The wrath of Poseidon: The influence of water on strategy and tactics of ancient Greek warfare

Ben Nietzel
University of Northern Iowa

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The Wrath Of Poseidon: The Influence of Water on Strategy and Tactics of Ancient Greek Warfare

Ben Nietzel

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Abstract

This paper is a historical look at the influence of geography on people. Water had a great influence on the tactics and strategies of Greek armies. Books and journal articles were utilized in looking at how water issues influenced the decisions of commanders and the outcomes of battles. Water was a major influence on the tactics and strategies of the Ancient Greeks. It played out in issues of transportation, defense, and the supply. Water concerns permeated every aspect of the Greek warfare, showing itself influential in the outcomes of battles and wars. This paper seeks to show how the commanders in Ancient Greece had many different considerations to take into account when waging war, not the least of which was water. Furthermore, it seeks to bridge the gap between geography and history by showing how interdependent geography and history are upon one another.
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Introduction

The role of water in war

Water presents all types of considerations, uses, and tactical challenges to commanders of all eras. Water can be used as a natural barrier to protect a flank or seal an enemy. Commanders have often used a river to protect their troops from a sudden attack. Water can be used as a rapid means of transportation for troops and goods. For example, control of the Mississippi River was of vital strategic importance during the Civil War for this very reason. Water serves as a major battleground, as important if not more important than land or air. England was able to dominate most of the world for many centuries with a very small army simply through its ability to control the seas. Troops need water to survive, and thus water supplies, especially to armies in hostile lands, is one of the crucial considerations a commander of any size force must deal with. Technology has allowed us some control over water, giving modern commanders better strategic flexibility. In Ancient Greece this was not the case. This paper looks at how water influenced the tactics and strategies of warfare in Ancient Greece.

The Ancient Greeks

Before studying the role of water on strategy and tactics of Ancient Greek warfare, it is first imperative to have a working knowledge of the Greeks during the time period being discussed, as well as an understanding of the history and
execution of their conflicts. It is impossible to discuss the effects of anything from water to the induction of the phalanx formation without a base of knowledge to work from. This overview will provide the reference point for this paper. This paper looks at the Greeks and their warfare in two different stages.

As noted by Finley (1979), McMahon (1996), and Starr (1971), the history of the Greeks at this time is usually divided into two parts, the Hellenic and the Hellenistic. The Hellenic history covers the Persian and Peloponnesian Wars, while the Hellenistic covers Alexander’s wars of conquest. Both of these periods are important when looking at the role of water in Greek warfare. The Persian and Peloponnesian Wars provide a look at the conduct of Greek warfare in close proximity to their home city-states. Both the invasion of Xerxes and the Sparta-Athenian conflicts allow an examination of the uses of water. The commanders in this instance were not bothered by the logistical demands that face armies operating in enemy territory. While it is true both Athens and Sparta invaded the countryside of rival city-states and besieged their town, thus warranting a need for fresh water resources, it is also true that they would have intimately known this territory and had allies of their own located in relatively close proximity. While these allies may not have been close enough to supply the armies directly or fully with their water needs, they certainly would have made the logistics much simpler for the invading armies than they would have faced in a foreign territory. Both these wars also provide excellent, detailed looks at the siege warfare of the Greeks, and siege warfare is of particular relevance to the role of water in warfare,
because water and provisions are a major factor for both the attackers and defenders.

Alexander’s Hellenistic campaign allows a different look. While information can be gleaned about water uses in siege warfare and the selection of battle sites, its most valuable purpose for this study is the insight it provides of Alexander’s logistical needs. Alexander had major supply considerations for both feeding his army and supplying it with fresh water. One can imagine the problems of supplying any large moving force during a dry season, but how much worse it much have been when moving through deserts! Alexander’s campaigns provide an excellent look at the constraints water places on the tactics and strategies a commander was able to employ during this time.

A brief history of Ancient Greece

The Greeks are not to be thought of as a coherent nation. In this time period (800-300 B.C.), Greece was not a political state like Caesar’s Rome or Napoleon’s France. Instead, what is today known as Greece was a collection of city-states. Each city-state was a political unit unto itself. It was self-regulated, had its own form of government, and made its own foreign policy. These city-states coexisted, with each dominating the countryside around it in proportion to its stature. Often, the city-states would go to war with one another, forming alliances with other city-states. This developed balances of power among the
various alliances. The two most important of these city-states, Athens and Sparta, deserve special mention.

Athens is the modern day capital of Greece, and is located in central Greece. Connolly’s (1998) research finds that Athens had become the cultural center of Greece by 500 BC. Its original government was that of a king, like the other city-states, but it evolved from rule by a king to that of nobility, and then to a tyrant, until it finally became a democracy on the eve of the Persian War. Athens dominated the area around it, known as Attica. Athens’ military power stemmed both from having the best navy in Greece, and from her impenetrable walls that were constructed after she was sacked in the Persian Wars.

