

Evolution of the use of the greek phalanx from Marathon 490 a.c. until Leuctra 371 a.c.

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Heavy Infantry - Hoplite Phalanx

The phalanx formation consisted of a continuous line of warriors, shoulder to shoulder. Each warrior was called a hoplite, due to the large round shield he carried, the hoplon. Also he was armed with a sword, xisphos, or a dagger. The main weapon was the spear, with a spearpoint in front and a spike at the end, the spear was of length from 1 to 3m depending on the time and place. The hoplite initially was an untrained farmer that fought together with his community in local conflicts. (1)

The changing circumstances of greek warfare shaped the evolution of the phalanx formation and how it was used.

The phalanx evolved in greece and as far as we know, not other places. The first cause would be the hard terrain of Greece, which makes cavalry less effective than in the near east, where the terrain is less constrained. The second circumstance is economic, fighting battles took the men away from their fields, thus it was preferred a quick solution to conflicts. The third circumstance is cultural, as evidenced by sources such as Homer, the greeks admired frontal combat above battle tricks and ranged combat. The fourth circumstance is socio economic, since the land was owned and farmed by small independent farmers instead of by large land owners and their serfs, each farmer had a reason and the means to arm and armour itself as best as he could. Also, since most battles were smaller conflicts involving control of fertile land or pasture areas, the individuals had strong motivation to fight and win. (1)

The standard phalanx consisted of files of 8 men deep, side by side. The commander was usually placed near the front right of his troop and the overall commander in the position of most risk, near the front right of the entire line. The first three ranks of men could reach the enemy line, while the remaining soldiers pushed their companions forward, the rear shields pressing on the backs of the men in front. The push was to both hold the line in place against the enemy action and also to push the oponent back, trying to disrupt the formation. This push was called otismos. Practical experiments suggest that 250kg and more of pressure could be generated in such movements from each side, so more than half a ton of pressure on the front men of the line when pressing against each other could easily shatter spears and shields not of good quality. The combat was done with spears in the front ranks and at a short engagement distance then with short sword or dagger in the first rank once the spears broke and the otismos was taking place. (2)

The front right of the line was the most dangerous position because of the manner in which the hoplite shield was used, the warrior holds on the right edge of the shield, covering the

left side, and leaving about half the shield hanging on his left, where his companion can find shelter. There are different ideas on how the shield was used in practice, either side by side or overlapped. In any case, the accounts record that when engaged in battle the warriors naturally tried to protect themselves with the side of their companion shield by pressing to their right. This caused the battle lines to rotate on each other against the clock.

The shock of battle was the main purpose of the phalanx. The heavy armor and concentration and depth of men could cause enemies less organized, with less armor and with less capable weapons to shatter and run if they fought face to face.

The deep formation with long spears was also useful against cavalry shock from the front since horses will not run into spear points.

Weakness of the Phalanx were exposed by light infantry with missile weapons, which could attack the phalanx and then retreat before the hoplites could reach them. If the phalanx broke formation and became disorganized to chase lighter infantry it could be defeated by light infantry or cavalry.

Also the sides and rear of the phalanx formation were vulnerable and could cause panic in the formation when engaged by the enemy in this direction because the focus of the warriors, the defence and power of the formation were facing forward.

Light infantry - Psiloy

The light infantry consisted of servants of the hoplites, as well as less wealthy citizens, the Spartans also brought their slaves (helots) to battle as light infantry. The number of light infantry varied very much, from none or very few in the early period (Marathon) to many times as the phalanx itself (Sphacteria).

Light infantry is usually without armor, they can have shields and helmets, short spears, javelins, bows or slings. They are usually used to skirmish with opposing light infantry, to provoke the enemy phalanx to attack and get disordered, to flank the enemy phalanx and to chase the enemy if they run.

Light Cavalry

The cavalry in classical greece mainly consisted of nobles or the most wealthy citizens. It served in a scouting and skirmish role, and was armed with javelins and without heavy armor.

Light cavalry was used to skirmish, and to fight off enemy cavalry. Also it could have a deadly role when given the right circumstances, such as attacking the side or rear unopposed, and when chasing disorganized or fleeing enemy.

Heavy Cavalry

Cavalry armed with armor, shield and long spears with the purpose of chock combat was

not present before Filip II organized and equipped such a force in the macedonian army.

