Metallurgical residues from Brawdy, Dyfed

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Abstract

The assemblage mainly comprises three main classes of materials: firstly examples of slags derived from iron-working (blacksmithing), secondly materials which are non-diagnostic but probably derived from iron-working (including vitrified hearth lining, pebbles with vitrified surfaces and fragments of iron-rich slags) and thirdly fragments of vitrified material which are not necessarily of metallurgical origin. The origin of these material remains uncertain, but an origin as a residue from lime-burning is likely. The collection includes a single find which may be, but is not certainly, the tip of a fired-clay tuyère. Contrary to the provisional field identifications, the assemblage contains no crucible or mould material.

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Background

The material described in this report has been investigated through inspection of the specimens using a low-powered binocular microscope. Interpretations are therefore based on visual identifications of textures and minerals.

The material has been examined in the absence of a stratigraphic framework, so little or no interpretation of the significance of the stratigraphic origin of the material has been made.

This report focuses on material of metallurgical residue or possible metallurgical residue origin, and does not described any natural rock fragments, pottery or iron scraps included within the submitted collection, although these are listed in the catalogue.

Description

Iron-working slags

The assemblage includes a small collection of dense iron-working slags, totalling 24 pieces with a combined weight of 673g. None of the material is particularly fresh in appearance, and it is likely that some of this material may be residual.

With such a small average fragment size, certain attribution to process is difficult. However, 9 pieces are reasonably certainly smithing slags (total 426g), and the remainder of the assemblage is compatible with an origin in smithing. The two largest pieces (BR90 find 802; BR90 305/I5) are both broken plano-convex smithing hearth cakes, suggestive of complete cakes with a diameter of approximately 70mm and weights of 250-300g. A further six fragments have a form suggestive of being small fragments of smithing hearth cakes. Thee are also several pieces of sheet-form, with thickness from 12-15mm, which are also likely to be from hearth cakes. Two of these sheet-like pieces are conjoining (from BR90 283/H5 and BR90 550/H4)

Two pieces of iron slag (BR 89 325?/D13; BR90 690/G2) have adhering flake hammerscale, also indicative of iron smithing.

The nature of the fuel is indicated in 11 specimens; 8 having evidence for charcoal and 3 for mineral coal. Of the 3 coal-bearing specimens, 2 are indicated as from

context 1 (BR88-2 1/J5 and M1) and these may possibly be intrusive modern materials. The specimen from BR90 50/G4 is an extremely weathered lump of slag, similar to the other ancient materials, but contains several pieces of coal.

Possible tuyère

Material labelled BR90 context 590 comprises 11 broken fragments totalling 12.3g of a fired clay object. The piece has an annular shape, with a 23mm diameter hole. The surviving fragments show the central hole to a depth of 13mm. The external surface is inclined at 65 degrees to the axis of the hole, extending to a diameter of 53mm, before turning to subtend an angle of only 10 degrees with the axis. The outer surface of the object, extending inwards around the curved aperture into the outermost 3mm of the hole, is vitrified with a grey, vesicular surface. The object has an oxidised orange fabric, with abundant sand temper.

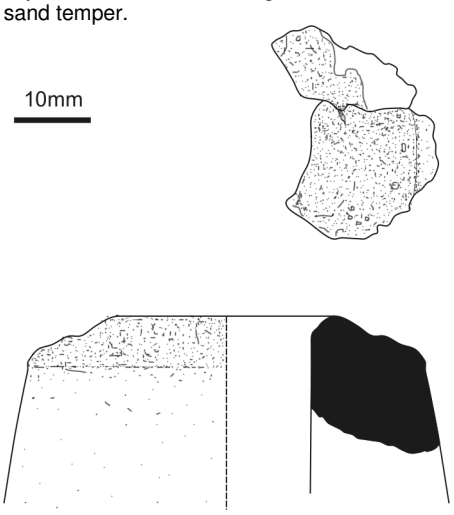


Figure 1. Principal fragments of the probable tuyère, with reconstructed section.

The object is probably part of a tuyère, of which the distal end has been destroyed by the heat of the hearth, and with the less well-fired proximal (outer) end not preserved. The dimensions of the tuyère are broadly comparable with those illustrated by Tylecote (1986) in figure 87, a and c, from Glastonbury (1st century BC to 1st century Ad) and Lagore (7th – 10th centuries AD) respectively.

