

Assessment of the Ceramic Building Material from the Lower Quinton to King's Coughton Pipeline (QKC02)

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Six hundred and fifty-six fragments of ceramic building material, representing 641 individual objects and weighing in total 34.634 Kg were recovered from fieldwalking along the line of the QKC02 pipeline in Warwickshire. The tile includes a single fragment of late medieval or early post-medieval date and the remainder probably all dates to the post-medieval or later periods.

Methodology

All of the fragments were examined under x20 magnification and unless clearly of modern date (ie late 19th or 20th century) were given a fabric code, starting with CBM01 and finishing with CBM15 (Table 1). The one exception is a fragment of Malvern Chase ridge tile, which was coded HERB4, based on the Hereford City fabric series (Vince 1985). Where possible, the material was assigned to a form. Details were also recorded of the typology, evidence for manufacture (eg moulding sand or straw) and, if particularly noticeable, evidence for abrasion in the hope that this would give an indication of date.

Fabrics

The Malvern Chase ridge tile was recovered from Plot 5. Its fabric indicates that it dates from the later medieval period or early post-medieval period. Tiles with a pinker fabric were probably produced from the same period as pottery of this fabric, that is, from the middle of the 16th century, and this probably provides a *terminus ante quem* for the Plot 5 tile.

The remaining fabrics are all of types which have not been previously seen by the author, with the possible exception of CBM01, which is similar to the main fabric used in the 15th century at Beaudesert Castle (Vince 2002).

Most of the fabrics share characteristics and probably were all made from exposures of Mercian Mudstone (Keuper Marl). They vary in the amount of finely-dispersed carbonate in the groundmass and in their homogeneity. Fabric CBM03, however, not only never contains this carbonate but it also contains moderate rounded black concretions, presumably rich in iron and manganese, which are absent from the remaining fabrics.

The sand and gravel inclusions found in the fabrics are in the main likely to be of Triassic origin and include rounded grains with matt surfaces, indicative of desert conditions. There are, however, some larger inclusions, mainly of sandstone, which might be of earlier age, although even these are likely to have been incorporated into Triassic sandstones.

The U-sectioned land drains are mainly made from a fabric (CBM11) which contains sparse rounded voids which are probably not Triassic marl. The same material is present as moulding sand on many

examples. In a few cases there is sufficient remains of the original inclusion (despite firing at temperatures in excess of 850 degrees C, at which point CaCO₃ breaks down) to indicate that they were oolitic limestone, and therefore of Jurassic age. Such inclusions are probably present in Warwickshire Avon gravels down river of the point at which the river cuts through the Jurassic ridge. They are probably not limited to the south side of the river, however.

CBM10 is unusual in that it contains what appears to be basic igneous rock temper. Such rocks outcrop in the Nuneaton area but no closer to southwest Warwickshire. Furthermore, the frequency of these inclusions does not suggest that the rock fragments were detrital in origin. Thin-section would allow the identification to be tested and might aid the identification of the source.

Three of the fabrics (CBM12, CBM13 and CBM14) have micaceous groundmasses. Micaceous clays of this type outcrop widely in the region, including probably the Mercian Mudstone, the Middle and Upper Lias clays and Devonian marls and glacial tills in the Welsh borderland. Thin-sectioning of the fabrics would probably allow the source to be more closely identified.

Table 1

Cname	Description	Total
CBM01	Few inclusions visible	42
CBM02	Calcareous groundmass	53
CBM03	Abundant rounded quartz sand; moderate black pellets	280
CBM04	Abundant rounded quartz sand without black pellets	2
CBM05	Marl pellets and moderate rounded quartz sand	63
CBM06	As CBM03 but with finer sand	3
CBM07	Marl pellets and sparse rounded quartz sand (this was actually a piece of burnt clay rather than ceramic building material)	1
CBM08	Calcareous groundmass with numerous red clay and yellow marl inclusions	2
CBM09	Moderate rounded quartz and red clay pellets	1
CBM10	Basic igneous rock fragments	1
CBM11	Blocky texture, some large marl lumps	58
CBM12	Silty micaceous groundmass	22
CBM13	Silty micaceous, calcareous groundmass with rounded quartz sand	14
CBM14	Silty micaceous groundmass with microfossils	2
CBM15	Moderate rounded voids	3
HERB4	Sparse angular acid igneous rock fragments	1
MOD	Various (not studied)	108
Grand Total		656

Forms

The majority of the collection consists of pieces of flat roof tile and bricks (Table 2). There were, however, a number of fragments which did not easily fit into known types. They have thickened flanges, as with Romano-British *tegulae*, but can also show signs of curvature. Initially, these pieces were interpreted as being of Roman date, but their fresh appearance belied this interpretation and they are now considered to be fragments of land drains with a U-shaped cross-section and have been coded as 'U DRAIN' to distinguish them from the cylindrical pipe drains, which are also present.