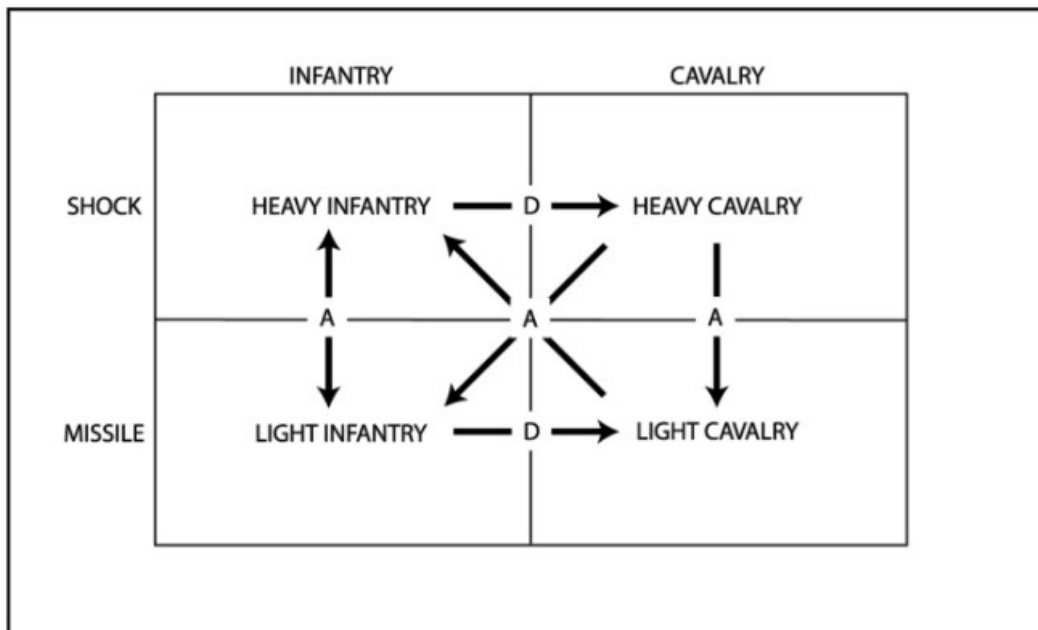


Figure 1. Ancient Weapon Systems. An illustration of general rules of dominance in conflicts between different ancient weapon systems: (1) heavy infantry is generally dominant when defending against heavy cavalry; (2) heavy cavalry is generally dominant when attacking light infantry or light cavalry; (3) light infantry is generally dominant when defending against light cavalry; and (4) light cavalry is generally dominant when attacking heavy infantry. Dominance between heavy and light infantry varies according to the period and unit type involved in the action. Based on Archer Jones, The Art of War in the Western World (Urbana and Chicago: University of Illinois Press, 1987), schematic 1.2.

Figura 1. (3)

"1 Heavy Infantry dominates when defending against heavy cavalry. 2 Heavy Cavalry dominates when attacking light cavalry and light infantry. 3 Light cavalry dominates when attacking heavy infantry. 4 Light infantry or heavy infantry can dominate depending on the time period, and the equipment."

Marathon 490 a.c.