Sparta had a different tradition than that of Athens, as discussed by the research of Connolly (1981). The Spartans descended from warring tribes who invaded Greece. They enslaved the native population and forced them to work “state-owned” farms that provided the Spartans with their livelihood. Sparta was ruled over by two hereditary kings, a form of government they would keep. By the 7th century, Sparta had defeated its neighbors and was in control of the southern part of the Peloponnesus. The Spartans were great fighters and were rightly recognized as possessing the best army in all of Greece, if not the whole of the known world at this time. Their army’s military supremacy was matched only by Athenian naval power.

Delbruck (1975) and Olmstead (1948) go on to report that the Persian Wars were a series of wars fought between the Greek city-states and the conglomerate forces of the Persian King, Xerxes (see figure 2). The Persians
Persian invasion proceeds by land and sea.

Storm off of Euboea destroys large portion of Persian fleet.

Persians, defeated at Salamis 480 B.C., send fleet back to Asia. Persian land force is defeated at Plataea 479 B.C.

THE AEGEAN BASIN
THIRD PERSIAN INVASION 480-479 B.C.
were a mighty force that ruled Asia Minor (present day Turkey). They subjugated many of the nations around them, and Xerxes then turned his attention to the west and the Greeks. A series of revolts by some of the Eastern Greek cities under Persian control led Xerxes to demand subjugation from the entirety of Greece. When this did not occur, Xerxes dispatched a punitive expeditionary force.

Despite their normal state of civil strife, the Greeks saw the necessity of uniting in order to drive off the Persians and preserve their way of life. One of the Spartan Kings, Cleomenes, deposed his dissenting colleague Demaratus, and formed an alliance with Athens, who was at this time under threat of an eminent Persian attack. Thus the whole of Greece rallied to the joint banners of the two Greek powers, in order to repel the Persian army.

When discussing Greek battles of this time, it is important to draw on the research of Connolly (1981), Lazenly (1996), and May (1984) who provide an excellent discussion of the main Greek battle formation, the phalanx. The phalanx consisted of files of men, usually eight deep, with a broad frontage. The men would fight with short spears that would protrude out from the front of the formation. When a man in the front fighting rank fell, the man directly behind him simply stepped-up and took his place. Besides providing men to replace the front rank, the main job of the men in the proceeding ranks of the phalanx was to provide a pressure and weight to the battle line. It was usually this pressure that determined the outcome of the conflict.

Connolly (1981) also points out that the phalanx formation was made possible by the introduction of the Argive shield. This shield had a buckler that
allowed it to be attached to the forearm. It protected a man from his knees to his chin, as well as offering protection to his neighbors exposed right side. When combined with helmets, this gave the phalanx great protection (see figure 3). The only weakness of the phalanx formation was an attack on its flank. In the phalanx, the hoplite soldier was unable to effectively turn and fight to his side without destroying unit cohesion. Cavalry was especially good at this, and the Persians had a plethora of cavalry, making choice of terrain very important for the Greeks when battling Xerxes' armies.

As reported by Delbruck (1975), Smith (1960), and Warry (1986), the first clash occurred at Marathon. The Athenians sent a runner to Sparta to inform them of the attack, but due to observance of a holiday, Sparta would be late in arriving and would miss the battle. It was surprisingly of no-consequence as the Athenians and their allied hoplites (as Greek soldiers were known) managed to defeat the Persian expeditionary force. The Persians were unable to defeat the Athenian Phalanx, which had wisely chosen to fight the Persians on terrain at Marathon that offered protection to its flanks.

The second noteworthy clash with the Persians occurred at Thermopylae. Thermopylae contained a mountain pass that was key to Xerxes’ continued march into Greece and towards Athens. Delbruck (1975) and May (1984) note that the pass was guarded by a severely outnumbered force commanded by the Spartan general Leonidus. The Greeks were only protected by a manmade wall. The Greeks did well, using the confining space of pass to limit the amount of combatants the Persians could get into battle. This was perfect for the Greeks as
it allowed them to make full use of their phalanx by pressing forward while the
sides of the pass protected their flanks from the counterattack of the Persian
cavalry. The Greeks held out for over five days, but when the Persians discovered
another pass over the mountains allowing them to assault the Greeks from both
front and back, the battle was lost. The Persian strength of numbers proved too
much and the Greeks were killed to a man. The battle of Thermopylae did
accomplish its main goal of delaying the Persian attack, but it demoralized many
of Sparta’s allies. It also opened the way to the siege and sack of Athens. This
siege would later prove important as it would serve as the main proponent for the
construction of Athens’s nearly-impenetrable city walls.