Other possible metallurgical residues

Other residues which may be associated with the materials described above include some low-density slags/clinkers, vitrified hearth lining and coal residues.

The coal residues include several pieces of coke (the residue of partly burnt coal) from BR89 20/E7 and BR90 283/E3, as well as some fired shale fragments probably derived from coal dirt (BR88-2 1/K6; BR88-2 topsoil/C7).

Vitrified hearth lining and pebbles, together with low density "lining" slags comprise some 23 pieces, totalling 77.9g. The material is not diagnostic, but is compatible with the sort of hearth lining that might be expected to be associated with the metallurgical activities documented above. The fired clay in these materials is

Other "fired" material: lime kiln residue?

The assemblage contains a large number of very small specimens, interpreted as being of fired clay, mostly preliminarily identified as crucible material by the excavators. Although form is not identifiable in many instances, enough pieces do show an overall shape to indicate that this material is largely derived from rounded lumps. The textures observable in the material also refute the suggestion that any of this material is derived from crucibles.

The material shows a wide variety of textures, but a few pieces appear to contain the whole spectrum of textures within a single piece. To enable some description of this material, it has been divided into two closely-related classes:

Type 1 material (Plate 1, A-D) typically forms oblate masses, up to 40mm in diameter and 15mm thick. Fractures parallel to the short axis may produce fragments of a more angular form.

The external surface of the rounded lumps comprises material of two kinds. Firstly, a soft, micaceous, generally laminated, siltstone of a yellowish colour, often with pale streaks, within which are some small clasts (quartz grains, rock chips, clay aggregates and pieces of coal), and secondly, a harder, reddish brown fine grained material bearing a mouldic porosity of angular voids, where larger (up to 6mm) clasts have been removed or destroyed. A few specimens show that at least some of the primary inclusions were of coal.

Internally, the type 1 material comprises a fine grained white or grey cherty material, cut by fractures bearing soft orange secondary weathering material, and by zones of apparent partial melting, with highly vesicular, dark glassy fills. Some of the fractures have a morphology suggestive of, but not certainly indicative of, poorly preserved fossils.

Type 2 material (Plate 1, E) is harder, of a darker reddish brown colour, and dominated by regions of vesicular material. The vesicularity is very fine, and appears to represent partial melting of the material. The larger specimens appear to have sub-rounded form. Some material shows slightly botryoidal, reddish, smooth surface zones, which are probable surviving areas of vitrified surface. These surfaces are very similar to those seen on, for instance, clinker derived from coal dirt.

Many pieces show an fine scale internal veining and/or coating of porosity with a dark material with a micro-botryoidal texture. This material has not been analysed, but may represent residues from the destruction of coal inclusions and/or indicate intrusion of a molten slag phase.

It is likely that at least some of the type 2 material is similar to the vesicular material in the cores of type 1 lumps. Other pieces of type 2 material have a more open texture and this appears to be similar to textures observable in vitrified soil.

The reason for the coal inclusions is not entirely certain. Coal is used commonly as an additive to mortars, but not normally in other ceramic materials. Charcoal fines have been commonly added to clay to

produce a material known as lute for lining furnaces and hearths, but the author is aware of no similar practice with mineral coal. One possibility is that the precursor material for these vitrified materials was from the Carboniferous rocks of the Newgale Bay area (or perhaps from a boulder clay derived from those rocks) and that the inclusion of coal fines was simply an incidental feature of the source material. However, since the coal inclusions are only present on the surface of the lumps, it would appear more likely that the coal is present as a remnant of fuel.

The cores of the type 1 lumps, where examined, are also indicate the precursor material was not clay-based, but apparently more cherty. This raises the possibility, which would need to be tested by more detailed analytical investigation, that these fired materials are the product of incorporation of siliceous rock fragments into a coal fire. There are two likely scenarios for this: firstly the accidental incorporation of the precursor material into the coal being used as fuel, and secondly that these siliceous materials may be partially silicified limestones which have passed through a lime kiln. In general appearance the core of the type 1 pieces rather favours the second interpretation.

Iron Ore

The collection includes 4 fragments of goethitic iron ore, ranging from 6 to 290g. The ore textures are dominantly finely botryoidal, with one specimen stalactitic. The largest block also shows euhedral quartz crystals. Goethite iron ores occur locally within fractures in the Carboniferous Limestone in South Pembrokeshire (the western continuation of the Bristol Channel Orefield), but are not known from North Pembrokeshire. They also occur in NE Wales and in the Cumbrian Orefield.

