THE SUPPLY AND DISTRIBUTION OF CERAMIC BUILDING MATERIAL IN ROMAN BRITAIN

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Abstract

This paper outlines the introduction and development of the use of ceramic building materials in Britain. CBM was introduced as part of the A.D. 43 Roman invasion, and was used initially by the military, retiring veterans and elite members of allied indigenous groups. There was a clear expansion of demand by urban centres in the mid to later 2nd c., a demand that was satisfied by itinerant groups of building specialists. In the later Roman period urban development all but ceased, but there was still abundant civilian demand for high status rural buildings. This coincided with the development of static tile production centres feeding wide regional networks, mainly overland. However, even though tile makers became sedentary, there was still a need for itinerant building specialists.

Introduction

This is a brief survey of the emerging patterns relating to the production and consumption of ceramic building materials (CBM) in Roman Britain. This paper will cover the use and manufacture of CBM from the earliest evidence of its use, in the mid 1st c. A.D., until its final occurrence, in the late 4th or early 5th c. The beginnings of CBM usage in the province are included here to show how the industry develops, and to contrast it with the pattern for the later Roman period. This is not an easy pattern to discern though, as we have limited material from the late antique era in Britain; much of the evidence for the final phase of villa roofing is present in the topsoil, and so is usually uncollected during excavations.

The evidence examined will consist mainly of roof and flue tiles, and will be based on the author’s own work in the UK (comprising a database of some fifty-nine Roman sites), largely in the development-led sector (fig. 1). This will be supplemented by a brief survey of recent work, as well as reference to parallels from the western empire. Bricks have not been covered in this assessment, as their use, outside of hypocaust structures,
Fig. 1. Sites in Britain covered in the article (drawn by author).
relies heavily on the availability or otherwise of suitable stone for wall building.¹ The use of stone tile is likewise not covered, as it would require a much more detailed survey than is possible here.

**The Nature of the Evidence**

Ceramic building material, defined as deliberately fired clay objects used for construction, is a poorly studied field. This is caused, ironically, in part by the large amounts of the material often encountered, which can pose serious logistical problems for the excavator. Unfortunately, a model that says CBM is a high bulk, low value commodity that is locally made,² has resulted in a failure to produce much evidence in the form of quantified phase groups. Nevertheless, McWhirr carried out pioneering work in the production of a gazetteer of tile production sites in the UK.³ Also, an important analysis on the modes of production of CBM was undertaken not long after this, where examples of different modes of production in Gloucestershire were identified.⁴

Recent work has recognised that ceramic building material was in fact a high value commodity in its own right, that enjoyed regional distribution.⁵ It is important to realise that roof tile was an expensive commodity, with one *tegula* with an *imbrex* probably costing about the equivalent of one day’s unskilled labour.⁶ Given that the average roof was at least three hundred tiles, and often a lot more, the purchase of ceramic material would have had a considerable economic impact. An important recent study is Warry’s work on *tegulae*, which has suggested a chronological framework based on *tegula* lower cutaways and a change in roofing strategies.⁷ His theories will be followed and tested in this paper.

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¹ Williams (1971).
³ McWhirr (1979).
⁵ An overview of the potential for CBM in addressing archaeological problems can be found in Mills (in press).
⁶ Mills (2013); Warry (2006) 121.2; Wikander (1988).
⁷ Warry’s (2006). Warry has also produced an investigation of military tile based on the stamped evidence: Warry (2010).
There is no evidence for the use of ceramic building materials in Britain before the A.D. 43 conquest. Early roof tiles have been found in Boudiccan destruction deposits in Colchester, as well as pre-Boudiccan contexts in London, such as 12 Arthur Street and 36 Poultry. The requirement for tiled roofs as well as the skills to make them was introduced during the conquest period. Warry’s *tegulae* typology grouped some sixteen different cutaway types into five groups, with a set of suggested date ranges (fig. 2). The opportunity has been taken here to compare his suggested date ranges with additional data. Unfortunately, he only published his findings by cutaway group, rather than by specific cutaway type, so it is not possible to look for chronological or regional patterns at that level here.