Eventually, after defeating the Persians on both land and sea, the Persian
Wars drew to an end with the Greeks victorious. This was not the end of Greek
conflict. After having successfully defended Greece, the Athenian-Spartan
alliance quickly dissolved and relations returned to their pre-war state of hostility.
Both states continued their empire building activities, and this inevitably would
bring them into conflict again.

Starr (1971) and Kagan’s (1974) found that Athens had consolidated her
power of the seas, while Sparta remained the master of warfare on land. War
again broke out between the two states and their respective allies in 431 BC (see
figure 4). Athens’ ability to dominate the seas and her newly improved walls,
combined with Sparta’s dominance of the area around Athens, meant that neither
side could gain enough of an advantage to win. This war was amicably settled
after Sparta’s failed siege of Athens. During this siege the worst killer on either
Figure 4

Athenian Strategy:
Defend on Land,
Offensive on the Sea,
Continue Foreign Trade

Spartan Strategy:
Offensive on Land

The Aegean Basin

Alliances in 431 at Beginning of Peloponnesian War and Contrasting Strategies
side was the Egyptian plague that was imported on Athenian supply ships, wiping out one-fourth of the population.

As detailed by Alexander (1999), Connolly (1981), and Kagan (1974), the war reopened fifteen years later with Athens' failed conquest of the Sicilian city-state of Syracuse. An Athenian blunder allowed the whole of the army to be captured in a conquest that should have easily yielded the surrender of Syracuse. Instead Athens found itself militarily weakened, again at odds with Sparta, who had again moved out against Athens to relieve the pressure from their ally, Syracuse. Athens went back on the defensive, holding out for nine years until their sufficiently weakened navy was finally caught.

The Persian and Peloponnesian Wars mark an important and distinct time in ancient Greek history. Equally as important and distinct is the history of Alexander the Great of Macedonia. Alexander was the son of Philip of Macedonia. Alexander (2000) and Engels (1978) provide research on Phillip's army and tactics. Philip was able to bring the Macedonians to prominence among the Greeks by totally reorganizing his army. First, he created a new type of phalanx. The major change he made was extending the length of the spears of the rear rankers of the formation so they could extend past four or five ranks of men and still reach the opposing formation's men, while also giving them lighter armor to increase mobility. In this way, the phalanx formation allowed many of the ranks to fight at once and presented an opposing army with a hedgehog front. This multi-speared front combined with the weight of the formation made it quite deadly.
Philip also began to use combined arms tactics by incorporating slingers, javelin throwers, and men with short-bows into his army. He used these troops to support the phalanx. Macedonian cavalry also became important under Philip as well, making use of missile weapons as well as the spear. All this combined to give Philip an army that was much lighter and more mobile than any seen in Greece before. At the same time his army, especially the phalanx and slingers, was the most potent force in the Greek world.

According to Alexander (2000), upon his father’s death, Alexander took control of the Macedonian army. Alexander was an exceptional general, and had already commanded a wing of his father’s army while still in his teens. He decided to launch an invasion of the Persian Empire. Alexander and his army then embarked on a campaign that would take them all over Asia Minor, from Egypt to Afghanistan (see figure 5). He constantly defeated the Persian King Darius, continually driving him further east as Alexander continued to carve up his empire.

Engels (1974) notes that two impressive facts stand out about this campaign. First is Alexander’s amazing organization of supplies. While his army of 35,000 men (plus pack animals) is modest by today’s standards, the sheer logistics of supplying this type of army is mind-boggling. This is true especially when one considers Alexander was at times in territory that was semi-arid to arid, he was working with the imprecise knowledge of the day, and he was constrained to the incredible slow speed of the transportation of his time. Still, he was able to
THE ANCIENT WORLD
ABOUT THE 5th CENTURY B.C.

THE CONQUESTS OF ALEXANDER THE GREAT

Alexander's Route
and Area Under Greek Hegemony
Role of Bodies of Water

One of the most obvious encounters generals have with water in terms of their tactical and strategic considerations is that of bodies of waters. Oceans, rivers, lakes, and major streams all play a major role in war. When looking at the influence bodies of water had on the ancient Greeks, three main areas stand out. They are the role of navies, the use of amphibious assaults, and the transportation of supplies. Delbruck’s (1975) research confirms this. He notes how the Persians, like the Greeks, used their ships to furnish provisions, facilitate detours, and overpower enemies at sea.

