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Report 2016/26

Assessment of archaeometallurgical residues from the A26 Borrow Pit 2 (AE/15/103)

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29th July 2016

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Abstract

Archaeological investigations at the A26 Borrow Pit 2 produced 35g of possible archaeometallurgical residues. Most of the material is from context (166) and is from iron working, but the precise originating process and age are not indicated.

A single piece of fuel ash slag from context (1) is probably not an archaeometallurgical residue.

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Methods

The material described here derives from archaeological interventions at the Borrow Pit 1 on the A26 scheme, conducted by IAC Ltd. This project was commissioned by Maeve Tobin.

All materials were examined visually with a low-powered binocular microscope where required. As an evaluation, the materials were not subjected to any high-magnification optical inspection, not to any form of instrumental analysis. The identifications of materials in this report are therefore necessarily limited and must be regarded as provisional.

Results

Description of residues

Four pieces of possible residue were recovered from the site; they had a total weight of just 35g.

One piece (context (1)) was of highly bloated fuel ash slag (FAS) with a brick-red colour internally, but grey externally. Such materials derive from the partial melting of a ceramic material (clay, rock fragment…), in which the viscous partial melt prevents the escape of volatiles (mainly CO_2 and water) produced by the breakdown of the original materials. Such materials may have a very wide variety of origins, of which the most common is the bloating of the shale clasts present in coal fuel – bloated materials may be a component of clinker from steam engine boilers (including 19th-20th century farm machinery). FAS may also be produced in a wide variety of more ancient pyrotechnological processes, including in cereal drying kilns, domestic hearths and occasionally in building conflagrations.

Three pieces from context (166) provide sparse evidence for ironworking. All three pieces (a lining slag, a vesicular slag fragment and a slag prill) are of strictly indeterminate origin (they could be from either iron smithing or iron smelting), but an origin during smithing is probably more likely. The pieces are accordingly not strictly indicative of process, nor of age.

Interpretation

The main materials represent residues from indeterminate iron working. The piece from context (1) is probably not of archaeometallurgical origin.

Further work

The very small quantity of material in the assemblage means that additional analytical work to produce a more precise identification would not be justifiable, unless compelling archaeological questions are raised by their presence in the originating contexts.

Table 1: summary catalogue of macroscopic materials. All weights in g.

context	note	sample wt.	item wt.	item no.	item notes
1	surface	6	1	1	nub of bloated FAS, now broken in two, brick red core, grey outer, frothy
166	box 5	38	11	1	bleb (possibly folded) of dark lining slag
			17	1	slightly dished fragment of dense slag, slightly dimpled base - probably a fragment of a much larger cake HC
			6	1	fragment from a deflated horizontal prill of dense slag

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