A single small fragment (1.66g) appears to be from a claystone ironstone, such as those found in the Carboniferous Coal Measures, and is likely to have a more local origin.

Discussion

The assemblage provides firm, if limited, evidence for blacksmithing. The low volume of material, particularly amongst the more fragile hearth lining, suggests that the assemblage does not derive directly from a principal dump from a smithy. The worn nature of some of the slag specimens suggests that at least some of the material may be residual within the contexts from which it was retrieved. The presence of the probable tuyère fragment is interesting for such objects are not particularly common, although Tylecote (1986), for instance, does record several examples. The more normal blowing arrangement in pre-medieval iron-working hearths in Britain seems to be a simple blowhole. The small amount of material means that the level of iron-working activity on the site cannot be judged, but a low-level of blacksmithing activity is common on rural sites of Iron Age and Roman date in the area, as indeed it was on larger farms up until the early 20th Century. The size of the two largest smithing hearth cake fragments is quite small, suggesting fairly modest smithing activities. Most of the evidence is for the use of charcoal fuel. There is some evidence in the iron slags, but particularly in the other residues for the use of mineral coal. Coal would be available relatively locally.

The slags provide no good evidence for iron smelting. The iron ores are dominated by non-local examples. The possible origins for the goethitic quartz-bearing ores would be the Cumbrian orefield and the Bristol Channel orefield. There are no known examples of long distance movement of iron ores on the western seaboard in pre-industrial times, although some movement within the Bristol Channel is documented (e.g. the 13th century Magor Pill vessel, Young & Thomas 1998). In this instance, a more likely origin for the ores would be a geological one, with derivation from Irish Sea tills during Quaternary glaciations. Cumbrian iron ores have not been recognised as markers of Irish Sea tills, but igneous rocks from the Lake District and flint from the floor of the Irish Sea between Cumbria and Northern Ireland are widely known in South Wales. The present evidence suggests it is unlikely that the presence of ores on the site indicates iron smelting.

The assemblage provides no evidence for working of non-ferrous metals. Material tentatively identified as “crucible” and “mould” fragments, may be discounted. The actual nature of the material previously identified as “crucible” remains somewhat unclear. It ranges from micaceous silts with coal inclusions, through to well vitrified vesicular “clinkers”. Some of the vesicular type 2 material bears some resemblance to vitrified soil, but most pieces in types 1 and 2 are more likely to vitrified siliceous rock fragments. The generation of this material will remain uncertain in the absence of analytical evidence. Probably the most likely interpretation is that it represents material introduced accidentally into a hearth, perhaps as “dirt” associated with mineral coal or, more likely, as non-calcareous material passed through a lime kiln.

References

TYLECOTE, R.F. 1986. *The prehistory of metallurgy in the British Isles*. 257 pp. The Institute if Metals, London.

YOUNG, T.P. & THOMAS, G.R. 1998. The cargo: iron ore analysis. pp. 105-111 *In:* Nayling, N. *The Magor Pill Medieval Wreck*, CBA Research Report 115, Council for British Archaeology.

Plate Caption

A. Rounded Type 1 lump, showing extensive mouldic porosity on outer surface (BR89 18/E8)

B. Type 1 lump, as C and D. Outer surface shows mouldic porosity and a small adhering slag bleb (right of centre). (BR90 283/H1)

C. Type 1 lump, as B and D. Fresh break through lump to expose grey silicic core. Rectangle shows area approximately corresponding to field of view of the image of the counterpart shown in D. (BR90 283/H1)

D. Type 1 lump, as in B and C. Close up of counterpart to specimen shown in C. Fine grained, grey, siliceous material shown over most of field of view, but localised zone of vesicular dark glass seen on left. (BR90 283/H1)