Navies

One of the most important effects of bodies of water on Ancient Greek warfare was their use by navies. Bascom (1976) and Hale (1996) offer insight into the Greek navies. Navies played a major role in the waging of war of the Greeks. It is important to understand that navies at this time played a different role than today. Modern wars, such as World War I, have primarily seen naval conflicts as an engagement of fleets out to sea. Little contact existed between the navy and the army in terms of a combined arms attack. True, since World War II, aircraft carriers have increased this combined arms attack by allowing navies to dispatch planes that participate in land battles, but no real naval/army dependence
has existed other than in terms of supply. As Delbruck’s research indicates, this was not the case in Ancient Greece. There was a large link between the fleet and the army. The reason for this close interdependence is the navy itself. The Greeks did not possess the ocean-going vessels of today. Their main naval craft was the Trireme.

Thucydides (1998) offers a contemporary look at a trireme. A Trireme, as described by Thucydides, is a light, sleek ship over one hundred feet long and under twenty feet wide. It was propelled by three tiers of rowers, and its main form of attack was either to ram its target with a fortified prow, or engage in a boarding action. In the Persian Wars, dominance of the water by the fleets was crucial to the armies on the land.

Amphibious Assaults

Bodies of water also provided the means to launch amphibious assaults. According to Bascom (1996), both the Greek trireme’s construction and necessary proximity to land made it a good craft to quickly embark and disembark from. Since water transportation was much swifter than land transportation at this time, rivers, seas, and lakes allowed generals to quickly transport any or all of their troops around. This meant if a general was near one of these features, he could potentially move a detachment of men quickly from in front of an enemy to their exposed flank, increasing his strategic and tactical options. This allowed him to press in on them from multiple sides. Amphibious assaults also allowed a general
to move his troops safely and quickly around a stronger enemy, or an enemy position that would be unfavorable to assault via land. If he was unable to do this, a general could use his army’s ability to rapidly disembark and then re-embark to harass a stronger force before the enemy could fully come to grips with him. Amphibious assaults could also allow a general to launch lightning strikes on unsuspecting cities. If a general with adequate transportation was on the coast, he could thus threaten multiple cites with his presence and force them to pull within there walls, a feat the same army could not accomplish if restricted to land. This was especially invaluable in a multi-island area like Greece. A navy and a navigable body of water gave a commander many strategic options.

Mode of Transportation for Food and Supplies

The main role of bodies of water was that of a means of transportation of food and supplies. Transportation by land in Ancient Greece was quite slow. Roads were poor to non-existent and the main source of overland transport was pack animals. Pack animals have the disadvantage of having to carry food to feed themselves on the journey, in addition to the cargo they are transporting. They are also quite slow and greatly affected by harsh conditions such as heat. Water on the other hand, offers a mode of transportation that is much faster and more hassle-free than land. Ships could carry much more than animals while not consuming cargo themselves. Whereas a pack animal can only transport about 200 pounds of supplies, while consuming twenty pounds of supplies a day, a ship
at this time could carry 400 tons of supplies (Engels 26). Water was used to transport goods to cities, besiegers, and armies on the move, as discussed later.

Delbruck (1975), Kagan (1974), and Thompson (1972) report extensively on water’s role in helping the Athenians against the Spartans. Archidamin, leader of the Athenians during the First Peloponnesian War, had a strategy totally dependant on the full exploitation of water bodies. Archidamin knew the Athenians could not match the Spartans and their allies on the field of battle. Any open conflict of land armies would result in an Athenian defeat. Instead, he planned to remain behind the strong walls of Athens and take advantage of the Athenian naval superiority. He instigated a blockade of Spartan supplies and launched sea attacks against the Spartan navy. He also launched amphibious assaults against Sparta-controlled coasts. His goal was to cause economic distress to the Spartans to force them to sue for peace. The Athenian plan worked fairly well. An unforeseeable disaster almost compromised the plan when Athenian trading ships brought the aforementioned plague back from Egypt, wiping out a quarter of the population. Ironically, the Spartans were spared from the plague by the effective Athenian blockade. In the end, the Athenians were forced to surrender, but their plan worked by sufficiently tiring the Spartans into accepting an Athenian surrender that left Athens in almost the same condition as when they began the war.
When looking at water considerations on the march, it is helpful to view the Greeks in the Hellenic and the Hellenistic time periods. This paper will not spend much time discussing the Hellenic period in this respect. As mentioned earlier, the Hellenic period involved the wars occurring in Greece, namely the Persian and Peloponnesian Wars. In the Persian Wars, the Greeks were united against an invading Persian army. This had the effect of allowing the Greeks to fight in territory they were intimately familiar with, and thus it would have been easy for them to locate local sources of water, or be supplied by friendly cities that would have always been in close proximity. The same was true of the Peloponnesian Wars. Though the Greeks may have invaded other Greek territory, they still would have been familiar with the area, and most likely would have also had allies located in the near vicinity. For this reason, it can be assumed that issues of water supply on the march would have been minimal at best.

