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Assessment of residues from Glenheron [19E0195]

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Abstract

The submitted samples comprise approximately 1.3kg of material produced during iron working (blacksmithing). The assemblage resembles deposits identified elsewhere as having developed on the floor of a smithy, although a degree of transport cannot be excluded.

The assemblage shows a broad similarity to others of the same 12th – 13th century age, in particular at Coolamurry. This style of deposit may characterise the rather ephemeral remains of rural smithies of the period.

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Methods

All materials were examined visually, using a low-powered binocular microscope where required. As an assessment, 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 assessment was conducted in July 2021 for IAC Archaeology.

Distribution of the assemblage

The assemblage (total weight 1.3kg) derives from a single context (19), which is described as a spread. The archaeometallurgical materials are moderately abundant, widely ranging in grain size, and somewhat comminuted. Unfortunately, no programme of sampling to determine the presence and distribution of hammerscale appears to have been undertaken.

Description of the assemblage

General

The submitted material comprised approximately 1.3kg of diverse residues from iron smithing. The variability of the material (ranging from smithing hearth cakes and tuyere fragments to hammerscale)and its comminution resembles that seen in smithy floor deposits and the context may be more of a primary deposit than currently interpreted.

Iron smithing residues

The residues include two intact smithing hearth cake (SHC) weighing 128g and 174g, alongside a large number of fragments of broken SHCs. The SHCs appear to have been generated in a charcoal-fuelled hearth.

There are several fragments of ceramic tuyère (typical of early to late medieval smithing in Ireland), including one retaining part of a 23mm diameter blowhole.

The assemblage includes other materials typical of smithy floor accumulations, including fragments of iron, slag flats, hammerscale and fragments of iron artefacts.

Interpretation

The interpretation of smithing residues at assessment stage, without any form of instrumental analysis, relies largely on consideration of the weight-frequency distribution. In this case the only two intact SHCs are very small indeed (128g and 174g). Such small SHCs are typical of the later medieval rural smithy undertaking light forge work but not involved with the compaction of raw iron.

This context (19) which yielded this assemblage also produced alder charcoal from which a 14C determination (FTMC-DI25-11) which provided a two-sigma calibrated date of AD 1053 - 1072 and AD 1156 – 1265. The presence of smithing slags forming a spread, rather than purely being deposited into a cut feature(s) can be paralleled, for instance, at sites like Coolamurry (Young 2008) which is of a similar 12th-13th century age, and Newtonmountkennedy (Young 2017) which may also be of a similar age.

It seems likely that comminuted residue spreads may characterise the deposits associated with the ephemeral (cob-walled?) smithies of that period.

Further work

The assemblage would be able to provide further useful detail (e.g. on the type of iron being worked) through further detailed analysis. Whether such work would be justified, given the current interpretation of the deposit as a natural spread, rather than an in situ smithy floor, is less clear.

Whether or not further investigation is commissioned, the material is significant and should be retained with the site archive.

References

YOUNG, T.P. 2008. Archaeometallurgical residues from Coolamurry 7, 04E0323. *GeoArch* Report 2006/10. 46pp.

YOUNG, T.P. 2017. Assessment of archaeometallurgical residues from Newtonmountkennedy, Co. Wicklow (14E0132). *GeoArch Report 2017/22*, 13pp.

Table 1: summary catalogue of materials. Weights in g. Dimensions of SHCs expressed as L x W x D(depth of bowl).

context	sample	s wt	item wt	no	description
					total
c19	s#6	806	308	17	small fragments from SHCs, mainly dense and probably small SHCs
			4	2	two small iron fragments - possible nail shank and sheet fragment
			100	18	slagged oxidised fired ceramic, one a fragment of a 23mm diameter blowhole, one apparently from margin of tuyère with straight margin
			144	11	dense lining slag in angular fragments - unclear if a lining rich SHC that has been fragmented or slagged tuyère tip
			18	12	dense blebs, slag flats, prills etc
			210	assm	fine slag fragments and dust
	s#6 <5mm	21	fines	assm	mostly rather worn looking comminuted slag debris, just a few fragments of coarse flake hammerscale and a single very metallic SHS. Unclear what the mesh size was, so whether his sample originally contained more HS or not
					total
c19	s#7	522	174	1	(broken into 4) probably slightly over half of neat dense SHC 85mm across and 30mm thick, base sharp, a few adhering lining slag fragments and slight dimples, top a little irregular with some deep dimples, internally dense moderately vesicular
			128	1	65x70x25mm, slightly dished dense SHC of sub-triangular outline, possibly missing some edges but substantially complete, dense, both upper and lower surfaces show fuel dimples, top obscured, base slate grey surface, irregular
			94	12	small SHC fragments
			56	1	rusty fragment of 30mm thick SHC
			16	2	blebs of lining slag
			38	1	fragment of open textured slag with very deep fuel dimples from both surfaces
			16	1	exploding iron fragment, rounded lump of c20mm

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