*Type A*

In his survey, Warry identified CBM material at Colchester (St Mary’s Hospital) from a Boudiccan destruction layer, so with a date of A.D. 61. These were in Warry’s type A cutaway group that he dates in Britain as ca. A.D. 40 to 120; early material from London has not yielded any cutaway data, so far. Warry suggests that this cutaway group, and the later group B, are associated with roofs constructed on layers of laths, consolidated with daub or mortar, which was the strategy used by military builders in the first two centuries A.D.

Warry cutaway type A is found in the Early Roman colony phase at Carthage and in Italy from at least the 2nd c. B.C., with clear archaic antecedents in Greece. Warry identifies seventeen sites with this cutaway recovered from securely dated phases, the majority military sites, mainly forts. Civilian exceptions are the palace at Fishbourne, a private house or public building from Gloucester, and a rural building from Shellford Quarry, Kent with a pre-Flavian date. Additional sites include unphased examples from the town house at Vine Street, Leicester, from Owslebury, Hampshire, from rural sites along the Transco pipeline in Warwickshire.

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9 Carthage: Mills (forthcoming a and b); Greece: Wikander (1988) fig. 3 C2.b.
and, residually, at the Late Roman villa at Bottisham.\textsuperscript{12} Further military examples include the fort at Alchester and the late 1st to early 2nd c. bath-house at Wigan.\textsuperscript{13} McComish carried out a study based on two hundred and fifteen archaeological interventions in York, and discovered forty-eight examples of cutaway A.2: 9.5\% of a population of 505.\textsuperscript{14} Dated examples include: two from an A.D. 120–200 phase at Wellington Row; two from an A.D. 120–200 layer and one from an A.D. 200–80 layer from sites south-east of the colonia as well as two examples from the A.D. 129–200 layers; with one example from A.D. 200–80 layers from south-west of the colonia.\textsuperscript{15}

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\textsuperscript{13} Alchester: Mills (in prep b). Wigan: Mills (forthcoming d).

\textsuperscript{14} McComish (2012).

She has suggested that the group A tegula were the earliest tiles used in York, because they tended to be larger and thicker than other tile types.

The stamping of CBM was introduced by the military in A.D. 90 and continued until the mid 3rd c. Different legions employed different strategies, from stamping all tiles, to just a few per batch. The earliest evidence of private tile manufacture is suggested by RIB 2489.68, where a brick with a name stamp was recovered from a probable Flavian fill of the hypocaust for the fortress bath at Carnarvon. Warry has suggested that civilian subcontractors were used by a number of legions from the late 1st c., and that the twentieth legion had wholly outsourced production by the mid 2nd c. Evidence for a civilian run operation supplying tile, under contract to the military, has been suggested at Tarbock, Merseyside. This fits with the evidence there is for the supply of other products to the military, by apparently civilian owned industrial settlements with a largely servile population, in the north-west between A.D. 90 and the 3rd c.

Away from Gloucester, the only other large concentration of civilian stamped tile is at the colonia of Lincoln. Elsewhere, civilian stamps are noted sporadically and usually close to important military centres, such as at York or in County Durham, although the villa at Piddington is an interesting exception.

**Type B**

The next cutaway in Warry’s sequence is Group B. He suggests a date range of A.D. 100–80 for this style. This cutaway group is also found in the Early Roman phase at Carthage. What is striking about Warry’s gazetteer is the overwhelming number of cases where this cutaway type is associated with a military presence. He has nineteen sites with this style, of which only two come from possible civilian usage: Blackfriars Pavement, Leicester, and St. Oswald’s Priory, Gloucester. A similar pattern is seen in the additional sites supplied by this author’s work, where all cutaways are of type B.6: the fort at Alchester; the site at Owlsley; and the 2nd c.