Alexander the Great

A much more important period to look at is the Hellenistic Period when Alexander was leading his forces across Asia Minor in his conquest of Persia. This era is an excellent period to examine for two reasons. First, Alexander embarked on a long, far-reaching conquest of lands he could not have been intimately familiar with. Without the mapping technology of today, he had very
sketchy details at best when attempting to make decisions about where he was going and what would be there. This would make supplying an army fairly difficult. Adding to that burden was the fact that Alexander was leading his men in many areas that contained desert or near desert conditions. This meant that figuring out supplies for both food and water would be critical to his success. Alexander’s ability to obtain supplies would also greatly influence his tactics and strategy by dictating where he could and could not go.

It is critical to get an idea of the problems facing Alexander when embarking upon his conquests as discussed by Engels (1978). First was the sheer size of invading armies at this time. Although the total number of men in Alexander’s army (35,000) is drastically less than those of today, it is important to remember that the army would travel together and not have the speed or roads available of modern armies. In addition to this mass of men, ancient armies also had many additional people with them. Unlike modern, professional armies, Alexander’s army was composed mainly of citizen soldiers, with only a few mercenary contingents. Because of the slowness of campaigns at this time, many soldiers would bring their wives along, as well as servants. In Greek armies, it was commonplace for each hoplite warrior to have one servant. In order to increase his speed and mobility, Engels (1978) and Connolly (1981) report that Alexander instituted a policy whereby only one servant was allowed per ten hoplites, and each cavalryman could have only one servant. Women were also not allowed on the campaign, though this gradually slackened on the long campaigns as many of the men took foreign wives. In addition, Alexander also
only used horses, mules, and camels as pack animals because they were the quickest and heartiest in the desert-like conditions. All of this had the effect of making Alexander’s army much more compact and quicker, allowing him to expand the distance he could travel each day. It also had the benefit of cutting down on the sheer volume of food and water he needed to supply for his army, making his logistics problem somewhat lighter.

Another problem facing Alexander was the logistics of using pack animals. Engels (1978) does an excellent job of assessing Alexander’s problem with using pack animals. When using pack animals one is restricted on the number of days’ supplies that could be carried by the army. Animal transportation has the major drawback of needing to be fed. The animals carry supplies, but they also consume supplies at a rate that is proportional to their number. Furthermore, they are restricted by the amount of weight they can carry, which, while much greater than a man, is still relatively small. The maximum amount of supplies Alexander could carry was four day’s worth. Even with 8,400 pack animals, he could only carry four days worth of rations, and that is only possible by giving soldiers half rations. After that, any additional weight carried by the animals, even if adding animals, would be totally consumed by carrying fodder for the animals themselves because the animals could carry enough supplies for the animal itself to travel more than four days but only by carrying nothing else, negating its worth. Thus, an army with 40 mules or 4,000 mules could only march for four days without re-supplying. If he were to supply
himself while traveling in the desert, Alexander would be forced to stay within four days march of a supply depot, and this would restrict his strategic choices.

Alexander also had to have a plan. He could not remain stationary without sea or river transportation nearby, because he would not have enough supplies with him to feed his army while waiting around. Even if he were camped during harvest giving his army plenty of foodstuffs, he would still have a problem without a river in close proximity. As Engels (1978) points out, it is impossible for an army Alexander’s size to draw their daily water requirements from a few major wells. Even drawing water all day and night continuously, it would be impossible to draw enough water out without a mechanical pump to supply all the daily needs of the army. Therefore, an army needed to locate near a fresh water source that allowed them to spread out to collect water.

To combat these problems, Alexander had three main courses of action. The first was to travel through particularly dry areas in the appropriate seasons. Many regions in Asia Minor are desert-like, but if Alexander moved through them during the right season, they would contain streams and rivers with appropriate flow levels that could alleviate the army’s need to carry water. Another strategy Alexander could take was to follow rivers. This would allow him access to fresh water supplies, as well as give him a means to transport supplies to his army quickly and efficiently. A land like Egypt can be impossible for an army to march through if they move in the desert, but if they follow the Nile River it can be quite easy to obtain water and supplies. The final course of action Alexander could take would be to move from town to town, having his troops fed and watered by
the towns as he passed through. This could either be done by the good will of the town, or by force. Alexander’s powerful army made it much more profitable for cities to capitulate rather than be forced to provide Alexander with supplies. While these solutions allowed Alexander to complete his conquest of Persia, they certainly put strategic limits on him by limiting when he could travel, and where he could go. For example, often it is beneficial for an army to travel through wilderness so as to be undetected by their foe and thus be able to make a surprise assault, or at least assault from a surprise direction. Alexander, however, would be confined from never going more than four days away from a river that could supply him, or more likely a city. This would certainly allow the Persians to keep some type of tabs on his whereabouts.

