GeoArch

Report 2009/08

Evaluation of Archaeometallurgical residues from the M7/M8 Contract 1: Parknahown 2 (E2196)

Dr Tim Young
25th March 2009

Evaluation of Archaeometallurgical residues from the M7/M8 Contract 1: Parknahown 2 (E2196)

Dr T.P. Young

Abstract

The single piece of archaeometallurgical residue from this site is a sherd from a small, thick-walled, silica-rich crucible that has been used for handling copper alloy. Because the hand-made vessel was rather irregular, interpreting the overall form of the vessel from the sherd cannot be undertaken with any certainty. It appears to be from a crucible with outwardly-inclined walls. The sherd shows an irregular, but fairly straight wall in plan, tentatively suggesting a triangular crucible. The sherd has intense internal vitrification and slagging with flecks of green copper-alloy weathering products. The external surface has a fine red glaze, again suggesting copper contamination.

Contents

Methods

All investigated materials were examined visually, using a low-powered binocular microscope where necessary. All significant materials were summarily described and recorded to a database. As an evaluation, the materials were not subjected to any high-magnification optical inspection, nor to any other form of instrumental analysis. The identifications of materials in this report are therefore necessarily limited and must be regarded as provisional.

Results

The single piece is a small sherd (7g) from a very quartz-rich crucible. The irregularity of the sherd makes reconstruction of the vessel form difficult. If the rim was horizontal, then it suggests a crucible with walls sloping out towards the rim at 60° to the horizontal. The wall is preserved (measured in this orientation) for a depth of 28mm below the rim, probably close to the original base. The wall is 10mm thick at the bottom of the sherd decreasing to about 5mm at 5mm below the rounded rim.

The outside bears a thin red glaze of a colour suggestive of contamination by copper. The inside surface has been deeply vitrified, but the glassy material has been weathered an etched. Below the rim there is a zone of etched vesicles with a yellow brown colour, but for most of the internal height the sherd is dark grey and vesicular, with small specks of green copper alloy corrosion.

The shape is not particularly diagnostic, but the splayed form and the intense internal vitrification are features that might be suggestive of an early, prehistoric date. The wall of the sherd is irregular but apparently rather straight in plan, possibly indicative of this being from a triangular crucible (= pyramidal crucible *sensu* Comber 2004). A reasonable comparison could be drawn with crucibles 21-24 from Lagore (Comber 2004). On balance an early medieval age is likely, but by no means certain, for the piece.

Evaluation of potential

The analysis of the residues might provide further detail on the metal being handled, but given the deep weathering of the internal deposits (so preserved metal droplets are not likely to be present) metal, and the visual evidence for copper alloy, there might be little additional precision. Material post-9/10th centuries tends to have some zinc in the alloy, whereas copper alloys earlier than this in Ireland are usually effectively zinc-free. The zinc tends to migrate into the crucible during use, so may be detectable even where the surface is altered.

The sherd could be examined more fully in comparison with other dated examples from the region in order to refine the dating, but on one irregular sherd, apparently from a rather simple form. This too may not give much additional precision.

The material should be retained.

References

Comber, M. 2004. *Native evidence of Non-ferrous Metalworking in Early Historic Ireland*. BAR International Series, 1296, 233pp.

GeoArch

geoarchaeological, archaeometallurgical & geophysical investigations

54 Heol y Cadno,
Thornhill,
Cardiff,
CF14 9DY.

Mobile: 07802 413704
Fax: 08700 547366
E-Mail: Tim.Young@GeoArch.co.uk
Web: www.GeoArch.co.uk