

The effectiveness of later prehistoric arrowheads – Tom Williams

My Undergraduate dissertation focused on the effectiveness of later prehistoric arrowheads. I am a keen archer and a passionate archaeologist and my dissertation combined the two. With the help of the Wainwright award, I was able to conduct experimental research, investigating the effectiveness of flint arrowheads from the Neolithic and Bronze Age.

The experiment formed part of a wider investigation into later prehistoric arrowheads, a subject which had been widely studied through typological approaches, as well as regional and temporal

distributions. However, the technology and function of British arrowheads had never been properly examined, particularly concerning a number of so called ‘projectile points’ which may or may not

have been hafted. Therefore, I choose to use an experimental approach to explore some of the wider topics, including the debate between form and function, and understanding the lesser known projectile points.

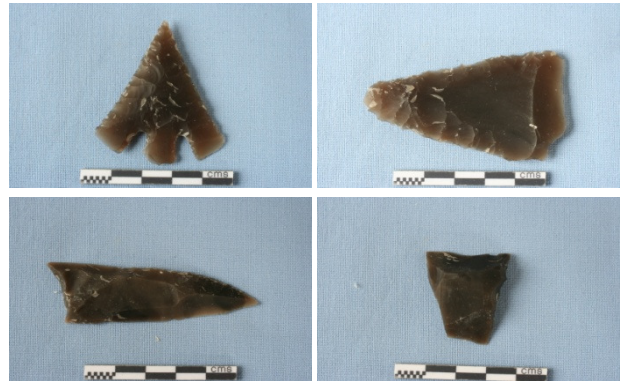


Figure 1: Clockwise starting from top left; barbed and tanged, chisel, petit tranchet and oblique arrowheads

My experiments explored:

- The penetration and accuracy of arrowheads
- The potential for re-use of the arrowheads and the nature of their user-wear and damage
- The relationships between the effectiveness of the arrowheads and bow poundage

With the help of the Wainwright award I was able to obtain all the necessary equipment I required to conduct a day’s worth of experiments. John Lord knapped 15 points for me, barbed and tanged, chisel, oblique and petit tranchet. These were hafted onto modern wooden arrows with bitumen and nettle fibre rope (a technique of rope making which I learned whilst investigating hafting techniques). The arrow shafts and fletching’s were modern to reduce variables in the research.



The arrows were shot from three modern longbows with different poundage ratings, generating similar draw weights and characteristics to later prehistoric bows. The target was a pig carcass, representing a typical later prehistoric species. The pig was shot at a range of 20 yards with each shot being measured for accuracy (hit/miss) and depth of penetration.

Figure 2: The arrowhead in use

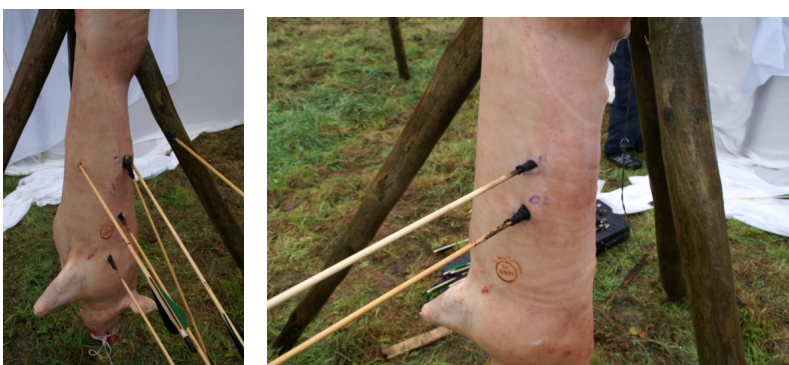


Figure 3: The penetration and accuracy of the arrows

The results provided a number of valuable insights into each arrowhead type:

- 25 out of 82 arrows hit the target, a 30% success rate
- Average penetration was 15.87cm (more than enough to kill a target)
- The barbed and tanged arrowheads were the most effective, but the other three points were also extremely effective and could have functioned as arrowheads.

My experiments suggested that barbed and tanged arrowheads were the most effective and represent an 'optimum' later prehistoric design. This supports the concept of evolutionary development in flint arrowhead design and challenges earlier suggestions of the non-utilitarian role of barbed and tanged arrowheads based on funerary associations.

Selected Bibliography

Coles, J. 1979. *Experimental Archaeology*. Academic Press: London

Green, H. Stephen. 1980. *The Flint Arrowheads of the British Isles Part i*. BAR British series 75 (i). BAR: Oxford

Green, H. Stephen. 1980. *The Flint Arrowheads of the British Isles Part ii*. BAR British series 75 (ii). BAR: Oxford

Hardy, R. 1986. *Longbow*. Mary Rose Trust: Portsmouth

Pope, S.T. 1918. Yahi Archery in *American Archaeology and Ethnology* Vol. 13 No. 3 pp. 103-152. University of California Publications: California

Webb, A. 1991. *Archaeology of Archery*. The Glade: Surrey

My thanks to all those involved with the Wainwright award, and to everyone else involved in the project. I hope to continue my work in future research.



Figure 4: Left to right: Mr Peter Slack, Mr Tom Williams, Dr Rob Hosfield and Mr Simon Fern