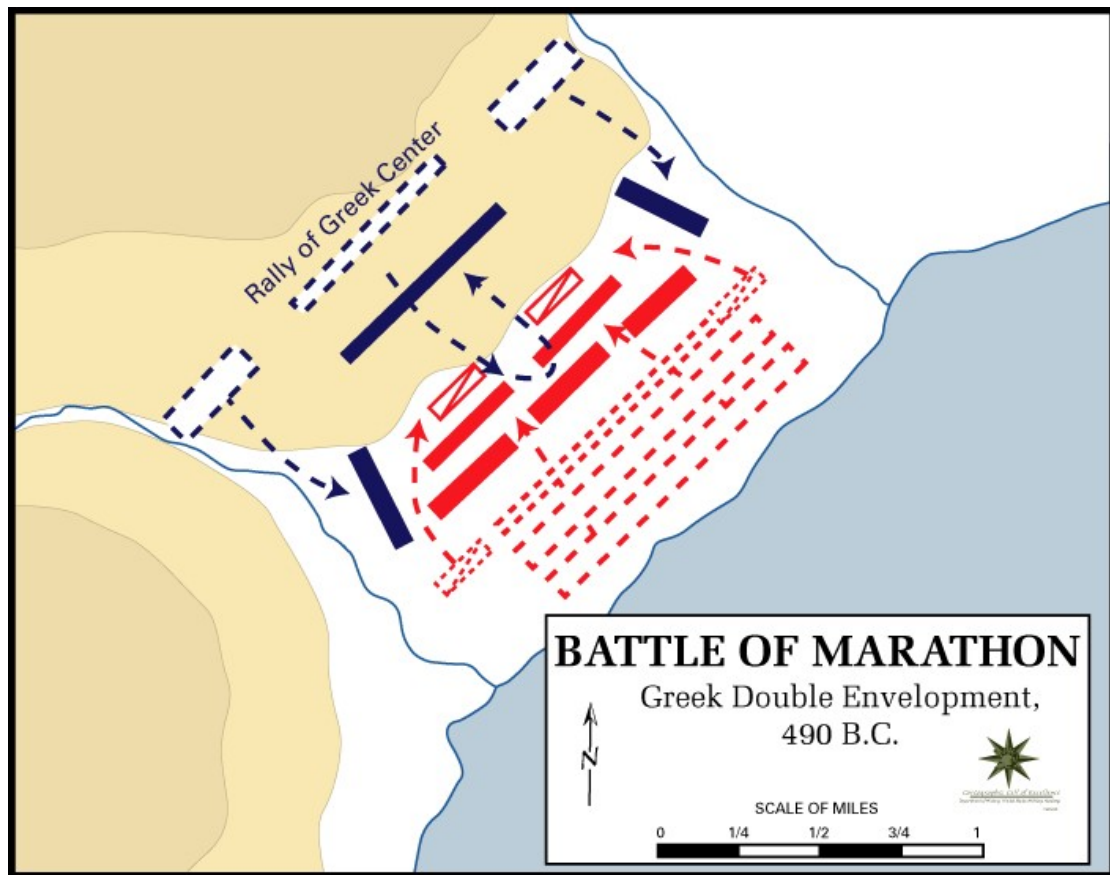


Figura 2 (5)

At Marathon, according to the sources, the greek forces consisted of about 10 or 11 thousand Hoplites, about 9-10 thousand from Athen and 1000 from Beotian allies. We do not have record of light infantry or cavalry on the greek side.

The Persians had about 1000 cavalry, and 25 thousand infantry, much of which was armed with missile weapons and little armor.

The greek phalanx avoided combat by placing itself in favourable terrain, on top of nearby hills for 5 days.

When the phalanx engaged it spread out to avoid being flanked by the lighter and more mobile persian troops, then the phalanx fought the lighter oponents.

The Centre of the phalanx was reduced to 4 ranks deep, while the sides were the more traditional 8 ranks deep.

The phalanx advanced under missile fire to engage the persians, defeating the cavalry in the centre but then being pressed back by the persian infantry.

Meanwhile on the sides, the deeper formation defeated the persian infantry and moved to flank the persian centre on both sides, causing them to panic and flee to their ships or

across the marshes.

Lack of light infantry or cavalry meant that the greeks were not able to destroy the persians after victory.

As a result, the persians later the same day tried to attack Athens, despite their defeat on the field. They were prevented from landing due to the greeks marching from marathons to athens after the battle.

In this battle the advantage of persian mobility was cancelled first by the defensive terrain which prevented the persians from attacking the less numerous greeks, and then by the wide formation of the phalanx when deployed in battle formation preventing flanking and rear attacks by the persians.

The persian cavalry was not able to defeat the phalanx, even reduced to 4 ranks in the centre of the line.

The missile effect was not enough to stop the heavy armored phalanx from advancing into contact.

Without space to retreat, the infantry, missile troops and cavalry was trapped between the hammer of the phalanx and the anvil of the sea.

Plataea 480 a.c.



Battlefield of Plataea (6)

At Plataea the persians under general Mardonius, with about 40 thousand infantry,

including several thousand greek hoplites from cities allied to the persians, and 10 thousand cavalry.

The greeks under Pausanias had about 40 thousand hoplites, one third from Athens, one third from Sparta and one third allies such as megarans, corinthians and thegeans.

The two armies maneuvered for two weeks, neither side wishing to give an advantage to the other. The greeks stayed mostly in the high ground near Plataea, while the persians held the level ground behind the river asopus.

If the greeks advanced to the level ground, the persians could outflank them. If the persians attacked the greek phalanx up hill, in frontal combat they would be defeated.

The battle came as a result of confusion, the greeks attempted to reposition their troops in the night, closer to the city. However the soldiers of the allied troops got lost and confused in the night. (figura 3)

The noise attracted the persians, who thought that the greeks were retreating, then they tried to take advantage of the moment and attacked at sunrise. At that moment, the greek allies were out of position, and the spartan hoplites had moved to a more exposed position near Hysiae, on level ground.

The persian left attacks the spartan hoplites and tegean light infantry. Persian cavalry and persian infantry attacks this position. The persian cavalry attacks first the spartans, and keeps them in place while the slower persian infantry moves to position. The persian infantry consists of mixed archers and light spearmen, using large shields of reeds, possible to protect from enemy missiles.

On the greek left, the athenian hoplites are attacked by persian allied hoplites, as well as theban cavalry. The Athenian phalanx holds against the persian allied greeks, while the greek allies move back into their place in the centre of the greek battle line. (figura 4)

It is not clear what the persian cavalry was doing, in any case, the spartan hoplites and tegean light infantry attack the persian infantry and rout them, killing the enemy general Madonius when he attacked the spartan hoplites and light infantry with his persian cavalry. Knowledge of the general's death causes the persian forces in the center to rout.

