Assessment of the Ceramic Building Material, Fired Clay and Building Stone from High Fishergate, Doncaster (HGD 07)

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A small assemblage of ceramic building material, fired clay and building stone from excavations at High Fishergate, Doncaster, was excavated by West Yorkshire Archaeological Services and submitted to the authors for identification and assessment (Table 1). The collection ranges in date from the Roman period to the post-medieval or later.

Table 1

Class:	Sum of Nosh:	Sum of NoV:	Sum of Weight:
CBM	26	25	2970
FCLAY	31	23	895
STONE	7	7	1185
Grand Total	64	55	5050

Description

Ceramic Building Material

Roman

Ten fragments were identified as being of Roman date either by their form or by comparison of the fabric with examples with definite Roman forms.

All were produced in a fine-textured, red-firing fabric which at x20 magnification can be seen to contain abundant quartz and muscovite silt (Fig 1). Similar fabrics were produced from Humber wetlands silts in the medieval period and some medieval pottery from Doncaster, thought to be of local origin, has a similar groundmass. Therefore the Roman tile might be locally produced, but could have been made elsewhere in the Humber basin.

Examples of box flue tiles, bricks, *imbrices* and *tegulae* were identified. The box flue tiles have sooting on the interior, confirming that they were used in a wall-heating system associated with a hypocaust.

One fragment, identified as Roman through its fabric but not from an identifiable form, has a red slip. This feature has been noted on Roman *tegulae* from Otley ({Vince 2008 #49263}).

Figure 1 close-up of fabric of box tile

Medieval

Three fragments of flat roof tile were identified. All have a similar fabric, consisting of abundant subangular quartzose sand, c.0.3mm across, sparse rounded dark red or black pellets up to 1.5mm across and a fine-textured red-firing groundmass (Fig 2). The tiles were fired at such a temperature that when broken the cracks run through the quartz inclusions.

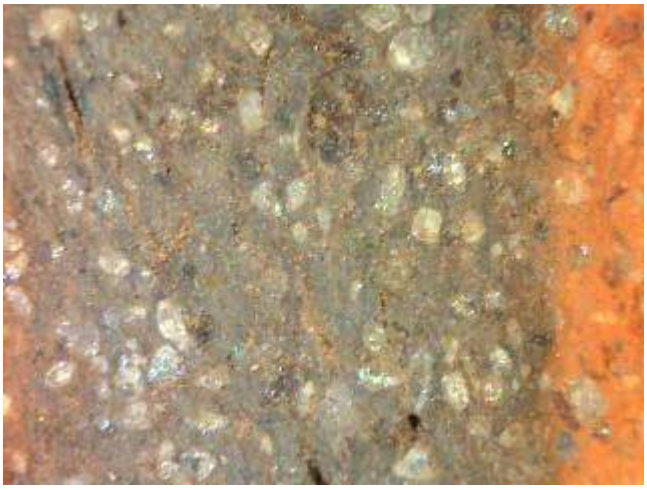

Figure 2 close-up of flat roof tile fabric

The tiles are 12 to 14mm thick, typical of medieval examples, and the fabric is reminiscent of early 13th century Doncaster Hallgate A ware, which suggests that they may be local products, perhaps even a product of the Hallgate industry.

Post-medieval or later

Twelve fragments of post-medieval or later ceramic building material were recovered. They consist of five fragments of brick with a light-coloured fabric; a fragment of chimney pot and seven fragments of pantile.

The brick fragments have a light-coloured fabric and contain abundant coarse sand composed of red sandstone fragments, quartz and ironstone grains all c.1.0mm across (Fig 3). The fragments come from large bricks, with no measureable dimensions, and have one knife-trimmed face and one sanded face. The bricks are coated with a red slip. These features are consistent either with a Roman or a post-medieval or later date but since they come from objects thicker than Roman bricks recorded by the authors a late date has been suggested. The light-coloured groundmass is similar to medieval pottery produced in Doncaster ({Buckland & Magilton 1979 #14573}, Hallgate B fabric) and is slightly redder than pottery produced at Firsby ({Hayfield & Buckland 1989 #46913}) and Rawmarsh. The sand is probably all derived from Coal Measure sandstones and therefore is consistent with a Don valley source.

