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Evaluation of possible pyrotechnological
residues from Llanbeblig (G2060)

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Abstract

This small collection of materials was dominated by concretionary materials, comprising sand and gravel with very little binding clay but with iron and manganese oxides, and likely to be of natural origin, (although secondary heating cannot be excluded). A few pieces had a much higher clay content and appeared to be very low fired. These also had a high sand and gravel content, and might perhaps indicate burning on a natural substrate. There was little evidence that these were prepared clays.

One piece was a concretionary, probably cored on a sub-circular piece of iron. This should be X-rayed to examine the core further.

Contents

Abstract	1
Methods	1
Results	1
Interpretation	1
Evaluation of potential.....	1
Catalogue	2

manganese oxide coatings and impregnations (from 240 and 277).

The 'slag' sample is a concretion around corroding iron. The general shape of the pieces suggests that the enclosed iron is probably oval and c. 30x40mm or a little smaller.

Interpretation

The possible fired clays are problematic. The colours of the harder materials (2 and 3 above) may simply be due to an elevated content of iron and manganese oxides (from an origin as Fe-Mn pan), rather than being a product of heating. The proportion of sand and gravel in these materials is much higher than is usually seen in deliberately used/processed clays. It is likely that these materials are purely natural, although some degree of heating cannot be excluded.

The more clay-rich materials (1 above) are more likely candidates for being burnt, but again, the moderately high sand/gravel content of these materials may suggest use of an unprocessed clay, or simply slight burning of a natural substrate.

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.

This project was conducted for the Gwynedd Archaeological Trust.

Evaluation of potential

The possible fired clay and associated materials do not require further investigation.

It is recommended that the iron concretion is X-Rayed to determine the nature of the iron object.

Results

The possible fired clay comprised three different groups of material:

1. Relatively clay- rich material with soft textures, pale grey-buff colours and abundant admixed sand and fine gravel (from 3006).
2. Clay-poor materials with brown-red colours, abundant sand and gravel with a very low clay content and some manganese oxide coatings on the clasts (from 3006).
3. Clay-poor with pink colours, abundant sand and gravel with a very low clay content and abundant

Table 1: summary catalogue

<i>weight</i>	<i>number</i>	<i>find/sample</i>	<i>context</i>	<i>notes</i>
12.1	6	35	277	coarse sand bound by clay grade material which is pink/buff on surface but mainly black internally. Probably manganese pan
11.4	15	34	240	coarse sand and gravel to 10mm, bound by salmon-pink/buff clay, which is penetrated by fissures and rounded voids coated with black Mn oxides
49.3	1	6	118	piece of corroded iron in concretion, iron probably sub-circular c 30mmx40mm. Needs X-Ray
136	20 (+ dust)	43	3006	This is a rather mixed assemblage. Two pieces are simply gravel pebbles detached from the rest, one is a decomposed rock fragment (total 15.8g). 12 pieces (56.5g) are coarse sand-gravel, cemented by a brownish red matrix, with evidence for clast coatings of manganese oxides; these may be entirely natural concretionary materials, although some reddening through burning cannot be excluded. 55.3g (5 pieces) are of a buff-grey coloured clay bearing abundant sand and gravel clasts. This material may be burnt, but does not appear to be a prepared clay. The material is very soft, so if burnt is very low fired.

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