When the persian infantry routs, the persian allied greeks start to retreat in good order from the athenian phalanx on the greek left. At this point, the greek allied Megarians and Phliasians tried to pursue the persian allied greeks, but were attacked by the theban cavalry and over 600 died. (figura 5)

The battle of Plataea shows that persian cavalry could not defeat hoplites screened by light infantry.

Also it shows again that persian infantry cannot stand against greek phalanx hoplites.

But the interesting part is that a small unsupported force of hoplites can be defeated by cavalry if caught in the open without support.

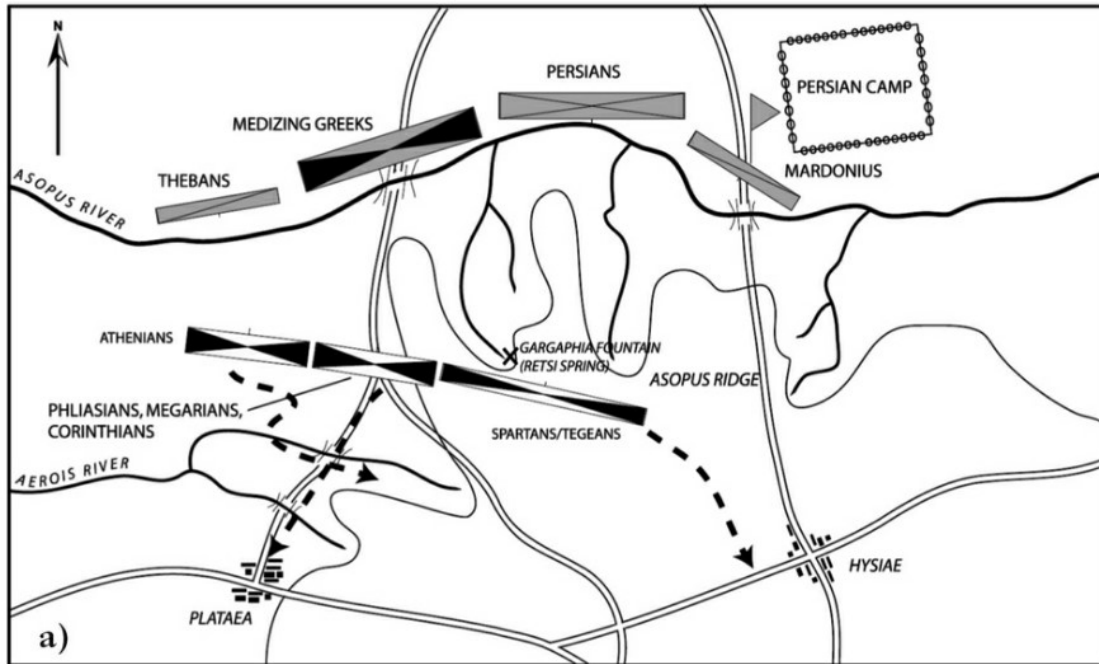


Figura 3 (3)

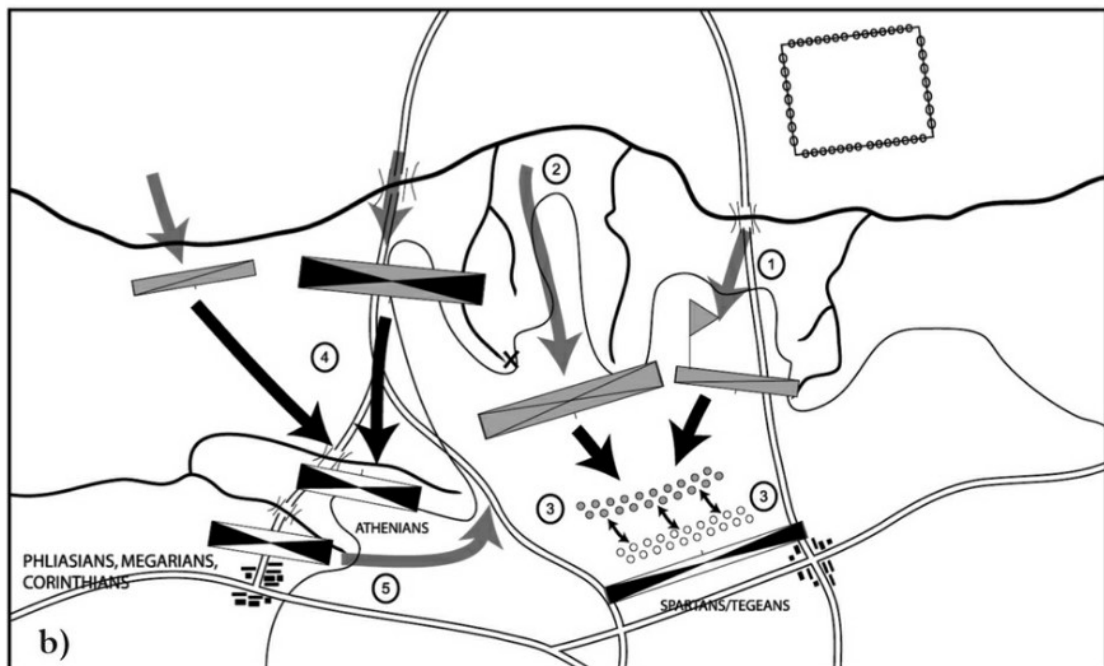


Figura 4 (3)

