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A Corpus of Relief-Patterned Tiles
in Roman Britain

Ian Betts, Ernest W. Black and John Gower



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Part 1: Introduction

Section 1: the history of the study

A.W.G. Lowther was the founder of the study of relief-patterned flue tiles. His interest was aroused from the time of the first season of full-scale work at the Roman villa at Ashted Common in 1925. In two letters that he wrote to A.G. Wright at the end of the year (now in the Colchester and Essex Museum) he described tiles stamped with what are now die 4 and die 6 in the present corpus. Below a sketch of the die 6 design he suggested an expansion of the initials which appear in it:

"Gnaeus Julius Severus (Gov. Gen. Britain AD 130–134) Julius Valerius (or Valerianus) Fecit".

Many of us have been intrigued by epigraphic puzzles and on reflection Lowther thought better of identifying G.I.S. with the governor and never published this expansion. But the tiles had clearly made an impression on him, something that is evident also in the first of his three excavation reports on Ashted. In this he noted that five different patterns were represented at the villa and that one (die 5) was matched on a tile from Reigate in the British Museum and another (die 4) on one from the City of London (now in the Museum of London), "thus raising the possibility that expert tile-makers were brought to the site for this very special work, and that they possessed individual stamps" (Lowther 1928, 153).

The occurrence of particular dies on two different sites had been noted previously, e.g. die 6 by Chancellor (1858, 60–61) from Chelmsford and Ashted Church, and die 8 by Jack (Jack and Hayter 1916, caption facing plate 17) from Kenchester and London, but it was Lowther who was eventually to set about the compilation of a catalogue and the classification of the different patterns. There was, however, a lengthy interval before he was fully committed to this project. In the 1930s Lowther was active in excavating and in publishing his results, and then saw war service in Iraq and Northern Persia. A brief note appeared in the *Surrey Archaeological Collections* 43 (1935) on "An 'Ashted' Flue-Tile from Verulamium" (a specimen of die 4), but it was not until the end of the Second World War that surviving correspondence indicates that Lowther had actively

started collecting examples. There was evidently some hesitation about the name to be given to the tiles, and the term "embossed tiles" figures in some letters. In 1947 it seems that publication in the *Journal of Roman Studies* was envisaged, but the work was published finally in November 1948 as Research Paper No. 1 of the Surrey Archaeological Society. In this the name "Relief-Patterned Flue-Tiles" was adopted, and has remained the usual descriptive term. "Roller-Stamped tiles" is an alternative, referring to the wooden rollers used to impress the patterns on to tiles, but this is best avoided in reports for publication. The term "roller" has, however, been retained to describe the tool used to produce relief-patterned keying.

Following the publication of his corpus Lowther corresponded with many individuals, and many of the letters sent to him are in the "Lowther Papers" in the British Museum. Reports on pieces of relief-patterned tile submitted to him appeared in various publications. In 1948 his corpus listed dies up to and including die 46. In a report on excavations at Braughing published in 1955 a new die is described but not assigned a die number (Lowther 1955, 126). In letters he had received in 1949 from Col. Meates, Lowther amended some of Meates' identifications of dies he had found at the Lullingstone and Farningham villas to 47N, 48N, and 49N (N presumably signifying a new die), and in 1961 in the Park Street villa report another new die is designated die 50 (Lowther in Saunders 1961, 131–32). At some time before 1961 Lowther had clearly decided to continue his series of die numbers, and according to a letter written to him in that year by J.E. Ayto he was intending to publish a revised version of his corpus. Regrettably this never appeared. Lowther was increasingly troubled by the disability caused by the poliomyelitis he had contracted in the war. When he died in 1972 a large collection of pieces of relief-patterned tile was bequeathed to the Society of Antiquaries of London and was subsequently passed to the British Museum where they have been accessioned. This legacy forms a research collection of inestimable value.