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16 Warry (2010).
17 Warry (2010).
19 Evans (forthcoming) and in this volume.
20 Collingwood and Wright (1993) 56.
22 Mills (forthcoming a and b).
23 Warry (2006) fig. 4.3.
to Antonine phase of the rural settlement at Wattle Syke, West Yorkshire.\textsuperscript{24} This last site is an unusual example of evidence for a tiled structure in West Yorkshire, and shows links to York, in the form of Ebor ware. The nearby site of Dalton Parlours has examples of Warry cutaway types A, C and D, with the type A examples in a fabric identified as coming from York.\textsuperscript{25}

In York, McComish has 412 (81.6\%) examples of Cutaway B.6, and two examples of cutaway B.62 (0.4\%). In the latter case, Betts has pointed out the similarity between A.28 and B.61, both being formed by a square block in the mould which was subsequently trimmed.\textsuperscript{26} An example of cutaway B.62 was found in A.D. 120–200 layers at Wellington row.\textsuperscript{27} Cutaway types B.6, from dated contexts, include a single sherd in the A.D. 71–120 phase at St Leonards Hospital,\textsuperscript{28} as well as a residual example from the A.D. 280–410 phase. Examples from Wellington Row, include five from the A.D. 71–120 phase, nine from A.D. 120–200, ten from A.D. 200–80 and fourteen from A.D. 280–410.\textsuperscript{29} In the sites south-west of the colonia, there is a single sherd from the A.D. 120–200 phase, five from the A.D. 200–80 phase, and a single sherd from the A.D. 280–410 phase.\textsuperscript{30}

There is also a geographically restricted distribution to this cutaway style, with a limited number of occurrences in the south-east.\textsuperscript{31} Warry suggests that the transition to group C cutaways was slower at military sites. This suggests that cutaway type B, and its associated roofing style, was an innovation brought in by the military, and perhaps largely restricted to the community of soldiers.\textsuperscript{32} Further work would be needed to explain the exception found at Wattle Syke, although a development by someone with military connections to York is an obvious starting point. It does, however, imply that the overlap between this cutaway type and the following one is possibly more extensive than is allowed for in Warry’s current chronological structure.

\textsuperscript{25} Betts (1990) 166.
\textsuperscript{26} Betts, pers comm.
\textsuperscript{27} McComish (2012) table 90.
\textsuperscript{28} McComish (2012) table 90.
\textsuperscript{29} McComish (2012) table 90.
\textsuperscript{30} McComish (2012) table 100.
\textsuperscript{31} Warry (2006) fig. 2.3.
\textsuperscript{32} C.f. Mattingly (2006) 166.
Type C

The next cutaway type in Warry’s sequence is type C, for which he has proposed a date range of ca. A.D. 160–80, although an earlier start date is suggested by finds from Norfolk Street, Leicester and Lime Street and Mansell Street in London. Betts has well-dated type C cutaways from the 1st c. in London.33 A Warry type C.4 is illustrated by Wikander from Pompeii, which supports a 1st c. date for this type in Italy.34 There are nineteen sites identified by Warry with type C cutaways, of which three are military.35 This style is also noted at Carthage, possibly as part of the mid 5th c. roof of the church at Bir Massouda.36 Warry also suggests that the introduction of the type C cutaway is coupled with a new roofing strategy, where the tegulae were self-meshing, and laid directly onto the wooden frame, with the lower row secured by nails.37 The existence, for instance, of skylights from the 5th c. B.C.,38 as well as the parallels with Etruscan architecture, suggest that a different model for the adoption of this style is needed. It should also be noted that the early group Cs from London do not show any evidence of this type of roofing.39 Warry proposes a further 3rd c. development, of roofs with steeper pitches, where every other tile had a nail or peg hole, although this is apparently rather geographically restricted.40

In Britain, additional occurrences of type C cutaways have been noted at the villa at Dalton Parlours.41 Examples are also residually present in the 4th c. phases of the town house at Vine street, Leicester in a local fabric; at the 2nd/3rd c. rural settlements at Turners Hall farm, Hertfordshire; the site at Owslebury in the mid 3rd c.; the settlement at Croughton, Northamptonshire, in local fabrics; the villa site at TR99H and the rural site TR99B2, Warwickshire.42 This type is the most common in the catalogued material in the author’s database, comprising some thirty-