E. Rounded Type 2 lump, showing finer porosity, darker colour and partially slagged outer surface. (BR89 20/G7)

Catalogue

year	*context/area*	*number of pieces*	*weight*	*notes*
Coal residues				
BR89	20/E7	1	1.85	Coked coal residue
BR90	283/E3	3		1 piece of possible brick, but probably natural silicified orange mudstone, 1 piece coarse sandstone, 3 pieces of coked coal
BR88-2	1/K6	1	2.04	Very highly fired vesicular red laminated material, probably shale.
BR88-2	topsoil/C7	1	3.46	Partially vitrified piece of shale (coal dirt)
Hearth lining and related materials				
BR87	325/B12	2	4.81	2 pieces of reduced vitrified furnace lining - glassy black slag penetrating into cracks and on surface
BR87	C10	1	1.33	Bleb of melted lining with vitrified exterior.
BR88-2	1/O7	1	0.14	Small bleb of vesicular lining slag; dark glassy material bearing abundant quartz grains.
BR88-2	topsoil/D5	1	1.88	Small black glazed pebble or lining bleb.
BR89	20/B9	1	4.28	Lining blebs with corroded charcoal-rich material attached
BR90	283/M3	1	<0.01	Sub-spherical bleb of melted pink lining
BR90	550/F9	1	5.59	Vesicular lining slag; black glass with sand grains.
BR90	550/L2	2	4.53	2 pieces of partially vitrified and fused lining; brownish. One has some included coal.
BR90	550/M1	1	0.77	Vesicular dark lining slag; attached to fractured quartzite pebble.
BR90	610/B5	1	3.92	Pale weathered lining slag, flown into dimpled texture.
BR91	Ditch 1/22	1	4.51	Glazed pebble or lining fragment. Variegated red, black white, highly vesicular.
Misc. slags				
BR88-2	topsoil/Q7	1	3.95	Highly vesicular low density frothy pale grey/white slag with smooth reddened surface.
BR89	218/R11	1	1.52	Vitrified and vesicular sandy bleb, brick red surficial coat.
BR89	50/A1	1	10.69	Grey pebble with dark glassy slag.
BR90	238/K2	1	1.61	Chip of grey vesicular slag
BR90	283/E3	1	1.43	Highly vesicular slag/clinker with sediment embedded in micro-lobate surface - melted wall? Resembles coal-fired material.
BR90	283/J1	1	1.86	Dark glassy vesicular slag attached to some lining/small pebble
BR90	410/C8	1	10.25	Fired pebble, vesicular, vitrified, reddish slagged surface.
BR90	660 pit	1	12.07	Pebble with vitrified surface and slag layer, magnetic.

Iron-working slags

BR87	301/I2	2	75.73	Large piece, 60x40x25mm, complexly lobed dense slag around large charcoal fragments; small piece melted pebble or lining slag bleb with sandy black glass.
BR87	325/C12	1	44.44	Well-flown fayalitic slag with lobes extending over, and including, charcoal, 50x40x20mm thick, probably from the edge of a smithing cake.
BR87	def. H/C10	2	28.94	Lighter item is glazed pebble with adhering fayalitic slag; heavier is complexly lobed rusty fayalitic slag with charcoal dimples and adhering charcoal debris.
BR88-1	unstratified	1	37.46	Corroded and exploding smithing hearth cake fragment, 40x27mm triangle of 12mm thick concavo-convex sheet. Charcoal in concretion attached.
BR88-2	1/J5	1	16.59	Complexly lobed/dimpled dense iron slag, with possible coal inclusions.
BR88-2	1/M1	1	22.2	Lobate flown fayalitic slag with many inclusions of coal particularly in basal dimples; clearly been very fluid; dense, with maroon surface colour.
BR89	325?/D13	1	1.39	Fayalitic slag bleb with adhering possible flake hammerscale.
BR89	50/G4	1	11.96	Grey dense worn slag fragment, with coal inclusions.
BR90	283/F6	1	4.15	Well-flown fayalitic slag lobe.
BR90	283/H5	1	6.78	Small piece of dense vesicular iron slag in sheet 15mm thick, faintly magnetic; joins piece from 550/j4.
BR90	283/I3	1	9.84	Dense fayalitic slag sheet 12mm thick, vesicular, charcoal impressions on both surfaces, magnetic.
BR90	283/J4	1	6.08	Dense fayalitic slag lobe, worn.
BR90	283/K3	1	6.3	Grey vesicular dense slag fragment.
BR90	305/I5	1	125	50x75x20mm slab of smithing hearth cake, very dense; lobate lower surface with charcoal impressions, probably 50% of 70mm diameter cake.
BR90	410/C2	1	17.2	Dark grey slag with quartz crystals on upper face - presumably smithing hearth cake fragment.
BR90	550/J4	1	12.43	Small square piece of dense vesicular iron slag in sheet 15mm thick, faintly magnetic; joins 283/h5.
BR90	660/D1	1	45.22	Weathered grey slag sheet 50x40mm, up to 13mm thick, base with abundant charcoal.
BR90	690/C5	1	6.39	Fayalitic lobate slag bleb, some included large quartz grains.
BR90	690/G2	1	36.54	Piece of concavo-convex cake with adhering flake hammerscale and charcoal, encased in straw (?) rich concretion.
BR90	690/I6	1	28.42	Fragment of probable hearth cake, dense, dark slag, vesicular, plano-convex, encased in straw-rich (?) concretion.
BR90	find 802	1	120	Substantial part of small smithing hearth cake, corroded lower surface, good upper surface with quartz crystals; probably around 40% of 70mm diameter 25mm thick, plano-convex smithing hearth cake.
	def 4/D4	1	15.72	Very abraded lump of vesicular grey slag; probably smithing hearth cake fragment.