Most of the other forms present are self-explanatory. Of note, however, is a fragment of a malt oven tile from Plot 1. These tiles were used to form the upper floor of a malt house and were pierced by numerous conical holes designed to allow hot gases to rise through the floor but to stop the germinated grain from falling through to the kiln below. The fabric of this example, CBM02, suggests that it is probably 19th or 20th century.

An interesting feature of the collection is the low quantity of pantiles. In most similar collections pantiles form a high proportion of the roof tiles. They came into use in England first in the later 17th century although they were used earlier in the Low Countries, and their use spread rapidly westwards. They are common, for example, in Somerset and Gloucestershire. Their absence in this collection suggests either that there is relatively little 18th/19th-century roofing tile in the collection or more likely that the use of flat tiles continued in this part of Warwickshire through the 19th century.

Table 2 Form Codes and the number of fragments of each type

Form	Description	Total
?	Unidentified	29
AIRBRICK	Brick with cylindrical holes to allow circulation of air	2
BRICK	Brick	147
BRICK/FLAT	Brick or flat tile	4
BRICK?	Possible Brick	7
CURV	Curved tile	18
DRAIN	Cylindrical drain	5
FCLAY/BRICK	Fired clay or brick	47
FLAT	Flat tile	355
FLAT/BRICK	Flat tile or brick	1
FLAT/CURV	Flat or curved tile	1
FLAT?	Possible flat tile	1
FLOOR	Floor tile	1
HIP/FLAT	Hip or flat tile	1
MALT OVEN TILE	Malt oven tile	1
PANT	Pantile	5
RIDGE	Ridge tile	3

U DRAIN	U-sectioned land drain	27
Grand Total		656

Dating

Southwest Warwickshire lies in a region of mixed traditions of ceramic building material use in the medieval and later periods. Far to the west and immediately to the south are areas in which flat ceramic roof tiles were not used until the later 16th century. The only medieval ceramic building materials in these areas were ridge tiles, finials and louvers (as at Hereford, Vince 1985). Thin 'Tudor' bricks were being made at Malvern Chase before the dissolution and carried large distances, either overland or using the River Severn. In the lower Warwickshire Avon, and south Worcestershire, flat roof tiles seem to have a much earlier origin, perhaps even in the later 12th century, as at Newland in Pershore. Even here, however, one would not expect to find brick in use until much later, probably again the later 16th century. At Beaudesert Castle, which seems to have been abandoned shortly after a major rebuilding in the 15th century, there were plentiful flat roof tiles and hip tiles but no contemporary bricks. Thus, surrounding districts offer no clear guidance as to the date of introduction of flat roof tiles or bricks.

The following, therefore, is a speculative attempt to provide a sequence, which should be tested against stratigraphic evidence before being accepted as fact.

The earliest phase (Table 3) probably includes glazed and unglazed ridge tiles (HERB4 and CBM14). In addition, CBM01 is so similar to the main fabric at Beaudesert Castle in appearance that it too may have a later medieval origin (in which case the curved tile might be either a ridge or hip tile). Finally, the sandy fabric, CBM03, includes peg and nib holed examples which are indistinguishable from medieval examples elsewhere. It too may have medieval origins (even if the majority of the examples are much later).

Table 3

Cname	?	CURV	FLAT	FLAT?	HIP/FLAT	PANT	RIDGE	Grand Total
CBM01		1						1
CBM03	13	3	178	1	1	1		197
CBM14							2	2
HERB4							1	1
Grand Total	13	4	178	1	1	1	3	201

The next phase might be the introduction of handmade bricks and flat roof tiles in other fabrics (Table 4). Of these, CBM01 may actually be earlier. A starting date of late 16th century is therefore suggested for these types, with the proviso that individual examples might be centuries later.