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33 Betts, pers comm.
34 Wikander (1988) fig. 3.c5.
35 Warry (2006) fig. 4.3.
36 Mills (forthcoming b).
37 Warry (2006) 108, suggests that this is due to a technological development in the working of wood.
38 Wikander (2003).
39 Betts, pers comm.
40 Warry (2006) fig. 4.3.
41 Betts (1990) 166.
one of the eighty-one lower cutaways identified. Examples in C.4 from Wellington Row include one from the A.D. 200–80 phase, and one from the A.D. 280–410 phase, with a further two examples of C.5 in the later phase.\(^{43}\) There are nine examples (1.8%) of C.4 from York in McComish’s 2012 study, and a further 30 (5.9%) of type C.5.

It is clear from Betts’ evidence that Warry’s start date for this group in Britain is wrong.\(^{44}\) However, type C does not appear to have had a widespread distribution, until perhaps the mid 2nd c. A.D. outside of London, and perhaps Leicester. Further data are needed to test this.

**Type D**

The next cutaway type in Warry’s scheme is type D, with a suggested date range of A.D. 240–380. He has eighteen sites listed with type D occurring, with only the last phase of Beauport bathhouse, East Sussex, having a military connection, with most being associated with villas. There are also examples of this cutaway type from Carthage, where it appears to be associated with the final phase of the church at Bir Masuda, with a 6th c. date.\(^{45}\) Examples of cutaway D.1 are noted at the Late Roman settlement at Croughton, Northamptonshire; the rural settlements TR99 A and TR99 B2 in Warwickshire; and the Late Roman phases of Worcester Magistrates Court.\(^{46}\) A number of the examples at these sites are in the Late Roman pink grog tempered fabric from Towcester, which has a date range of the later 3rd to 4th c.\(^{47}\) There are also two examples of D.1 from the 4th c. villa at Bottisham, in a sandy fabric. Type D.15 and D.16 are found at the Late Roman villa at Thwing, East Yorkshire, in Crambeck red ware, which has a date range of the late 3rd to 4th c.

As with type C, there are a number of sites with earlier date attributions in Warry’s survey, so a 3rd c. beginning is possible, based on the evidence from Beauport and Mansell St, London. The introduction of this style into Britain at this stage may be down to the military reforms of Septimus Severus, and may mirror the introduction of North African vaulting tubes in buildings at Chester, Caerleon and York, as well as Carlisle.\(^{48}\)

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43 McComish (2012) table 90.
44 Betts, pers comm.
45 Mills (forthcoming b).
47 Tomber and Dore (1998): PNK GT.
48 Mason (1990); Swan, pers comm. for Carlisle.
regional pattern of cutaway types within this group is also interesting, and it is not a surprise that local differences were emerging at this stage with regional centres of tile production become increasingly important. The highest demand for this type was at high status rural sites, as construction of public buildings in urban centres was dwindling.49 There are no class D cutaways noted in McComish’s 2012 study.

The final cutaway group Warry identifies, comprises three regional types, starting from the early 4th c., with examples of type R.7 from the villas at Crookhorn, and Sparsholt, and a type R.8 from the fort at South Shields, and a R.9 from Corby (also noted to have an unusual upper cut-away type).50 There is an example of R.7 also from Owslebury, Hampshire.51 Again, the development of these regional styles is no surprise, given the development of distinct regional tile industries in the later 3rd c.

FLUE TILES

Roller Relief Pattern Flue Tile

A well-studied group of CBM are the roller relief patterned flue tiles.52 The earliest examples seem to date from ca. A.D. 80, however the majority appear to be associated with mid to late 2nd c. building projects, mainly concentrated in the south-east and London, but are found as far north as York (Die 2) and as far west as Great Barrington, Gloucestershire, Lower Wanborough, Wiltshire (Die 12) and Broughton, Hampshire (Die 1).53 These appear in a range of fabrics, with some dies occurring in several fabrics, whilst others are only made of one fabric. This would imply the co-existence of a number of different modes of production: well-established tileries providing enough work for tilers to be sedentary, but also a number of itinerant tilers who would travel to meet the new demand beyond London.

