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Evaluation of archaeometallurgical residues from Camelford School

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Abstract

Much of the submitted collection comprised burnt natural rock, but small quantities of fired clay, some with a vitrified surface and therefore likely to be from a metallurgical hearth or furnace, were recovered from the fills of gullies in the areas of Structures C and D. Some tiny scraps of iron slag, most likely from smithing, were recovered, together with a very small quantity of hammerscale (amongst a much larger quantity of magnetic burnt stone) from one of two pits to the east of enclosure D, with the adjacent pit producing a few fragments of highly fired clay.

These residues suggest that smithing was undertaken somewhere in the area of structures C/D. It is possible that pit [2171] represents the truncated base of a smithing hearth, but this is equivocal, and it might just a pit receiving smithing waste directly or indirectly.

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diagnostic features to discriminate them from clay fired in other settings.

3. fired clay with a vitrified surface: clay fired to a sufficiently high temperature to develop vitrification of the surface is usually an indicator of metallurgical activity. These six pieces (one from [2038] and five from [2157] are likely to derive from a metallurgical hearth or furnace, but are not diagnostic of a more detailed origin.

4. iron slag: three tiny (total 26g) pieces of slag were recovered from [2172]. The slag shows superficial moulds indicating the position of charcoal fragments during the formation of the slag. These moulds are small, compatible with the size of charcoal typically employed during smithing and smaller than the moulds (of wood?) typical of Iron Age iron smelting slags.

Methods

All investigated materials were examined visually using a low-powered binocular microscope where necessary and were summarily described and recorded to a database (Table 1). As an evaluation, the materials were not subjected to any form of instrumental analysis. The identifications of materials in this report are therefore necessarily limited and must be regarded as provisional.

Interpretation

The very limited quantity of material precludes detailed interpretation. The focus of activity would appear to be around the area of Structure C and Enclosure D. Shallow scoop [2171] might potentially be an actual site of activity, but there is insufficient evidence to demonstrate this.

Results

The assemblage included the following classes of materials:

1. flake hammerscale: residues from [2172] contained a small proportion of flake hammerscale with a collection mainly of magnetic (presumably burnt) rock fragments. Flake hammerscale is produced when the surface of hot iron oxidises in air. It is indicative of a smithing process.

2. fired clay: six fragments of oxidised-fired clay occurred in [2060], [2138], [2150] and [2168]. These fragments were all small. These fragments are not indicative of process. Although they might derive from a metallurgical hearth or furnace, there are no

The presence of flake hammerscale and small slag fragments with charcoal moulds is indicative of iron working (smithing). There is no material which need be from iron smelting. The very small quantity of material recovered provides circumstantial evidence that small scale smithing was undertaken on the site, possibly as a very occasional activity. This means it is more likely that the smithing undertaken was blacksmithing (the end use of iron) rather than primary bloomsmithing (part of the process of iron production).

Evaluation of potential

This material has little potential to yield further useful information from additional analysis.

Table 1: summary catalogue

context	sample number	weight	number	description
2018	F2:A	285	4	partially burnt stone
2018	62	37	5	natural stone partially burnt
2038		27	1	fragment of coarse fired clay, oxidised on one side, thin layer of vitrification on the other
2060		<1	1	fired clay
2138		2	1	high fired clay
2150		4	1	small fragment of fired clay, partially oxidised
2157		24	5	quartz rich fired clay, oxidised on one side, vitrified on the other
2168		18	3	high fired vesicular clay
2172		9	1	blebby slag
2172	F2:D	10	1	small piece of slag with charcoal moulds
2172	53	7	1	bleb of indeterminate slag
2172	53	12		relatively large fragments of coarse magnetic material (hammerscale)
2172	53	263		fragments of stone and small quantities of flake hammerscale
2325		99	4	natural stone, partially burnt
2345	2324	522	2	natural stone
2345	2324	317	2	natural stone

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