**Water considerations for besiegers**

The siege was certainly not an art form mastered by the Greeks. In fact, Greek siege warfare was quite inadequate for the task. As Kern (1999) reports, during the Peloponnesian Wars it took the large city of Thebes and her Spartan allies over a year and a half to subdue the tiny town of Plataea, which had less than 600 soldiers defending it. The Greeks of the Hellenic period simply did not have the technical know-how in using siege equipment. Thus, instead of only having to wait until siege equipment could be constructed or transported to a besieged city, Greek armies were forced to starve the defenders into submission. This could take several years to accomplish, if it worked at all.
Kern notes that a siege of a Greek city would occur when the army of the city was inferior in men or martial prowess to their opponent. Instead of seeking a pitched battle that would settle the war, the city would choose to keep its army behind the city walls, thus taking up a defensive position that was much easier to hold against a superior force. A city’s army and settlers would stay in the city during the siege. During this time, the besieging army would surround the city, perhaps building counter-walls to prevent the besieged army from making a “break-out” attempt. The besieging city would then use the crops around the city to supply themselves and destroy those they could not use or the city would have access to. The key would then be how long the besieged city’s supplies could hold out, or if they could supply themselves by a water route that the attackers could not seal off. Either way, they would attempt to wait for allies to relieve them, or for the enemy to tire or run out of money. Even if the besieged city had to rely on stored supplies, it would still have quite a bit stored, allowing it to prolong its surrender. Thus, water supplies played a major role for a besieging general because he would be in a siege for an extended amount of time.

Water needs of a besieging army

Any general engaging in a siege had some basic water needs he had to address in order to carry out a successful siege. He had to locate a fresh supply of water for his men. Almost as important, in order to be successful, he needed to
have control of the major water transportation routes. If he failed in either of these, the siege could not be successful.

It is important to note that if a commander was going to have his army in a sedentary position for at least a year, his army would have to find water sources that would be available all year long. It can be assumed that any city under siege will have some way to provide for its own water source. Any foresight at all will lead the average city planner to conclude that the strongest walls in all of Greece will be of no use after a couple of days if the city does not receive an adequate source of freshwater. This considered, an attacking commander who is unable to provide his men with an adequate source of fresh water will also lose his chance of victory just as quickly regardless of his armies strength. A few ground wells will also not suffice, as the logistics of supplying an army in such a way have previously been proven faulty.

As Kern (1999) reports in his research, the Athenian siege of the city of Pylos suffered from this very problem. The Athenians were reliant on only one spring to provide them with fresh water. When this proved inadequate, their men had to dig on the beaches for water. The shallowness of this water made it easily contaminable and a plague broke out. Thus, it can be said that a commander’s strategic options were limited to engaging a siege in an area where he either had a large, open source of fresh water such as a lake or river that would be adequate all year long, or he needed to locate near a salt coastal area that would allow him to import fresh water on ships.
The other necessity regarding water for commanders was to have control of water transportation routes. Without control of these routes, Greek commanders experienced two possible problems. First, if they could not successfully blockade the besieged city's supplies, this would mean an extension of the siege, possibly even indefinitely. The goal of a siege that does not employ siege machinery to storm the city is to starve a city into submission. To do this, the besieging army surrounds the city and cuts off its trade and supply routes. This is a costly and time-consuming process that cannot be successfully completed if water access to the city creates a gap in the blockade. Therefore, a commander needed to be able to fully cut off a city, or at least slow the importation of supplies to a rate that would result in the eventual depletion of those supplies. This is not an easy task. Not only did the Greek navy have to stop all manner of ships, but in particularly effective blockades, supplies could also be brought in by swimmers at night. Thus, a besieging army had to be ever vigilant to maintain a winning siege.