In the 1970s David Johnston, now of the Department

of Adult Education at Southampton University, began to collect new examples of relief-patterned tile. The Lowther Collection was then temporarily inaccessible and the starting-point was Lowther's published corpus of 1948. Each different die represented from each site in the corpus was given a separate example number. Each individual fragment of tile was termed a specimen, but was not given an individual designation. Lowther's examples were incorporated into this simple numerical sequence which formed the basis of our own corpus. New dies which came to notice were given new die numbers, continuing Lowther's series from die 47 onwards and arranging them on the basis of Lowther's nine "Groups" of designs (Johnston and Williams 1979). In the same paper an attempt was made to use fabric analysis by thin-section to determine where tiles found within a limited area had been manufactured. Lowther had occasionally commented on the fabric of relief-patterned tiles but had not adopted this as a criterion to answer questions about their origin.

In 1983 E.W. Black and M.J. Stone were invited by Johnston and Williams to be associated in their research project, and the Relief-Patterned Tile Research Group was constituted. Later both the founders retired from active membership and three additional members were recruited, Dr J.L. Gower, Ms A. Hodgkinson and Dr I.M. Betts, each of whom had a particular contribution to offer the Group and its work.

Two major sources of relief-patterned tile became

available to the Group in the 1980s. One was the Lowther Collection of tiles and the Lowther Papers now available at the British Museum which provided a rich quarry of material, much of it unpublished. The second source was the constant flow of relief-patterned tile from excavations in London carried out by the Museum of London. In addition, members of the Group have been responsible for three papers designed to bring its activities to the notice of archaeologists and the wider circle of those who have an interest in archaeology. The first of these was an assessment of the dating evidence for many of the dies as it appeared to be in 1985 (Black 1985). Two shorter and more popular accounts of our work (one based on a draft by David Johnston) appeared in *Popular Archaeology* (Sept. 1985) and in *Current Archaeology* No. 102 (Nov. 1986).

Although work on this corpus was substantially completed by the end of 1990, relevant material that has appeared in print since this date has been incorporated, as have examples of relief-patterned tile from sites where none were previously known.

Since the end of 1990 excavations in London have continued to produce a steady stream of relief-patterned tile. In addition, further examples have been discovered when tile from earlier London excavations was examined in detail. These new London examples, discovered during the period 1991–1993, were found too late to be incorporated into the main body of the text, but are included as an appendix to the main corpus catalogue.

Section 2: the definition and importance of the study

Lowther established that relief-patterned keying was achieved by running a wooden roller, with the design cut into it, over the surface(s) of a tile (Fig. 1). Traces of the grain of the wood and chips and other damage to the surface of the wood can be seen in the recessed part of the pattern of many tiles, and the repetition of the pattern in continuous line without breaks or overlaps showed that a roller had been used rather than a flat stamp. In some cases Lowther (1948a, 5) suggested that the design had been embossed on thin sheets of bronze which were fitted onto a wooden roller.

The designs vary considerably in width from 52 mm (die 52) to more than 570 mm for die 37. The length of the patterns impressed on to the tiles varies from 122 mm (die 67) to 232 mm (die 68). The range of tile types with relief-patterned keying and their use in hypocaust systems are dealt with in Section 9.

As Lowther recognised, the study of relief-patterned tiles has importance for two particular reasons. The first of these is dating. With due precautions, the presence of tiles keyed with well-dated dies can be used to date structures where pottery and coins are not present or are poorly represented in significant stratified contexts. Lowther (1948a, 10) assigned the dies he listed to the period *c* AD 80–150 without attempting to assign a narrower date range to particular dies. The mass of new evidence presented here will make it possible to attempt to do this. There are still uncertainties but many of these should be resolved as new finds are made and their contexts are published.

The second major value of relief-patterned tiles lies in the clues they offer concerning the organisation of tile-production and marketing in the late 1st and 2nd centuries. The association of the same dies at several sites makes it possible to define groups of dies that were used by tile-makers working together, or at least supplying their products consistently to the same builders-

merchant(s). Fabric analysis is now beginning to identify the frequency with which tile-makers, using particular dies, moved between kiln-sites, suggesting that the organisation of the tile industry was extremely complex.