Table 4

Cname	?	BRICK	BRICK/FLAT	BRICK?	FLAT	Grand Total
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CBM01		7		1	30	38
CBM02		13			23	36
CBM03		73	4	4		81
CBM04					1	1
CBM05	2	3			50	55
CBM06					3	3
CBM08					2	2
CBM09					1	1
CBM10		1				1
CBM11				1	3	4
CBM12		5				5
CBM13		2		1	4	7
Grand Total	2	104	4	7	117	234

The few pantiles from the pipeline are clearly of later 17th-century or later date (Table 5).

Table 5

cname	PANT	Grand Total
CBM02	2	2
CBM04	1	1
CBM05	1	1
Grand Total	4	4

The malting oven tile is ascribed here to the later 18th century or later, but on no good grounds (similar tiles were being made at Ashton Keynes in north Wiltshire in the later 18th century).

Fabrics in which U-sectioned field drains appear were probably in use during the earlier part of the 19th century, although it is possible that individual tiles were made later. It is possible that a number of the tiles coded here as curved, flat, flat or brick and flat or curved are actually just small pieces of these drains (Table 6).

Table 6

Cname	?	CURV	FLAT	FLAT/BRICK	FLAT/CURV	U DRAIN	Grand Total
CBM02						7	7
CBM05						2	2
CBM11						10	10
CBM12	2	1	7	1	1	5	17
CBM13						5	5
CBM15			1			2	3
MOD						2	2
Grand Total	2	1	8	1	1	33	46

Finally, the 108 modern fragments include examples which are probably later 19th century (for example frogged bricks), as well as 20th-century types such as the airbricks and a floor tile (Table 7).

Table 7

AIRBRICK	BRICK	CURV	DRAIN	FLAT	FLOOR	U DRAIN	Grand Total	
2	2	43	1	5	52	1	2	108

Assessment

The ceramic building material consists of two classes of finds. Those which were actually used in the fields in which they were recovered, mainly land drains, and those which have been brought to the fields as refuse from activity elsewhere. There are no concentrations of finds which might indicate that the material came from buildings on the sites themselves. It is possible that there is a distinction to be drawn between the scraps of brick and tile which probably entered the fields along with manure or night soil and those which may have been dumped as hard core to form tracks and paths. This distinction, however, is best made by those with knowledge of the geography of the finds, although one could argue that large fragments of brick are more likely to have been used as hard core. Most of these are clearly modern bricks but there are some potentially earlier bricks of this kind, for example from Plots 2 and 3.

There is clearly potential in this part of Warwickshire to produce a useful typology of post-medieval ceramic building material, since there are differences in fabric, typology and dimensions which may either indicate chronological differences or reflect the practices of separate brickyards. There is some evidence for geographical variation in the distribution of the different fabrics but this may either reflect differences in the agricultural regime of the various fields (for example, whether or not they were within open fields, proximity to farms or villages and consequent differences in the use or source of manure, date of enclosure and the use of land drains). There are, however, so many variables that one would have to try and control some of these, through the study of ceramic building material in local vernacular housing. Nevertheless, the first step in working towards a better understanding of the ceramic building materials of the area would be to undertake scientific analysis of samples of each of the fabrics. This would both make a more objective record of the collection and allow the fabrics found here to be compared with those from Beaudesert Castle and from the Severn Valley so as to make it possible for other researchers to make use of the QKC02 data.

Costing

Task	Charge-out rate/cost per item	Number	Amount
Thin-section analysis	£21	15	£315
Chemical analysis (ICPS)	£21	15	£315

Grand total

£630 plus VAT

Notes:

- 1) Thin-sections are produced at the University of Manchester and analysed by Alan Vince. The cost includes a written report. The sections remain at AVAC for comparative use. The method requires a sample of c.4mm by c.5 to 15mm by c.30mm and can be taken from the back or base of a displayable artefact.
- 2) The chemical analysis is carried out at the Department of Geology, Royal Holloway College, London and statistical analysis of the results is carried out by Alan Vince. The cost includes a written report. The technique requires less than 1gm of sample but a larger sample (2-3gm) is chosen for preference so as to minimise the effect of isolated inclusions.

Bibliography

Vince, A. G. (1985) "Part 2: the ceramic finds." in R. Shoesmith, ed., *Hereford City Excavations: Volume 3. The Finds*, CBA Research Report 56 The Council for British Archaeology, London.

Alan Vince (2002) *Assessment of Medieval Ceramic Building Material from Beaudesert, Henley in Arden, Warwickshire (Site BEAU01)*. AVAC Reports 2002/29 Lincoln, Alan Vince Archaeology Consultancy.