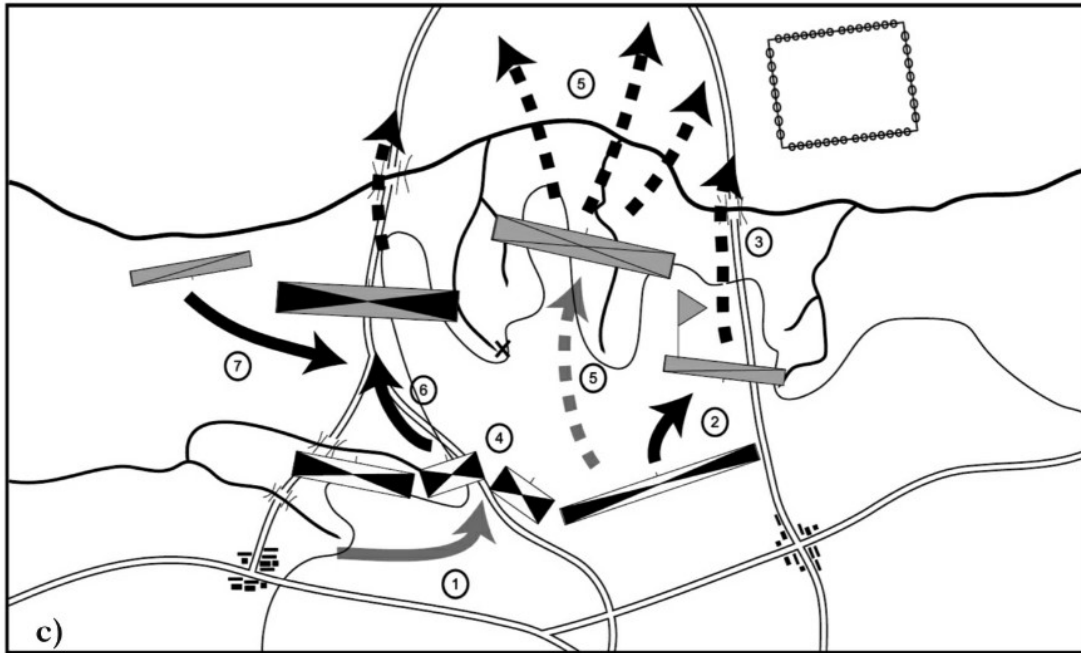


Figura 5 (3)

Sphacteria 425 a.c.

At Spacteria, a small force of about 440 spartan hoplites was defeated by a much larger force of lighter infantry, about 800 hoplites, 8000 light infantry and 2000 archers and slingers from athens.

The spartans were defending a fort on the island of Sphacteria, and the athenians were laying siege to the fort. The situation was that the light athenian troops could maneuver and launch missiles at the spartans without them being able to reply. However the spartan heavy armor kept them safe.

About 130 spartans were killed when the athenians launched a night attack on the harbour. The remaining spartans were trapped and could not be relieved by the main spartan forces due to the large athenian navy. (figure 6)

An athenian commander leading light infantry managed to get around to the back of the spartan fort, which caused the spartans to retreat from the fort.

Out in the open, the spartans could not hope to survive and therefore accepted the offer to surrender. (figure 7)

This battle illustrates how light infantry can outmaneuver heavy hoplites, and how light missile infantry can harass and disrupt heavy infantry when it has either terrain advantage or space to maneuver. (7)