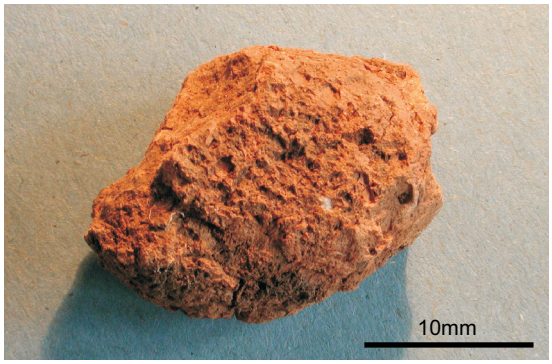
Type 1 fired material

BR	130/B11	1	2.33	2.33 type 1 with small voids including some clay lumps
BR	80/I3	1	4.09	4.09 type 1 equant voids, small amount of v coarse quartz grit
BR	80/I4	1	0.64	0.64 small piece probably type 1
BR	Find 257	1	0.41	0.41silty micaceous type 1, angular voids, shale chip, crystalline tube (fossil?)
BR85	98/I20	1	4.48	4.48 mixed type 1 and type 2. Dark crystalline patch., has possible brachiopod fossil.

BR86	211/H20	1	1.28	1.28 type 1 with zones of attached coal dust, type 2 attached to end with small dark crystal-coated coated void
BR86	Def D/A20	1	0.63	0.63 soft clay-rich type 1 variant with angular voids and possible plant impressions, some scattered quartz grains
BR87	37/H19	1	3.48	3.48 one surface well fired, rest standard type 1 with abundant angular some elongate voids, 1 shale clast some quartz grains
BR88-2	1/A6	1	1.32	1.32 type 1 slag, melted at 2 end and partially incorporating grey slag blebs, shale chips
BR88-2	1/B2	3	5.67	1.85 simple well gritted fired clay with large quartz grains, reduced on 1 face; 0.42 type 1 with large surface organic impression; 0.78 highly gritted fired clay (broken off first), 2.62 rounded lump part type 1 part micaceous silt, broken, to investigate, has large rounded quartz grains, possible plant impressions
BR88-2	1/E1	1	2.35	2.35 micaceous silty on one surface, type 1 body, then planar opposite surface, striated, maybe leaf
BR88-2	1/K9	1	1.6	1.6 small nub silty type 1
BR88-2	1/O8	1	1.77	1.77 rounded lump type 1 - broken to investigate, mixed textured micaceous pale material with foliated clots in various directions - looks natural
BR88-2	1/Q5	1	1.57	1.57 type1 brick like, pale with quartz grading to type 2 material, with large void and related zone of ?magnetite
BR88-2	2/I8-10	1	1.85	1.85 type 1 with equant voids, clay sheet on one side
BR88-2	3/N8	4	4.59	4.21 type1 with vesicular bleb on one end, probably grass impressions and angular void. Shale chips, 0.14 type2 , 0.16 type 2 partially melted with coal inclusion, 0.08 even fired clay, 0.41 sandstone
BR88-2	find 718	1	4.15	4.15 pale hard type 1, with interface between type 1 & finer material, more like 2 material on one side. A piece of coal present.
BR89	17/G9	1	2.24	2.24 rounded lump of type 1, margin small cavities, centre paler, more solid. Large central cavity with magnetite coating
BR89	18/E8	2	13.18	11.83 and 1.35 two pieces probably from single type 1 rounded whole, small voids, fish scale/gypsum?? Quartz, pale in centre, darker toward edge
BR89	20/B8	3	5.56	3.65 + 1.77 + 0.14 large piece v hard type 1, mid piece soft silty type 1, as is small chip
BR89	20/C5	1	1.93	(supposed knob) 1.93 small piece of hard fine type 1 material, lots of angular voids
BR89	20/D2	1	1.28	1.28 silty micaceous variant of type 1, holes on 1 side, some coal
BR89	20/G7	1	0.69	0.69 2 pieces, type 1, 1 has small piece of probably coal, smaller piece is sand tempered pottery
BR89	20/H4	1	1.86	1.86 rounded nub lump of type 1 but rather dense and hard. Small patch of magnetite (?), 1 large leaf like mould, several excellent rounded quartz grains
BR89	20/I9	2	0.19	0.19 total - 2 pieces of hard fired silty type 1
BR89	20/P6	1	0.45	0.45 small nub type 1
BR89	50/G4	1	1.19	1.19 Variably coloured hard type 1, some ?magnetite in larger voids
