



Good day Worthy Knights,

In this part 77, Ballistae and Onager

Wikipedia

The **Ballista** (Latin) was an ancient missile weapon that launched either bolts or stones at a distant target.

Developed from earlier Greek weapons, it relied upon different mechanics, using two levers with torsion springs instead of a tension prod (the bow part of a modern crossbow). The springs consisting of several loops of twisted skeins. Early versions projected heavy darts or spherical stone projectiles of various sizes for siege warfare. It developed into a smaller precision weapon, the scorio, and possibly the polybolos.

From the Ancient Greek city-states, the Romans copied their highly developed technology. This included the great military machine advances they had made, most notably by Dionysus of Syracuse.

The torsion ballista, developed by Alexander, was a far more complicated weapon than its predecessor and the Romans developed it even further, especially into much smaller versions, that could be easily carried.

Ballistae in the Roman Empire

During the conquest of the Empire, the ballista proved its worth many times in sieges and battles, both at sea and on land. It was even used to quell riots

After Julius Caesar, the ballista was a permanent fixture in the Roman army and, over time, modifications and improvements were made by successive engineers. This included replacing the remaining wooden parts of the machine with metal, creating a much smaller, lighter and more powerful machine than the wooden version, which required less maintenance (though the vital torsion springs were still vulnerable to the strain). The largest ballistae of the 4th century could throw a dart further than 1,100 m. The weapon was named ballista fulminalis in De Rebus Bellicis:

"From this ballista, darts were projected not only in great number but also at a large size over a considerable distance, such as across the width of the Danube River."



The **Onager** was an imperial-era Roman torsion powered siege engine, like a small catapult. The onager was first mentioned in AD 353 by Ammianus Marcellinus, who described onagers as the same as a scorpion.

Etymology

According to two authors of the later Roman Empire who wrote on military affairs, the onager derived its name from the kicking action of the machine that threw stones into the air, as did the hooves of the wild ass, the onager, which was native to the eastern part of the empire.

Design

The onager consisted of a large frame placed on the ground to whose front end a vertical frame of solid timber was rigidly fixed. A vertical spoke that passed through a rope bundle fastened to the frame had a cup, bucket, or sling attached which contained a projectile.

To fire it, the spoke or arm was forced down, against the tension of twisted ropes or other springs, by a windlass, and then suddenly released. As the sling swung outwards, one end would release, as with a staff-sling, and the projectile would be hurled forward. The arm would then be caught by a padded beam or bed when it could be winched back again.

History

The onager was used from the 4th century AD until the 6th century AD. The late-fourth century author Ammianus Marcellinus describes 'onager' as a neologism for scorpions and relates various incidents in which the engines fire both rocks and arrow-shaped missiles.

According to Ammianus, the onager was a single-armed torsion engine unlike the twin-armed ballista before it. It needed eight men just to wind down the arm and could not be placed on fortifications because of its great recoil. It had extremely low mobility and was difficult to aim. Originally it used a bucket or cup to hold the projectile but at some point, it was replaced with a sling, which elongated the throwing arm and allowed for a greater range of shot.

In 378, the onager was used against the Goths at Adrianople and although it did not cause any casualties, its large stone projectile was incredibly frightening to the Goths. The late-fourth or early-fifth century military writer Vegetius stipulates that a legion ought to field ten onagers, one for each cohort. These he says should be transported fully assembled on ox carts to ensure readiness in case of sudden attack, in which case the onagers could be used for defence immediately.