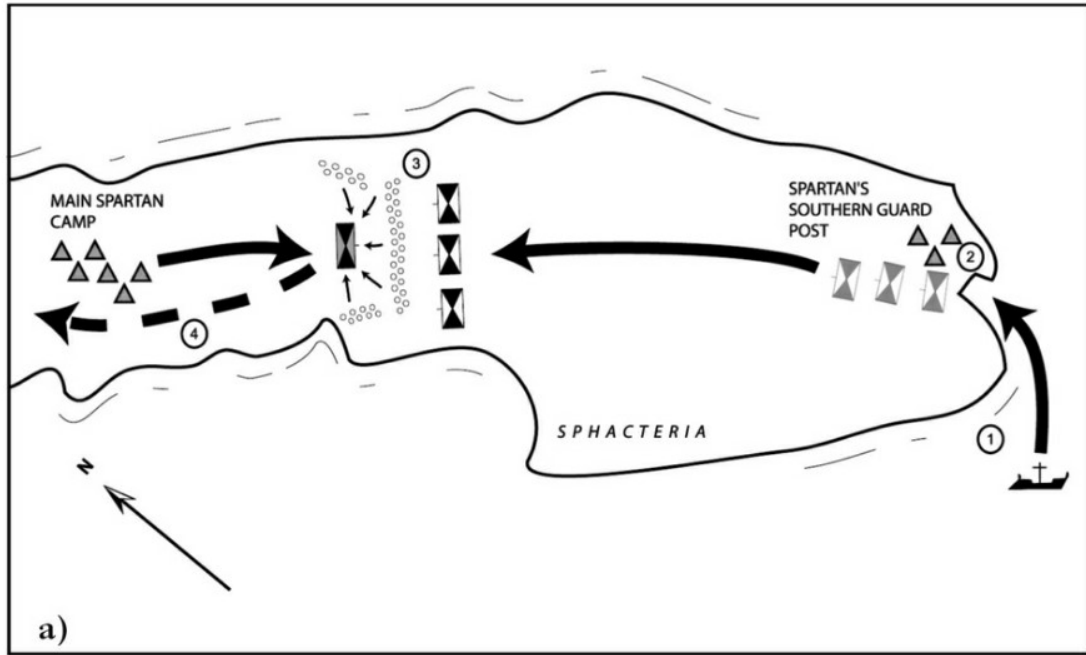


figura 6 (3)

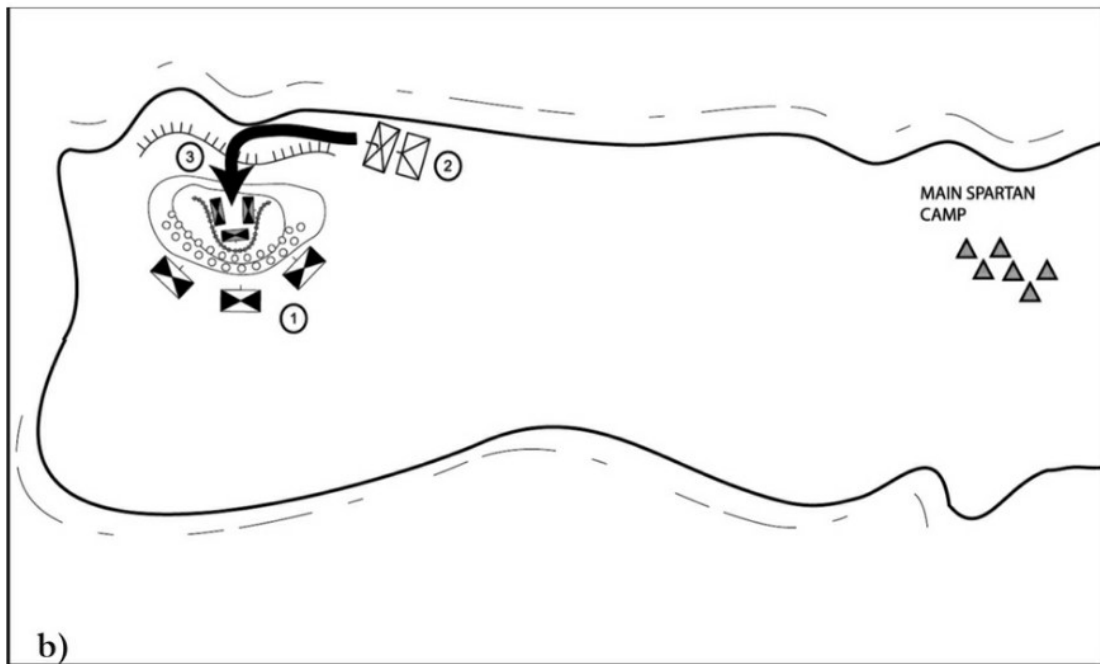


Figura 7 (3)

Leuctra 371 a. c.

In this battle the Spartan phalanx faced the Theban Phalanx. The spartan hoplites were considered the most trained and experienced warriors, they were placed on the right of the phalanx line. Spartan allies formed to the left of the spartans. On this side there were about 10 thousand spartan and allied hoplites. According to the sources, the spartan phalanx

formed in 12 ranks, which was higher than the typical 8 ranks.

There was also spartan cavalry and light infantry.

The thebans and allies number about 7 thousand hoplites, with an elite batallion of 300 sacred band warriors. The thebans formed their phalanx according to nationality. Even thou outnumbered, the thebans massed a column 50 ranks deep, with the sacred band at it's commanding position on the far left of their line.