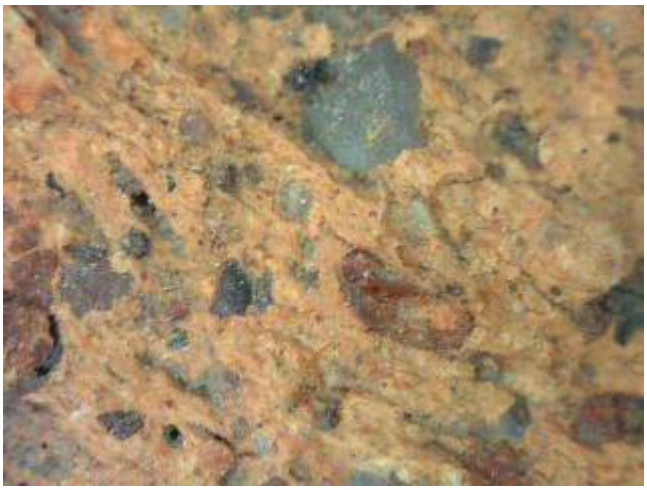

Figure 3 close-up of brick fabric showing coarse quartz, sandstone and ironstone sand

The chimney pot has a high-fired red earthenware body with a vitrified red external slip. The inner surface is coated with soot. The poorly-mixed fabric contains moderate subangular fragments of red ironstone and sparse rounded light-firing clay pellets in a fine-textured groundmass (Fig 4).

Figure 4 close-up of chimney pot fabric showing ironstone inclusions

The pantile fragments have a fine-textured fabric with few visible inclusions at x20 magnification. The groundmass has a fine-textured silty, micaceous, probably calcareous appearance (Fig 5) and the tiles have a fine-grained moulding sand on the base (Fig 6). These characteristics suggest the possibility of a low countries source although more local options are also possible.

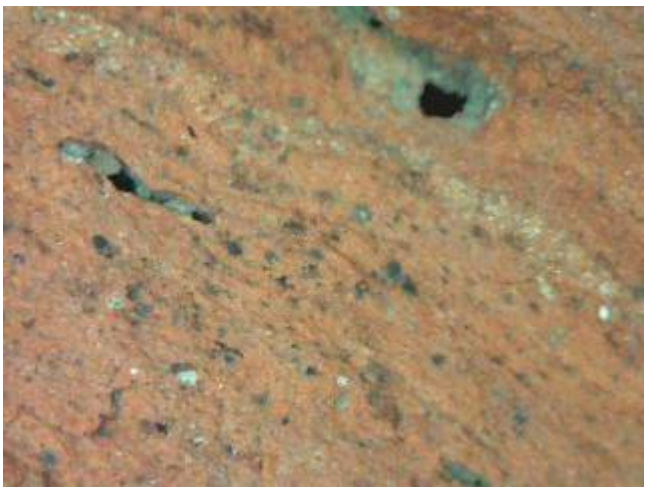

Figure 5 close-up view of pantile fabric showing probable calcareous silt lens.

Figure 6 moulding sand on pantile

Fired Clay

Thirty-one fragments of fired clay were recorded. Thirteen of these had no distinguishing features (recorded as Form="FCLAY" in App 1). Twelve have wattle impressions, five have flattened surfaces but no evidence for wattle impressions (recorded as Form="SURFACE" in App 1) and one has a flat surface with possible evidence for a wattle impression. The similarity in fabric suggests in fact that all are fragments from wattle and daub structures.

The fabric is usually oxidized red, usually soft (scratchable with the finger-nail) but occasionally being hard and a darker red colour. In the hand, no inclusions can be seen (Fig 7) but at x20 magnification the groundmass can be seen to be extremely silty with moderate muscovite laths (i.e. similar to the Roman tile fabric).

Figure 7 Close-up view of daub fabric

The wattle impressions range from 14mm to 25mm in diameter (7 measurable impressions: 14, 14, 15, 17, 20, 22 and 25mm).

Mortar

A single fragment of Opus Signinum mortar was recorded. It contains abundant angular fragments of tile, mostly oxidized and silty, similar to the Roman tile fabric, but with some light grey fragments. A small quantity of subangular quartz grains, up to 1.5mm across, is also present.

The high ceramic aggregate content causes the lime mortar to form a pozzolanic mortar, which sets under water and is impermeable. Opus Signinum mortar was therefore used throughout the Roman occupation in locations such as baths, fonts, fountains and aqueducts. The technique then was lost in Britain until its re-introduction in the 17th century when volcanic ash and crushed flint were used instead of tile.

Stone

A single fragment of micaceous sandstone, probably of Coal Measures origin, was recorded. It was probably used as a flagstone.

Six fragments of featureless limestone rubble, probably Magnesian limestone, were recorded. These were probably used to form the rubble cores of walls.

Assessment

Dating

Much of the material is clearly of Roman date or, likely the fired clay, very probably of this date. The medieval flat roof tiles cannot be closely dated, but it is suggested that they might be of later 12th to early 13th century whilst the post-medieval or later fragments are probably all quite late (18th or 19th century).

