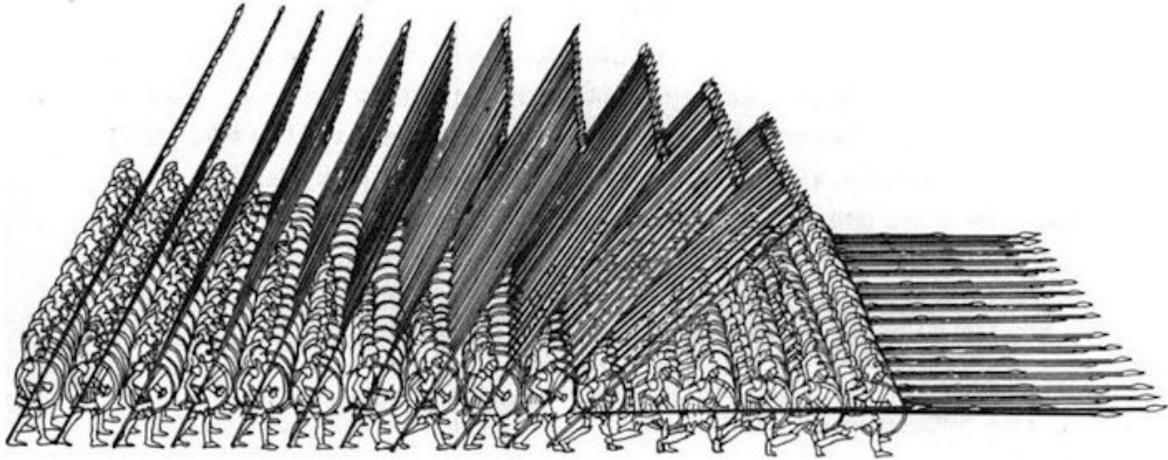


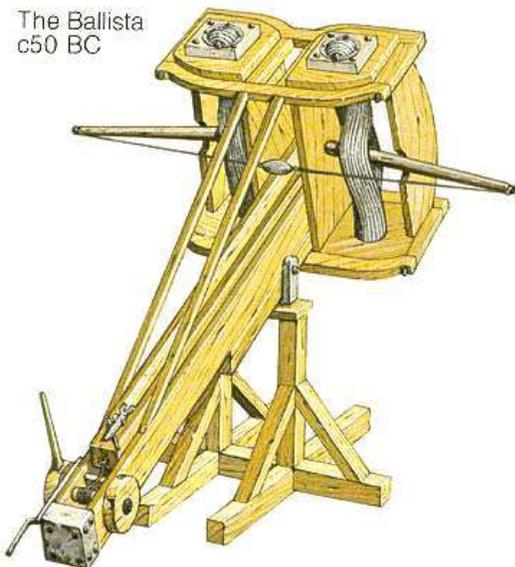
## Military Innovation

Philip II took the rugged mountain peasants and began to mold them into a well-trained and professional army. Adopting typical Greek warfare, he organized his troops into the traditional phalanx formation with 16 rows of 16 men. Although he equipped his men with less armor, Philip II improved the formation by arming each man with an 18-foot pike called a **sarissa**, rather than the standard hoplite spear. The long pikes allowed multiple rows of troops to attack at once and allowed troops to engage their enemies from a safer distance. The Macedonian phalanx had increased striking power and much greater mobility at the cost of some of its defense.



The Macedonian phalanx served as the foundation of the Macedonian army, but Philip II did not stop there. Taking advantage of Macedonia's easy access to horses in the northern plains, Philip II was able to form a cavalry. Borrowing from the strategies of his neighbors, he used his cavalry as a fast-moving unit to crush opponents at their weak points while the phalanx attacked from the front. The phalanx was tasked with creating these openings for the cavalry, therefore coordination of infantry and cavalry was crucial. This meant that the Macedonians were only effective if their soldiers were trained well and that communication was efficient in the heat of battle.

The Ballista  
c50 BC



Philip II also ordered the creation of an engineer corps to develop, build, and maintain machines for siege. Two kinds of machines were created and perfected by Macedonian engineers throughout the life of the empire: **artillery** and **siege engines**. Artillery mainly included catapults that launched arrow-like missiles or stones over large distances. One example was the *ballista* (right), a later version that would continue to be improved upon. There was also a variety of stone throwers, some of which were capable of launching stones as heavy as 170 pounds. Artillery made it possible to shower defenders hiding behind their walls or fighting from the top of their defenses. Larger artillery pieces were even capable of destroying walls altogether. Siege engines included the covered battering ram and siege towers. Together, these machines allowed the Macedonians to storm a fortified city rather than wait for starvation to force the people to surrender.