This was against usual practice in phalanx warfare, where the position of most honour and danger was on the right side of the line due to the risk of being unprotected by friendly forces. This usually means that the warriors on the left of their line were in theory less capable than the ones on the right.

The usual context between phalanx was then to see who could break the enemy line first, once that was acomplished the remaining defeated hoplites usually retreated or were destroyed by being attacked from the exposed side by the most skilled warriors of the enemy.

The Theban forces made a oblique line, with the phalanx formations to the right of the far left column of 50 deep thebans advancing slower, leaving a larger and larger gap between the spartan line and the theban line.

Noticing that the theban phalanx was vulnerable to being flanked, the spartan king started to extend his line to the right, and sent the spartan cavalry to screen his formation change.

However, the theban cavalry defeated the spartan cavalry, which left the spartan phalanx exposed while it was maneuvering. (9)

This meant that the most effective hoplites of the theban sacred band engaged the most effective hoplites of the spartan king's guard face to face at a moment when the spartans were not ready. (figure 8)

After destroying about half the spartan phalanx and killing the spartan king, the spartan phalanx broke and retreated, this caused the remaining spartan and allied phalanxes to retreat as well, leaving the thebans victorious on the field. (figure 9)

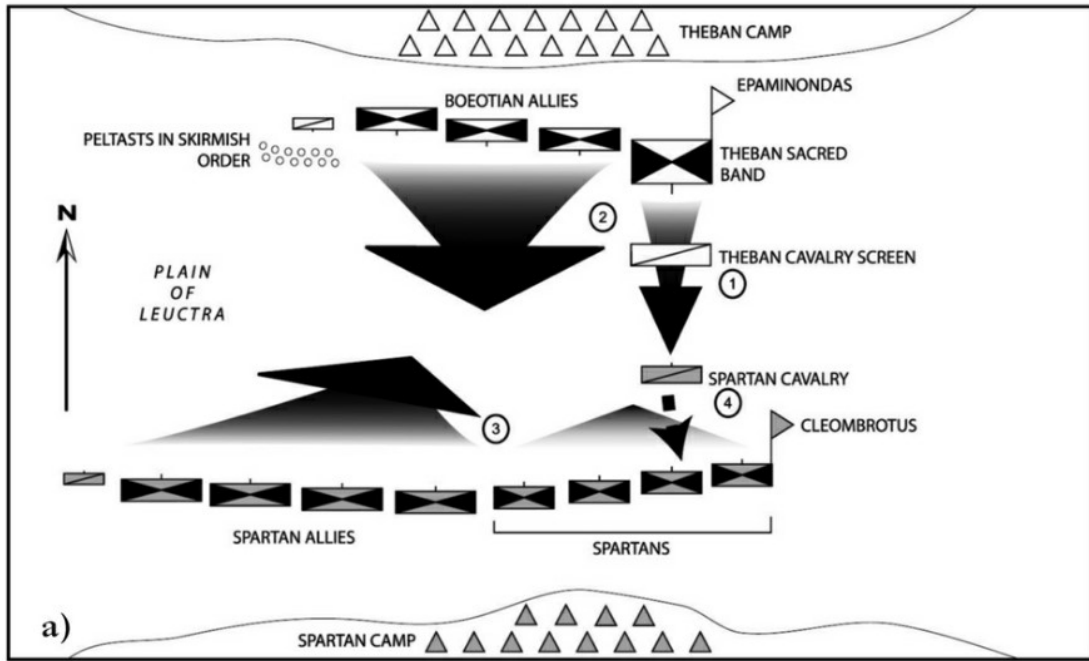


Figura 8 (3)

