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Assessment of possible archaeometallurgical residues from Knocknamona, Co. Donegal, 13E0031

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Abstract

The submitted sample comprised 68g of indurated sandy, charcoal-rich sediment with well-developed iron mottling. The mottling is unusually coarse-grained in places with textures resembling slag minerals, but the iron mineralisation is entirely post-depositional. The sample is not a slag.

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Methods

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.

This project was undertaken for Rubicon Heritage, commissioned by Louise Baker.

Results

The sample comprises 68g of fragments of an iron-rich material (s001 from c003 of 13E0031). The material is well-indurated and hard. The matrix is mainly fine quartz sand, with a high content of charcoal (fragments up to 10mm). The matrix bear clasts of pale altered rock fragments. Dispersed through the material are hard iron oxides 'mottles' mainly in the range of 4-8mm diameter.. The mottles show, in some cases, a coarse radial texture of a dark iron oxide mineral, which would require further analysis to identify precisely, but which is probably one of the hydrated iron oxides.

Interpretation

The material is indicative of post-depositional iron mobility. The iron has been precipitated by oxidation of groundwaters containing reduced (ferrous) iron in solution. Such processes include those generating iron pan or, on a larger scale, the bog iron ores. The mottled texture in which the iron minerals form discrete granules, rather than a laminar crust or pan, may be associated with seasonally fluctuating groundwater conditions, but in circumstances such as this the heterogeneity of the matrix may be an important factor.

The host sediment is rich in charcoal (presumably reflecting the origin of the sample from a burnt mound) in a sandy matrix.

Evaluation of potential

The material formed through natural post-depositional processes and requires no further investigation and does not require retention by NMI.

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