The other problem a besieger could face was even more serious. If a besieging force's navy was so outclassed that not only could it not blockade the city, but the city could itself blockade the besieging army, things would become really desperate. The slow speed and inefficiency of land transport has already been shown, and this would only serve to further deplete the treasury of the besieging army, and weaken its supplies. This would severely restrict the strategic and tactical abilities of a commander who would now have to turn his focus on the problems of supplying his army.
Both of these problems are best demonstrated by Athens and Sparta in the First Peloponnesian War as reported in the research of Connolly (1981) and Kagan (1974). Since Athens felt it could not match Sparta in a pitched battle, it withdrew behind its newly improved city walls. These walls allowed Athens to repel attacks by the Spartans, and so the Spartans were forced to besiege Athens and try to force it into submission. Sparta’s biggest problem was Athens’ superior naval fleet. Because Athens ruled the seas, she could easily import supplies of food, water, and equipment from her allies and trading partners, thus keeping herself in the fight. In the meantime, the Spartans had to expend time and money to maintain the siege. This was made even more difficult by Athens’ ability to deny Sparta large shipments of supplies via water routes by creating a blockade. Thus, Sparta had to move most of its supplies overland where its army could protect it. This cost the Spartans economically, as sieges were quite expensive to maintain in terms of payment of troops, cost of supplies, and lost labor at home. This meant that after years of maintaining the siege, the Spartans were forced to offer Athens a peace that left Athens as it was prior to the start of the war, despite the fact that the Athenians could not defeat the Spartans in the field.

Non-transportation uses of water for besiegers

Water has more importance for an army than just transportation and drinking. Many times a nearby body of water or source of water could make a commander’s job of forcing a city to capitulate much more difficult as it allowed
them to hold out longer, but this was not always the case. Sometimes, besieging armies were able to use the local water supply to their advantage. A common strategy for commanders was simply to deny the besieged city their water source, thereby bring about capitulations much quicker. Other, more creative, uses occurred as well.

One of the best ways to end a siege was to force a city to surrender by cutting off its supplies. One way, as has been observed, is to stop the importation of food by blockading a city. This was a difficult task, and even if successful could still result in a long siege as most cities had stores of food saved up for sieges because certain foods can easily be kept for long times. This was not the only option though. A commander could also attempt to cut off a city’s water supply.

Some cities could survive on natural wells and springs within their city wells, as well as cisterns to catch rain water, but most relied also on either a source artificially brought into the city or a source supplying a river or stream running into the city. If the first scenario was the case, a good tactic for commanders was to try to cut off the supply of water to the city, thereby bringing resolution to the siege quicker. This could be done by diverting a river or stream that led into a city, or by destroying an aqueduct or piping that brought water from an elevated location to the city. This was a prevalent tactic as is evidenced by an oath taken by the members of the Amphictionic League in the early sixth century B.C. This oath pledged to not take cities by cutting off their water supply (Kern 1999).
As Kern (1999) demonstrates with his research, some commanders had more creative uses for water in besieging a city. One such use was to poison a city’s water supply. This could be done a variety of ways, such as adding a deadly poison, or one that would simply make the city’s inhabitants sick, and thus weakened. A classic example of this was the Athenian leader Solon’s siege of the Greek town of Krisna. Solon diverted the river flowing into Krisna to try to force capitulation. The Krisnaians were undeterred as they were able to survive on the water supplied by their cisterns and wells. Seeing this, Solon diverted the river back into Krisna, but added a purgative to it. When the Krisnaians began to drink the river water again, they all acquired acute diarrhea from the purgative Solon had added. In their weakened state they were forced to abandon the walls.

As Kern (1999) found, even more creative measures were employed. When the Greeks launched a siege on the Persian town of Eion, they were unable to break through the city’s walls. The Greek commander Cimon had the Greeks redirect the nearby Strymon River, forcing it to flow against the city’s walls. Since they were constructed of adobe, the walls soon gave way, and the Greeks were able to take the city.

Equally as ingenious was the city of Croton’s plan to punish its neighbor, Sybaris, as noted by Kern (1999). After defeating the Sybarites in the field of battle, the Crotoniates decided to raze their city to avenge the death of their envoys the Syrabites had murdered before the war. To do this, the Crotoniates diverted a nearby river so it ran over Sybaris. This submerged the town and utterly destroyed it.
Commanders had many uses for water other than for transportation and drinking. Since a besieged city had to both feed and water its population in order to continue to hold out, many commanders attempted to cut off both food and water supplies. This was a solid tactic that could yield results. Some commanders even came up with more ingenious uses to turn local water supplies into weapons in their own right, using them to poison a city or destroy its walls.

Water Considerations for the Besieged

Water played an equally important role strategically for those who were being besieged in Ancient Greece. The major strategic importance of water to besieged cities has been stated and proven earlier in different section therefore, this will serve to highlight these areas without reproving their strategic worth.

Water Uses for the Besieged

As discussed earlier, if a besieging army was able to cut off a city’s water, the besieged city would be forced to surrender. Therefore, having a constant supply of water was crucial. Many cities did not have access to a constant supply of fresh water within their city walls because, as Kern (1999) reports, the best defensible position was the main determinate in site selection. Therefore, many cities were reliant on cisterns to provide water.