BR89	50/M1	1	0.83	0.83 type 1, with 2 small patches of ?magnetite (removed to test magnetic properties; both dark material and clay jumped onto magnet)
BR89	find 580	1	0.56	small piece of type 1 material with angular voids and quartz grains
BR90	283/H1	2	11.71	10.64 type 1 but v hard fired, some coarse voids, dark slag blebs internally or penetrating along cracks, broken to investigate - revealed dark fractured cherty core with some vesicular slags 1.07 type 2 tending to fully vesicular slag, shale inclusions, cherty inside
BR90	283/O7	2	1.23	0.16 1.07 2 pieces of very micaceous probably fired clay (1 broken to investigate)
BR90	283/P6	1	1.35	1.35 type 1, dense red clay with many angular voids
BR90	410/N6	1	0.31	0.31 pale type 1 some grit
BR90	550/A7	1	1.6	1.60 end from rounded nub of type1 material
BR90	Def J/808	1	0.45	0.45 small unreacted grey area suggests that the holes in type 1 are coal, silty micaceous on one side

BR90	410/P6	1	0.42	tiny chip of orange fired clay with biotite and shale inclusions
Type 2 fired material				
BR	70/A5	1	1.57	1.57 type 2 material with rock chips and dark slag masses
BR88-2	1/H4	1	0.6	highly fired clay?, red vitreous vesicular (similar to type 2 in places) passing to black glassy vesicular, brick red outside
BR88-2	1/L4	1	4.54	4.54 mainly vesicular slag, but also type 2 with some dark crystals and clean clay - all very jumbled
BR88-2	3/D8	1	1.32	highly vesicular red fired clay, type 2, some smooth coated areas
BR88-2	topsoil/O6	1	4.07	reddened vitrified material, ranges from hard dark reddish type 1 material with angular voids, through to very vesicular black glassy slag and quartz grains, also through type 2 with grey crusts
BR89	18/C6	1	0.94	.94 small type 2? lump
BR89	20/D12	2	14.09	larger piece as 20/G7 - reddened, vesicular, some grey crystalline coatings, very variable type 2 material
BR89	20/D9	3	5.57	0.13, 0.11 and 5.33. Small pieces type 2 v fine and friable, 1 has mould of very large inclusion, larger rounded lump silty type 1 with larger voids and micaceous clay at one end
BR89	20/E3	1	0.91	0.91 type 2, hard fired, some large angular voids, dark reddish brown, spiky appearance, some smooth coated and black areas.
BR89	20/G7	1	2.88	Vesicular material with reddened and grey crystalline surface. Essentially type 2 material with grey crystalline and red smooth surface areas
BR89	20/L7	1	0.6	0.6 type 2 material, rather melted, small crystalline area
BR89	50/B5	2	0.64	0.63 0.01 2 small pieces of type 2 debris
BR89	50/D5	2	0.45	0.45 2 pieces- small nub type 2 and tiny fragment of type 1
BR91	IBS1/4	1	0.8	vitrified material, interior reddish highly porous material seen in other samples as type 2 grading into fully fused material
Fired clay tuyère?				
BR90	590	11	12.3	11 pieces 12.3 total, part of annular object 23mm bore, slagged on outside, sandy fabric, tuyere tip?
Iron ore				
BR87	311/19?D	1	290	Large block of partly botryoidal iron ore bearing long prismatic quartz crystals
BR87	383/B10	1	6.88	Iron ore - complex botryoidal goethite coat in crack in very soft soapy red material
BR89	50/A5	1	1.66	Ironstone fragment
BR89	50/H5	1	6.08	Iron ore: botryoidal goethite, similar to larger block
BR90	610/K3	1	55	High grade iron ore. Brecciated stalactite fragments overgrown by goethite, with slickensides on one side.