The earliest stamps (Die 16f4 and 44f3) occur mainly at mansios,54 as well as at Fishbourne (Die 96F1 and 22F1).55 There were a few examples

51 Mills (in prep a).
52 Betts et al. (1994).
53 York: McComish (2012) 162–63, fig. 27.
55 Betts et al. (1994).
of the same roller being used in more than one fabric group, that is, at more than one tilery. This is also evident looking at the distribution of the widespread dies. In the case of Die 9, the most widespread die type, recent examples have been recovered from Vine Street, Leicester, in the local fabric, alongside examples of Die 13, which contain both pre-split die and post-split examples. The quantities recovered from the Late Roman (4th c.) demolition phase included 0.5% of Die 9, and 0.8% of Die 13 from a group of 363 flue tile fragments. This suggests only a single flue tile per batch would be marked in this way, perhaps indicating the tile makers daily output.

Die 13 splits at some point in its working life, and in fact, both the split and unsplit versions occur on Vine Street: some 0.5% of the unsplit form and 0.3% the split form of Die 13. Examples of both the split and unsplit versions also come from the public baths. Further evidence of the split version is found at the extramural site at the Royal Grammar school, Colchester; Bucklersbury House, London; and from Insula XIV, St Albans, representing places the tiler worked after Leicester. Another quantified example comes from Alchester (Mills in prep b) where (Betts et al.1994) Die types 27i and 27d and possible Die 18 were noted, and come to 3.5% of a site assemblage of 365. This implies a higher range of stamping than observed at Leicester, which may be down to the military association, but could also be down to the relatively small sample size or other taphonomic reasons.

In the case of the material from Leicester and Alchester, it is hard to avoid the conclusion that these stamps were used by itinerant tile makers. They were making flue tiles, a skilled specialism, alongside other tile makers, and using local tileries in conjunction with other tile makers, and so needed to differentiate their own batches from others by placing their stamped tiles in prominent positions, like potters sharing the same kiln. It seems likely that these tile makers retained responsibility until delivery, presumable under a contract for so many hundreds of tile. A number of different dies are found together in several locations, for instance Dies 13 and 9 are found together at: Colchester; St Albans and residually at Chatley Farm, Cobham, Surrey. It would appear that there was a community of tile makers, moving together in the civilian zone, supplying specialist

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59 Betts et al. (1986).
products. It is also likely that such itinerant tile makers would not have been acting in a vacuum; they would be supplying the requirements of specialist architects and builders who were involved in the post Hadrianic construction boom.

A similar pattern for tegulae is suggested by the unusual ‘P’ signature noted at Piddington, from Melandra castle, Derbyshire, in the local fabric, but also now noted at Turners Hall Farm. The latter site has also produced examples of ‘S’ signatures on a lydion brick, like RIB 291.75.

**Supply and Distribution**

Darvill and McWhirr made the important point that the organisation of an industry like tile-making, a heavy industry, would be different from the pottery supplying sector, as consumers would want large quantities of a product, rather than a single example, and were likely to be more involved with the purchase than a pottery consumer would have been. They identified a number of examples of different modes of production, and explored the evidence for these mainly using stamp data, backed up by petrological investigation. They also used ethnoarchaeological models based on medieval and later brick making.

Within Britain they found examples of: military/municipal production at Gloucester; rural production in the Cirencester area; a clustered industry centred on Minety; peripatetic industries; as well as estate production. Estate production is also suggested at Piddington, where tiles may have been made for a single phase or project, and, possibly, to supply other, near by projects as well, from surplus stock. Early work on the ‘Classis Britannica’—the stamped brick and tile of the Roman fleet of Britain—was carried out by Peacock. He identified two probable sources on either side of the channel, with a relatively large supply of British material to Gaul, but a more limited movement in the other direction. This would appear to be a special military case, and no other exported CBM from Roman Britain has been noted.

