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Assessment of possible archaeometallurgical residues from the A31, Killyfaddy 3, Co. Derry (AE/15/55)

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Abstract

Archaeological investigations at Killyfaddy3 produced a small group of possible archaeometallurgical residues. One sample proved to be natural rock, the other probably a fragment of partially melted brick or similar modern material.

Further analysis is not indicated unless the originating context (8) is incompatible with the presence of modern or post-medieval industrial debris.

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Methods

The material described here derives from archaeological interventions at Killyfaddy 3 on the A31 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

The submitted materials included a collection of five small rounded particles (grain size less than 20mm), with a total weight of 4g, from context (46). These were rusty and resembled slag. The freshest examples display a texture characteristic of basalt and the weathered examples are probably all also derived from a similar iron-rich natural rock rather than an archaeometallurgical residue.

Context (8) produced a single piece of heat altered material. The piece is a fragment from an irregularly-shaped mass of very fine grained, pale grey, material, coated in a reddish glaze. The glaze appears to bear discontinuous sheets of a reddish mineral, probably haematite. The main grey material also bears small (0.5mm diameter) vesicles.

Interpretation

The heat-altered material from context (8) is unusual, but is tentatively interpreted as a partially melted brick, heated in a strongly oxidising environment, perhaps an industrial flue. An alternative interpretation would be as over-fired pottery kiln waste – an origin compatible with its very fine grain size.

Further work

The single piece of pyrotechnological residue is probably best interpreted as a fragment of partially melted brick or other ceramic, but it is unusual. It could be subjected to further detailed instrumental analysis to attempt to clarify its nature. This is probably only indicated if the originating context (8) is incompatible with an interpretation of the piece as a fragment of modern/post-medieval industrial residue or kiln waste.

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

context	sample	sample wt.	item wt.	item no.	item notes
46	13	5	4	5	particles of up 20mm, ranging from soft brown to hard, probably fine-grained igneous rock; the most likely interpretation is they are all weathered gravel from basalt or similar
8	1	36	31	1	slagged and locally vitrified grey-green fine grained material; superficial glass shows discontinuous sheets of possible haematite; overall form with lobe which appears undifferentiated from main block; very fine grey slag with fine (0.5mm) vesicles and rare quartzose clasts - melted brick?

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