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Evaluation of archaeometallurgical residues from Ballyshaneduff 03E0662

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Abstract

Ballyshaneduff yielded a very small (95g) assemblage of possible archaeometallurgical residues. One piece, from C3, was a fragment of a probable slag from iron working (smithing). Two (possibly three) pieces were extremely weathered slags, but which were too altered for certain identification. Two pieces were probably natural concretions, although nucleation of the concretions on fragments of iron cannot be discounted.

Contents

Methods

All investigated materials were examined visually, using a low-powered binocular microscope where necessary. All significant materials were summarily described and recorded to a database (Table 1). As an evaluation, the materials were not subjected to any high-magnification optical inspection, nor to any other form of instrumental analysis. The identifications of materials in this report are therefore necessarily limited and must be regarded as provisional.

Results

S9 and S0 were two small pieces of probably natural origin. The larger piece has a mineralised surface, with the colour suggesting that both iron and manganese minerals may be involved. The internal texture of the piece is suggestive of this specimen being a natural small pebble which has been coated in Fe-Mn oxides.

The smaller piece comprises several greyish-brown lobes, with smooth (although slightly cracked) surfaces. And which contain quartz grains. The material is probably interpretable as a natural concretion, formed of iron oxides. Such concretions may form under entirely natural circumstances or may occur around small pieces of decomposing iron (or iron-rich material such as iron slag). The core of this specimen is not visible.

S11 and12 were the two fractured fragments of a single highly weathered slag piece. One side of the piece has slightly raised lobes. The texture is too badly weathered to be identifiable, although the piece superficially resembles some fuel-ash slags (slags formed from the high-temperature fusion of the ash from the fuel, which may form in a variety of contexts, including metallurgical processes, but also, for instance, in corn drying kilns).

S13 is a broken fragment of iron slag which is much less altered than the other specimens from the site. The slag is dark and contains a large quantity of fine charcoal fragments. Although not identifiable with certainty, this specimen is most likely to be an iron-working (smithing slag).

S14 and S15 were of a soft, yellow-brown, deeply weathered material and are possibly parts of the same original piece. They show remnants of a variable internal texture, including some splays of tabular crystals, probably the weathered remains of olivine. Their extreme state of decomposition precludes reliable identification.

Interpretation

The assemblage is not open to significant interpretation because of the small number of fragments and because of the extreme alteration of most of the pieces.

The piece from C3 (S13) is reasonably identifiable as a smithing slag, but the origin of the other slag pieces is much less certain and even a metallurgical origin cannot be confirmed.

Evaluation of potential

The poor state of the material means that significant benefit would not be gained from further investigation of these materials.

context	sample	weight	notes
3	13	40.6g	Small fragment (50x35x30mm) of dark, relatively fresh (in comparison with other material from this site) slag. One face is somewhat rounded and may be an original external face. Internally the slag contains abundant small charcoal fragments.
27	14-15	5.9g	These two fragments are of a soft, yellow-brown, deeply weathered material and are possibly parts of the same piece. They measure 30x25x10mm and
		3.0g	23x17x13mm. Too weathered for certain identification, and are not certainly metallurgical slags.
29	9-10	5.0g	Rounded lump, 20x20x13mm, with a very dark dense iron-rich surface, weathering to a brown colour. Possibly natural rather than slag.
		4.2g	Irregularly lobate concretionary particle with overall size 25x20x10mm. Concretion comprises dense grey-brown lobes with large include quartz grains. It is unclear if this is entirely natural or a concretion around a small piece of iron.
31	11-12	36.6g	Very highly weathered pale slag fragment, with recent break into two pieces, but originally 60x40x25mm. One surface possibly in raised lobes. Internally vesicular.

Table 1. Summary catalogue

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