Bronze Age combat: An experimental approach

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Project website: https://sites.google.com/site/bronzeagecombat/

Newcastle University researchers are bringing the past to life with an experiment to find out how people fought in the Late Bronze Age (c.1200-800 BC). The project investigates ancient combat techniques by examining the wear marks found on archaeological swords, spears and axes from museum collections, and trying to replicate these marks in a series of controlled field tests with replicas of the same weapons. The aim of the project is to understand how Late Bronze Age weapons were used, in what kind of combat situations, and with what weapon strikes and body motions. The team want to test in particular whether it is possible to link distinctive combat marks with specific uses of the weapons including strikes, parries, stabs and throws.

The project is divided into three main parts: (1) The field tests in which the weapons were tested against other weapons, two leather shields, and static targets; this phase has now been completed, and preliminary results have been presented to the public at the British Science Festival [http://www.britishscienceassociation.org/british-science-festival/bronze-age-combat-experimental-approach], and to researchers at the Bronze Age Forum.
The equipment used in the field tests consisted of four swords, four spears, two axes and two leather shields, all made by traditional bronze smith Neil Burridge (Bronze Age Craft [http://www.bronze-age-swords.com/]) based on Late Bronze Age British and European templates. All weapons were cast using 12% tin-bronze, and their edges were work-hardened and sharpened to a razor finish. Based on previous research by Kate Anderson (Edinburgh), the spear-heads were mounted on both long and short shafts, while the two shields, replicas of the Irish specimen from Clonbrin, were made using vegetable-tanned leather hide; they were shrunk in hot water and beaten into a wooden former, then dried and coated in bees' wax.

The field tests were carried out in the summer of 2013 at Bede’s World Museum [http://www.bedesworld.co.uk/] in Jarrow (south Tyneside). These included one-on-one combat and weapon-on-target/dummy combat, as well as simulated small-group combat. The experimental protocol encompassed a great number of sword strikes delivered to different body parts in both static (i.e. with the defensive weapon held still) and kinetic (i.e. with the defensive weapon moving to meet the attacker’s) environments. Parries, both static and kinetic, were executed with the sword edge, the sword flat, and the shield. The shields were then mounted onto the dummy and target, which were employed for dangerous strikes including sword thrusts, axe attacks, and spear
thrusts and throws. We also tested the short-shaft spears in slashing attacks against another spear, a sword, and a shield.

Although the project is still ongoing, a number of interesting preliminary results have been obtained as follows: (1) not all strikes generated distinctive marks, but certain did; for example, with sword-on-sword strikes it is normally possible to discriminate between the attacking and the defending sword based on the shape and features of the marks; (2) it seems unlikely that the flat of the sword was ever knowingly used to parry an opponent’s blow; our tests have shown that this kind of parry strains the fighter’s wrist and runs the risk of bending the defendant’s blade; (3) the leather shields used in our tests withstood effectively a number of attacks including frontal sword slashes and axe blows, but failed spectacularly in others such as slashes to the rim, sword and spear stabbings, and some spear throws; this vindicates Barry Molloy’s (Sheffield) view that the shield had to be used proactively to inhibit the opponent’s ability to make an aggressive strike; and (4) axes proved to be unwieldy weapons, which lacked penetration power and true ‘edge’ in most combat encounters; however, they could have been used effectively to bludgeon an opponent, and might have been far more effective if mounted on a shorter and wieldier haft.

The project will be completed in early 2015. We wish to acknowledge generous funding from Ignite and the School of History, Classics and Archaeology (Newcastle University).