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Fabric Groupings

Most CBM in Britain was not stamped, but work on fabrics, and related pottery industries, gives us some information. There follows a selection of fabric groupings which have been identified:

London Calcareous Group

This was identified by Betts and Foot at a number of sites in London, and subsequently in West Sussex, on the Isle of Wight and at Exeter, with recent examples noted in Kent and Essex. The group has more recently been noted at Winchester. Products included roof tile, bricks, flue tile, tegula mammata and tesserae, with roof tile being the most common. Tegulae in cutaway types B and C have been observed. Betts and Foot suggest a date range of the mid to late 2nd c. up to the end of the 3rd c. This industry has an uncertain provenance, but took advantage of southern coastal routes for supply.

Minety, Wiltshire

The site at Minety has been recognised as a cluster of tile workshops, which was producing relief-patterned tile, as well as roof tile, from A.D. 80–150. It has a specific West Country distribution.

Severn Valley Ware

This is an oxidised pottery tradition that flourishes from the 2nd to 4th c. A.D. The fabrics can be difficult to sort by hand examination, and are similar in fabric to tiles produced at Walton le Dale, and elsewhere in the North West. Tile in this fabric group was discovered in the Late Roman phase at Worcester Magistrates Court in cutaway form Warry D.1.

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65 Poole and Shaffrey (2006).
66 Betts and Foot (1994) fig. 1.
67 Betts and Foot (1994).
68 Darvill and McWhirr (1984); Betts et al. (1994).
69 Tomber and Dore (1998): SVW OX.
70 Mills (forthcoming f).
Harrold Ware

This is a distinctive ware with abundant shell and limestone temper. Relief pattern flue tiles were being exported from at least the 2nd c. into the south-east. The range of supply increases in the later period, and flue tile in this fabric is noted at this later time. The site of Harrold also produced roof tile, which was its principle export to London.

Horningsea Ware

This pottery ware develops from the Flavian to the mid 4th c. Horn-ingsea CBM has been noted at Cambridge, Ely, Harston and Bottisham, and does not appear on sites outside the main supply zone of Horningsea pottery. The only cutaway is a type C form from Harston Mill. Only roof tile has been identified in this fabric, to date.

Holme-on-Spalding Moor

This is a later Roman (late 3rd–4th c.) industry; pottery vessels are a distinctive grey reduced fabric. An oxidised fabric, with the same range and size of inclusions, has been noted at Hayton, providing roof tiles and a finial.

Crambeck Ware

The pottery at Crambeck has a distribution in the North from the late 3rd c. until the 4th. Roof tiles, including convex tegulae and a finial in this fabric, have been noted at the Late Roman villa at Thwing, of cutaway group D.

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71 Tomber and Dore (1998): HAR SHE.
72 Betts et al. (1994): Dies 64 and 123.
73 Betts, pers comm.
74 Tomber and Dore (1998): HOR RE.
75 Evans et al. (forthcoming).
77 Mills (2001).
78 Tomber and Dore (1998): HSM RE.
79 Mills (forthcoming g).
80 Tomber and Dore (1998): CRAM OX.
81 Corder (1937).
Pink Grog Tempered Ware

Production of this ware is centred on Towcester, Bedfordshire, and has a date range of the late 3rd–4th c. Taylor has produced an overview of the ceramic supply of this industry in the Midlands, and he has identified three zones: core, heartland and outer. Examples of this ware have been found at Croughton (38% by no.); Alcester (5% by no.); Alchester (5% by no.); Transco pipe line site TR99H (6%); and at Worcester Magistrates Court (1%). Whilst more data points would be useful, the current pattern of CBM supply matches that of the pottery, and the only cutaway type noted in this fabric is in type D. Products identified in this fabric to date include roof tile and flue tile, both of which appear at Worcester.