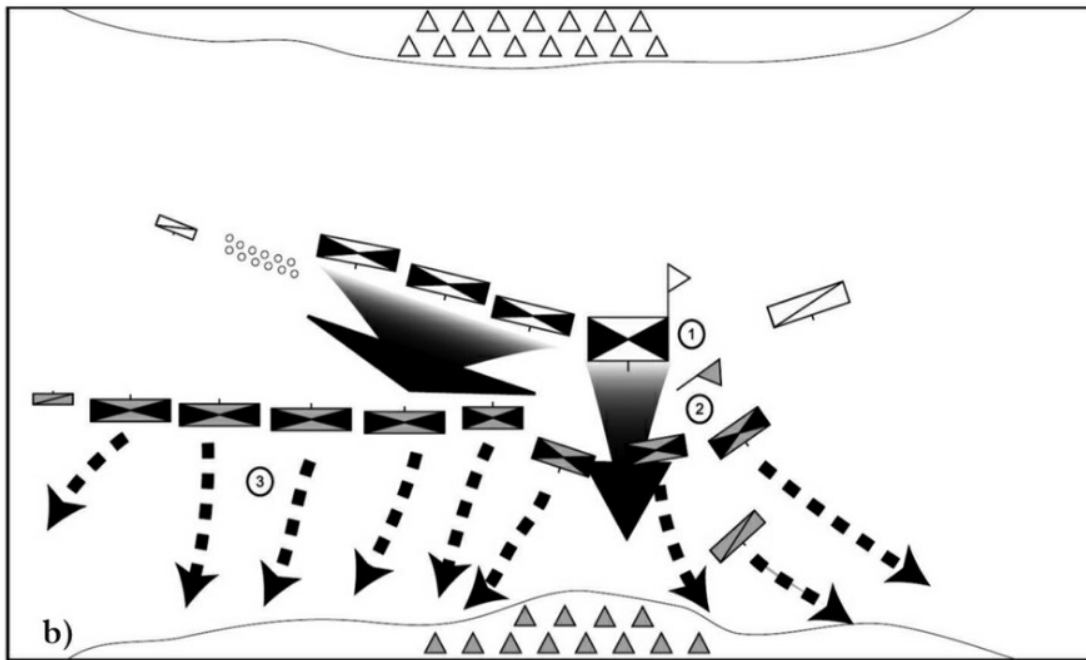


Figura 9 (3)

Analysis

Marathon shows that pure hoplite phalanx, defeats lesser armed and armored infantry, as well as missile infantry and cavalry in face to face combat even when outnumbered 2:1

Plataea shows that phalanx can be defeated by cavalry when caught in the flank, rear or

when disorganized, such as changing formation or chasing fleeing enemy.

At the same time Plataea also shows that when screened and supported by light infantry the phalanx can defeat cavalry, as well as combined infantry and cavalry attack.

Finally, Plataea shows how hoplite formations started to manoeuvre on the battlefield independent of the battle line. These developments increased the tactical opportunities for the phalanx.

Sphacteria shows that when unsupported, phalanx can be defeated by combined hoplites and light missile infantry that has space to manoeuvre.

Sphacteria also shows that phalanx can be defeated by large amount of light infantry unsupported due to sheer attrition even against heavily armored hoplites.

Leuctra showed innovations in formation by use of the oblique line, or refused flank, that enabled the thebans to not engage with their less reliable allied hoplites, while engaging on their own terms the part of the enemy line that they wished.

Also Leuctra shows innovation in organization, combining highly trained and motivated troops of the sacred band supported by much deeper formations, of 50 ranks, instead of the usual 8 that were able to defeat the experienced and very well trained spartans locally on the extreme right of their line.

The use of the phalanx started as relatively static lines facing each other until the first side gave up. Exposure to a different way of making war by the persians showed that a combined arms with cavalry and light infantry might be useful in certain situations.

The penopolese war between Athens and Sparta by necessity gave opportunity for developments in the use of other methods than the linear battle of phalanx on phalanx. Light infantry as well as specialized missile infantry was used more often by the athenian side, which caused the spartan side to adopt combined arms itself in order to avoid defeat.

Conclusion

At the start of the classical period battles were simple linear affairs, they were resolved in direct combat between relatively equal opponents, where the will to fight was the most important factor. Casualties were low for the winning side, and usually relatively low for the losing side as well, minimizing the cost to society in lost manpower. However this style of battle usually did not end in decisive resolution of the conflict as the next season could bring a re-match for the same issue.

At the height of the phalanx combat system, light infantry was used to screen the phalanx in order to protect it from enemy light troops and cavalry missile attacks or determined shock attacks.

This was critical on such moments as the phalanx was vulnerable to missile or cavalry attack,

usually when it was not in correct position, exposing it's side or rear, or out of formation such as marching, changing formation, chasing routed enemies or retreating in disorder.

In the same way, the phalanx could provide shelter for light infantry once the screening task was completed, where it could move to the sides and rear of the phalanx to provide screening and protection from attacks by enemy light infantry or cavalry to the more vulnerable sides and rear of the phalanx.

The cavalry was used also to screen the phalanx, to combat enemy cavalry and to chase retreating enemies. Also it could be used in a timely manner to strike at disrupted phalanx formations unsupported by their own cavalry or light infantry, especially from the side or rear with great effect as shown at Plataea.

In conclusion, the phalanx formation remained the central feature of greek armies, this was due to the increased articulation and tactical use of phalanx formations as well as the combined arms effect of cavalry, light infantry and missile infantry. The basic tactic of fixing the enemy and hitting it hard with shock effect remained effective. The use of combined heavy infantry, light infantry and light cavalry enabled the greeks to hold the enemy, strike at the flanks and rear, and chase fleeing foes, resulting in the possibility of not only the defeat of enemy armies, but also their destruction.

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