Other natural stone				
BR86?	US ?Phase 4 hearth or midden	15	27.31	15 pieces of natural, pale-orangey micaceous silt and altered sandstone
BR87	313/I18	1	36.48	coarse quartzose sandstone, with iron oxide coating
BR87	brown hearth	12		orange micaceous siltstone, 12 pieces: natural
BR87	def I/H1	1		piece of conglomerate: natural
BR89	20/F3	1	3.01	micaceous sandstone
BR90	410/N5	1		piece of ashy sandstone with secondary quartz: natural
Iron				
BR88-2	15/Q11	1	4.65	Corroded iron
Pottery				
BR88-2	1/C2	1	8.27	sandy material in clay matrix, not clear whether stone or pot, 1 v large quartz/haematite clast
BR88-2	1/H6	1	6.77	fired clay or mortar, coarse grit temper includes dark glassy slag
BR88-2	1/J5	1	2.12	sand tempered pottery



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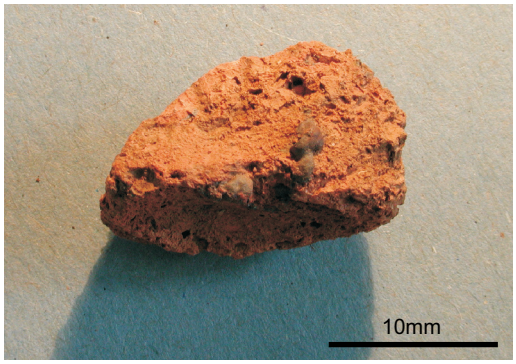

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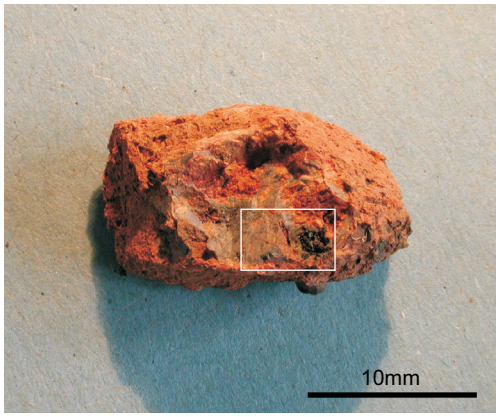

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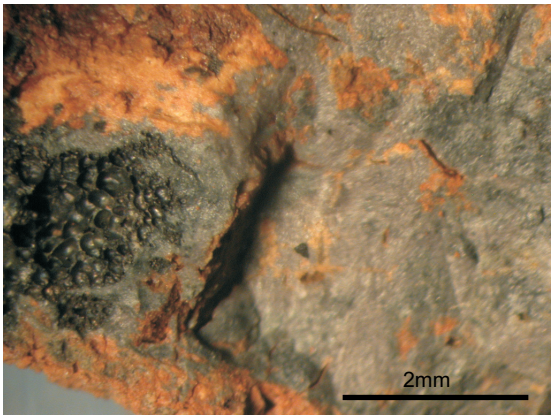

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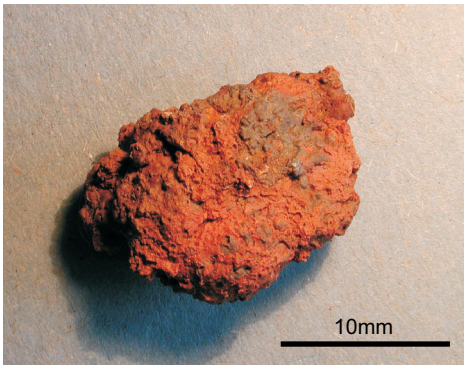

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