Trebuchet

Explain how Europe benefited from cultural diffusion during the period c. A.D. 1000 - 1500.

A trebuchet is a siege engine that was employed in the Middle Ages either to smash masonry walls or to throw projectiles over them. It is sometimes called a “counterweight trebuchet” or “counterpoise trebuchet” in order to distinguish it from an earlier weapon that has come to be called the “traction trebuchet”, the original version with pulling men instead of a counterweight.

Traction trebuchets appeared in China in about the 4th century B.C. and in Europe in the 6th century A.D., and did not become obsolete until the 16th century, well after the introduction of gunpowder. Trebuchets were far more accurate than other medieval catapults.

The first clearly written record of a counterweight trebuchet comes from an Islamic scholar, Mardi bin Ali al-Tarsusi, who wrote a military manual for Saladin c. 1187. He describes a hybrid trebuchet that he said had the same hurling power as a traction machine pulled by fifty men due to “the constant force [of gravity], whereas men differ in their pulling force.”

He allegedly wrote “Trebuchets are machines invented by unbelieving devils.” This suggests that by the time of Saladin, Muslims were acquainted with counterweight engines, but did not believe that Muslims had invented them. Al-Tarsusi does not specifically say that the “unbelieving devils” were Christian Europeans, though Saladin was fighting Crusaders for much of his reign, and the manuscript predates the Chinese and Mongol weapons. They took about twelve days to build depending on how big the structure was going to be.

The most important surviving technical treatise on these machines is Kitab Aniq fi al-Manajaniq, written in 1462 by Yusuf ibn Urunbugha al-Zaradkash. One of the most profusely illustrated Arabic manuscripts ever produced, it provides detailed construction and operating information.

At the Siege of Acre in 1191, Richard the Lionheart assembled two trebuchets which he named “God's Own Catapult” and “Bad Neighbour”. During a siege of Stirling Castle in 1304, Edward Longshanks ordered his engineers to make a giant trebuchet for the English army, named “Warwolf”.

Range and size of the weapons varied. Average weight of the projectiles was probably around 100 - 200 pounds, with a range of c. 300 yards. Rate of fire could be noteworthy: at the siege of Lisbon (1147), two trebuchets were capable of launching a stone every 15 seconds. On occasion, disease-infected corpses were flung into cities in an attempt to infect the people under siege: a medieval variant of biological warfare.

Counterweight trebuchet at Château des Baux, France

With the introduction of gunpowder, the trebuchet lost its place as the siege engine of choice to the cannon. The last recorded military use was by Hernán Cortés, at the 1521 siege of the Aztec capital Tenochtitlán. Accounts of the attack note that its use was motivated by the limited supply of gunpowder. The attempt was reportedly unsuccessful: the first projectile landed on the trebuchet itself, destroying it.