defenders did not abandon their positions on the walls and repelled successfully the general attack that was launched from land and sea at dawn. At the same time and after a strong battle the invaders' body was annihilated. The consecutive failures using land as well as naval forces led Demetrius to decide defeating the city by a blockade. Such a blockade would require long time that Demetrius did not possess and still with a doubtful result, as the Rhodians had repeatedly received reinforcements, without the fleet being able to intervene. After the mediation of the Athenians and the Aitolians, the two sides were led to a compromise, in the summer of 304 BC.

Epilogue

Across time, the joint warfare operations demonstrate substantial analogies and similarities that lead to particular solutions, especially when these are developed in the same operational space. Having today's priorities as our motive, we can light up new aspects of known events in military history. Certainly, those events have always been present in the collective memory, having been seen though from a different perspective. The study of the ancient Hellenic military history offers guiding principles that can lead us to comprehending and implementing the joint warfare, whereas coming to the conclusion that in the present, joint warfare is not a recent copy of the modern allied conception for the conduct of operations, but it is based on valid historical facts.

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