Further work

No characterisation work has ever been undertaken on ceramic building material and fired clay from Doncaster and representative examples of the Roman tile, fired clay and medieval flat roof tile could be studied using thin sections and chemical analysis (Inductively-Coupled Plasma Spectroscopy). This would test the suggested sources put forward here and help to establish the way in which the fort at Doncaster was provisioned.

Costing

Task	Costing	Amount
Thin section analysis	3 samples @ £26.00 plus VAT each	£78.00 plus VAT
ICPS analysis	15 samples @ £26.00 plus VAT each	£390.00 plus VAT

Total		£468.00 plus VAT
Grand Total		£549.90

Retention

The stratified ceramic building material, fired clay, mortar and flagstone should be retained for future re-examination. The unstratified chimney pot and pantile fragments could be discarded along with the stone rubble.

Appendix 1

Context:	Class:	Cname:	SUBFABRIC:	Description:	Form:	PART:	Nosh:	NoV:	Weight:	Length:	Thickness:	CONDITION:	USE:
1038	CBM	PMTIL	WHITE FABRIC		BRICK	BS	5	5	538				
1127	CBM	PMTIL			PANT	BS	1	1	274				
1127	CBM	RTIL			TEG	BS	1	1	132		20		
1127	CBM	RTIL			BRICK	BS	1	1	251		25		
1127	CBM	RTIL			BRICK	BS	1	1	393		25-30		
1127	CBM	PMTIL			PANT	BS	1	1	80				
1127	CBM	RTIL			BOX	BS	2	1	269		22-24		
1127	STONE		MICACEOUS SANDSTONE		FLAG	BS	1	1	263				
1151	CBM	RTIL			CBM	BS	1	1	28		16		
1166	FCLAY	FCLAY			FCLAY	BS	3	3	39				
1166	FCLAY	FCLAY			SURFACE	BS	2	2	19				
1166	FCLAY	FCLAY		WATTLE MARK 15 DIA	DAUB	BS	1	1	24				
1170	FCLAY	FCLAY		WATTLE MARK 22 DIA	DAUB	BS	1	1	30				
1170	FCLAY	FCLAY			SURFACE	BS	1	1	83				
1170	FCLAY	FCLAY		2 WATTLE MARKS; 14 AND 17 DIA	DAUB	BS	1	1	172				
1170	FCLAY	FCLAY			FCLAY	BS	5	1	111				
1170	FCLAY	FCLAY			SURFACE	BS	1	1	12				
1170	FCLAY	FCLAY		UNMEASUREABLE WATTLE MARKS	DAUB	BS	5	1	66				
1172	FCLAY	FCLAY		UNMEASUREABLE WATTLE MARKS	DAUB	BS	1	1	23				

Context:	Class:	Cname:	SUBFABRIC:	Description:	Form:	PART:	Nosh:	NoV:	Weight:	Length:	Thickness:	CONDITION:	USE:
1172	FCLAY	FCLAY		WATTLE MARK 20 DIA	DAUB	BS	1	1	18				
1172	FCLAY	FCLAY		WATTLE MARK 14 DIA	DAUB	BS	1	1	13				
1172	FCLAY	FCLAY		WATTLE MARK 25 DIA	DAUB	BS	1	1	65				
1172	FCLAY	FCLAY			SURFACE	BS	1	1	21				
1172	FCLAY	FCLAY			FCLAY	BS	5	5	152				
1180	CBM	RTIL			IMBREX	BS	1	1	66				
1184	FCLAY	FCLAY		2 WATTLE MARKS 25 DIA	DAUB/SURFACE	BS	1	1	47			HIGHFIRED	
1196	CBM	MTIL			FLAT	BS	1	1	32		14		
1196	CBM	CBM			CBM	BS	1	1	5				
1196	CBM	RTIL		RED SLIP	CBM	BS	1	1	48				
1196	CBM	RTIL			CBM	BS	1	1	78		18		
1196	CBM	RTIL			BOX	BS	1	1	135		24		
1196	CBM	MTIL			FLAT	BS	1	1	37		14		
1196	CBM	MTIL			FLAT	BS	1	1	36		12		
1196	STONE	BUILDING MATERIAL	MAGNESIUM LIMESTONE		-	BS	6	6	922				
1196	OP SIG	OP SIG		OP SIG		BS	1	1	39				
U/S	CBM	PMTIL			PANT	BS	3	3	240				
U/S BELOW CONCRETE	CBM	PMTIL			CHIMNEY POT	BS	1	1	309				SOOTED INT
U/S BELOW CONCRETE	CBM	PMTIL			PANT	BS	1	1	19				