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Evaluation of residues from M1 Northern Motorway (J2009): Sheephouse 3 (01E0811)

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Abstract

Materials submitted from the site included none of direct archaeometallurgical significance. The suite of specimens was dominated by ores of iron and manganese oxides, mostly rock ores, but including some manganese pan. The iron oxides appear commonly to be pseudomorphous after an earlier phase, probably pyrite, mainly in a very coarse-grained development. Although of no significance for this site, the relatively common occurrence of these materials should be borne in mind when interpreting the resources exploited by the early iron smelting seen on nearby sites.

Since none of the material is iron slag, the apparent contradiction of the reported occurrence of iron slag in a ditch dated to the late Bronze Age is not a problem.

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Background

This report is an evaluation of archaeometallurgical residues from Sheephouse 3 on the M1 Northern Motorway development, excavated by D. Nelis on behalf of Irish Archaeological Consultancy Ltd.

Methods

All materials were examined visually and using a low-powered binocular microscope where necessary. As an evaluation, the materials were not subjected to any high-magnification optical inspection not to any other form of instrumental analysis. The identifications of materials in this report are therefore necessarily limited and must be regarded as provisional.

It should be noted that after washing the overall weights of the material submitted in many cases differs significantly from those originally recorded.

Description

The catalogue for this site is presented in Appendix 1.

Approximately 4.1kg of material were submitted from Sheephouse 3. This total was comprised of 3.1kg of iron and manganese ore, 900g of concretionary material composed of silty gravel cemented by manganese minerals and a 100g piece of yellow facetted siltstone, resembling brick, but probably a natural material.

The material from ditch fill c40 is not slag – this is a manganese mineral-cemented concretion (the same may apply to c43). Therefore there is no contradiction in iron slag being in a Bronze Age ditch, nor is there clear evidence for burning of these fills.

The iron ores include pseudomorphs after a cubic-shaped mineral, probably pyrite. These ores are therefore weathered rock ores and not superficial bog iron ores. The manganese-rich materials (apart from those from c40 and c89) are probably related to the same mineralisation. Similar materials to both the iron and manganese ores were also recovered from Sheephouse 2 (Young & Kearns 2010). Manganese-cemented materials from c40 and c89 are probably the result of generation of manganese pan within the superficial or archaeological deposits.

Evaluation of potential

Although there is no intrinsic archaeological importance for any of these materials to the interpretation of this site, the common occurrence of blocks of iron ore should be borne in mind when considering the iron smelting found on nearby sites and might indicate an alternative local source of ore to superficial bog iron ore deposits. Should analysis be undertaken on any nearby smelting slags, then analyses of these ores should be made. On that basis the materials are recommended for retention.

Reference

YOUNG, T.P. & KEARNS, T 2010. Evaluation of residues from M1 Northern Motorway (J2009): Sheephouse 2 (01E0810). *Geoarch Report 2010/27*, 2pp.

Appendix 1. summary catalogue of material

Site: Sheephouse 3 (01E0811)

area	context	sample no	weight (g)	quantity	description
	1	625	203	1	fragment of dense ore with rock clasts – probably a manganese ore
35	1	59	1159	1	fragment of very dense, blebby fragmental and pseudomorphic iron ore
	40	42	906	39	concretions of dark clay and gravel. Binding material is very dark, so these are probably manganese concretions rather than iron.
19	89	80	69	4	concretions of manganese minerals cementing gravel with rounded pebbles and possibly imbricated or in-situ weathered shale. Possibly concretion formed close to rockhead.
21	231	760	123	1	fragment of dense oxidised clay rich material c.70x44x30mm, resembles post-medieval CBM, but facetted and probably natural
16	403	445	10	1	Iron ore with pseudomorphs overgrown by more botryoidally-textured material. Interstices with fine grained haematite ochre
21	409	478	56	3	fragments of iron ore
16	434	395	6	1	Low grade quartz rich iron ore
	506	606	181	2	iron ore, possibly heated
33	542	540	18	1	iron ore
25	546	568	189	1	Massive dark dense manganese ore
25	546	541	140	2	Partially rounded pebbles of ore – very dark, so probably manganese ore. Clasts of pale rock.
24	554	637	11	1	Dense iron-manganese ore
24	554	636	27	1	Rather fine-grained version of pseudomorphous iron ore
	597	669	689	1	iron ore
24	634	709	321	1	iron ore
24	634	709	63	5	iron ore
		total	*4171*		

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