When the cisterns were not adequate, aqueducts were used. Aqueducts were a means of transporting runoff from highlands around the city into the city.
In his book on the city of Thebes, Symeonoglou (1985) and Brumbaugh (1960) discuss how this was usually done by a means of underground piping. Thebes had no natural water supply, so they were forced to supply themselves from nearby springs and highlands. To do this, they used stone lined conduits that ran underground for over one kilometer. This brought abundant water into the city that was protected from being tampered with by invading forces. Kern (1999) finds similar systems in use. He reports that under the ruler Polycrates, the city of Samos created their own aqueduct. They cut a tunnel through a hill over a mile long and eight feet in diameter in order to supply their city with fresh, protected water.

As Wycherly (1962) notes those cities fortunate enough to locate on a water source, they could gain two advantages. The first was the city’s ability to use the water source as a natural barrier. Assuming the water source was at least a good-sized river, a simple wall on the coast would make assaults on this area almost impossible, if they could be attempted at all.

Furthermore, a city that was located next to a major water source had the important advantage of being able to transport goods into their city. Time and time again in this paper, the importance of supply has been shown on an army’s ability to wage war. If a city located on water, it had a better chance of being able to supply itself during a siege than it did if it was landlocked. As shown by Athens, a superior navy made this quite easy and allowed the city to stand up to sieges. Even if the besieged city’s navy was not superior, a water source still offered options. A besieging army that built a wall to encompass a city makes it
hard to smuggle supplies into the city because relatively few men can watch the wall and still easily spot someone attempting to do just such a thing. This is because of the trouble of having to penetrate the wall, as well as the problems of carrying smuggled goods that would have been heavy in order for them to be worth the effort to smuggle in. Water made this much easier. As noted before, the Spartans used swimmers to bypass the Athens fleet and supply the besieged city of Pylos. It is much more difficult to form a cohesive water blockade that can detect swimmers, especially in water with any type of waves. Swimmer’s tasks were made easier by being able to use the water’s buoyancy to lighten the load of supplies.

A Case Study: Athens

Athens, as written about by Connolly (1998), Hill (1953), and Schaberg (1999), and Thucydides (1998), offers a good case study to see the strategic importance of water to besieged city. As noted earlier, after being sacked by the Persians, Athens set about to create much better city walls. Athens’ 260,000 inhabitants were mainly supplied by food from the island of Euboea. Being able to have access to these supplies was paramount to Athens survival in times of war. To protect this access, Athens, which is a landlocked city, constructed new city walls and walls connecting it to its port of Piraeus, three miles away in 460 B.C. (See Figure 6). These walls would be sufficient to repel the Spartans and protect the Athenian supply lines.
ATHENS AND PIRAEUS
Walls Protecting the City and Port

Figure 6
The key to this transportation route was having a navy strong enough to keep the sea-lanes open for trade. So, in 483 B.C., Athens created the most powerful navy in all of Greece. It would be this navy, combined with Athens’ powerful walls, that would allow it to survive the Spartan onslaught.

Connolly (1999) found that in addition to protecting its food supplies, Athens also had to make sure it had an adequate amount of water. To this end, most Athenian houses had their own wells and cisterns to collect water. Citizens also relied on public fountains. These fountains were supplied by water brought from the hills surrounding Athens. The water was brought by rock-cut conduits and pipes made of fired clay, even including inspection holes. This water would then be directed either to a basin reservoir for dipping pots into, or to spouts used to fill jugs. A final means of securing water was by cutting drainage channels to channel rainwater into the Eridanus Stream. In this manner, Athens made its water supply internally self-sufficient and denied its enemies the ability to cutoff its water.

In taking these precautions, Athens was able to use water to protect itself in case of a siege. This worked as was noted during the First Peloponnesian War. Athens’s ability to supply itself with imported food protected by its navy, and its ability to supply itself with an uncorruptable source of water, allowed the Athenians to wear down a Spartan army it could not defeat to the point of accepting a peace that left little changed. This is the power water had on tactics, strategies, and the outcomes of wars in Ancient Greece.
Conclusion

Water did have a major influence on the tactics and strategies of war in Ancient Greece. Bodies of water provided navies with the ability to play important and strategically significant roles in war. Bodies of water also provided a means of transportation for troops and supplies that was far superior to transportation on land. Water considerations to armies on the march were also essential. The ability to have access to water determined where an army could go and for how long, thus limiting the strategic options of a commander. Water also played a crucial role for both besiegers and the besieged. The availability of fresh water was a concern for both sides, and both sides could utilize water to cut supplies from the other by means of a naval blockade. Besiegers often expanded their tactical options with creative uses of water, especially by diverting rivers and streams, while cities on the defensive, such as Athens, could render themselves virtually siege-proof with good city walls and protection of their access to waterways.
Bibliography