**Discussion**

This paper is, of necessity, a very brief outline of some emerging trends in CBM supply in Roman Britain. Many of these patterns can be tested for, and refined by, the continued examination of quantified phase groups of CBM, looking at the correlations between fabric, form, signatures and stamps, as well as site status and function. It is clear that there are a number of strategies in use in different regions and periods, both for civilian and military supply. Whilst there is apparently some chronological structure to Warry’s typology, it would appear that the earlier cutaway groups (A–C) are introduced into Britain via different cultural vectors, perhaps reflecting traditions within individual legions. Groups D and R belong to the same pattern as the emerging regional tile production centres.

The earliest use of tile is certainly by the military, and the earliest civilian use is for settling veterans, but also indigenous client elites, for instance at Fishbourne. The military appears to be the main vector for the introduction of changes in CBM styles, until the 3rd c. One of these influences is the introduction of stamping in the late 1st c. There is a large group of civilian producers centred on the municipal tilery at Gloucester, which is a well-studied site, but it is currently the only one known in

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83 Tomber and Dore (1998): PNK GT.
84 Taylor (2004) fig. 3.
Britain. If we assume that the initial civilian tile makers had received training from the military, or were in fact retired soldiers, then we can see how the habit of stamping may have continued. The high level of stamping in Gloucester shows that a different mode of production was organised here, compared to the other urban centres in Britain. Part of this is probably related to the continued connection between civilian producers supplying tiles by contract to the military in the West, as well as the lack of civilian or indigenous demand outside the few urban centres in this part of the country. The only other large group of civilian stamps is noted in Lincoln, which again has a strong military connection.87

The continuing importance of the military in the development of CBM styles is seen in the adoption of the Warry Type B style mainly in military contexts, with the few cases outside of a military context perhaps explained by social connections or retiring veterans. Large-scale civilian use of CBM seems to occur from the mid 2nd c., implying a sizable quantity of individuals with the wish, and resources, to embrace Roman architectural culture. This civilian CBM appears to be mainly Type C, which is certainly present in London from the 1st c. A.D., but does not appear to enjoy a wide distribution until the mid 2nd c. Type C is also associated with a change in roofing styles, with tiles now being laid directly onto the wooden superstructure.

Whilst permanent tileries, supplying large urban centres such as London, are an early occurrence, as are simple tile kilns associated with a single building project, the mid 2nd c. boom is largely met by itinerant tile makers. It seems very likely that these tile makers were working in association with other specialists (e.g. architects) to meet (and perhaps generate) the 2nd c. demand for ‘Roman’ style buildings. Demand for building in urban centres shrank in the 3rd c. with a decline in public buildings, and there is increasing evidence of stone tile use.88 The evidence of animal prints on CBM at Leicester suggests that local production associated with urban centres continues, but only sporadically, and part of the output is from working farms.89

87 Collingwood and Wright (1993). The use of tiles as a basis for taxation also needs to be considered (Wikander (1988). The use of tile as an indicator of social stratification has parallels around the ancient world: for instance, the Lex Urronensis required decuriones, in a colonia, to own property that used more than 600 tiles; for coloni it was 300 tiles (Cooley and Salway (2012) 175).
88 Betts and Foot (1994); Mills (forthcoming c).
89 Animal prints: Mills (forthcoming c); Mills (2013a).
Away from the urban centres, there was a new wave of villa building, associated with a clear emergence of tile manufactories supplying large catchment areas, often in association with the production of other specialist ceramics. Whilst the calcareous group identified in London benefited from the southern coastal sea trade, supply zones such as the Pink Grog Tempered and Crambeck industries, clearly relied on the road network. Whilst manufacture had become increasingly centralised in this way, building projects would still require specialist builders and transporters. With the increased recognition of the usefulness of CBM as a study tool, and with the further analysis of quantified phase groups, patterns of supply and consumption will hopefully be clarified and developed.

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RIB = The Roman Inscriptions of Britain


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List of Figures

Fig. 1. Sites in Britain covered in the article (drawn by author).
Fig. 2. Lower cutaway forms (after Warry (2006)).