Much of the information concerning production and marketing derives from the study of the geographical distribution of relief-patterned tile. The corpus includes all sites in Roman Britain which have produced tiles with relief-patterned keying (correct to February 1995). A small number of examples is also known from sites in western Germany (see Section 14). Somewhat surprisingly, there is no evidence at present from elsewhere on the continent for the use of rollers to key fired ceramic tile.

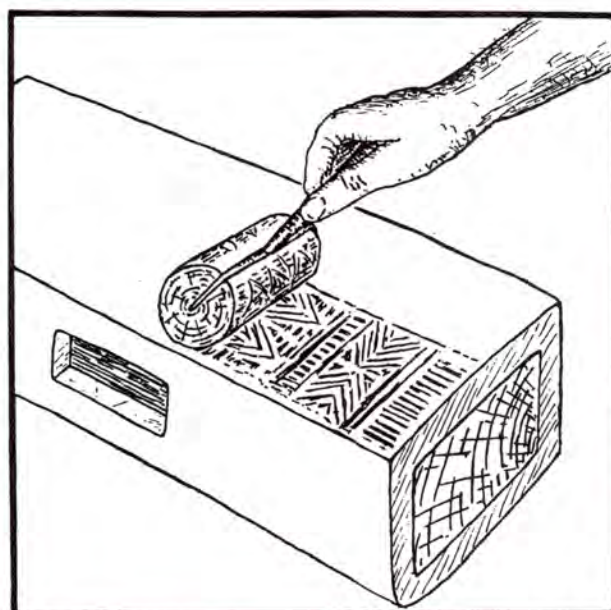


Fig. 1. Tiler using a roller to key a box-flue tile (after Lowther 1948)

Section 3: illustration

Dies 1–46 were originally illustrated by Lowther, whilst Johnston and Williams (1979) illustrated dies 47 (actually part of die 5A), 50, 54, and what they termed die 32A. The majority of Lowther's drawings are fairly accurate, but serious errors do occur with certain dies which has led to problems of identification. Green (in Boddington 1979) reported a variant of die 9 from 48–50 Cannon Street, London. The die pattern is in fact die 9; it was only reported as a variant because Lowther's original drawing is incorrect. The same problem arose with the so-called die 32A from Sandy, Bedfordshire, which is in fact Lowther's die 32. Again, the Sandy tile was published as a variant because Lowther's original drawing is inaccurate. A number of other Lowther drawings show similar small, but significant, errors.

Because of past difficulties it was felt necessary to redraw all Lowther's die types, along with all new dies found since 1948. These are all reproduced at half-scale. Where possible, each die pattern has been drawn from the single most complete specimen. Where this is not possible a composite drawing has been produced using separate specimens from either the same site or from different locations. These composite drawings may on occasion be slightly less accurate than those derived from a single tile, especially if the composite is derived from tiles which show slight variations in size due to different rates of shrinkage on firing. In this instance an attempt has been made to compensate for these variations when producing the final composite drawing. The tiles used for the drawing of each die stamp are shown by "+" to the left of the example number in the catalogue.

Lowther initiated the convention of illustrating the patterns on relief-patterned tile with the impressed part of the surface shown either black or with denser shading. The upstanding area was then left in white. Where the pattern was deeply impressed and the edges of the die pattern slope at an angle to the top surface, the upper edge was also added. Lowther's drawing conventions have been followed in the present corpus, although only black has been used to delineate the bottom surface. Normally, the upper surface has been left white but, following Lowther, where the edges of the die are sloped and the impression is cut deeply into the roller, the upper

surface has been added. This convention has been used for dies 6, 7, 22–4, 37, 39–40, 60, 70, 74, 81, 86, 95, 111, 113 and 116.

A number of standard conventions have been used to illustrate the die patterns in the corpus. All incomplete edges to the pattern are delineated by a single line. Where the true edge of the die pattern is present this line is absent. For example, the right hand edge of die 63 is present, but not the majority of the left hand edge. The only place where the left hand edge of the roller survives is a small area half-way down between the two lines which indicate where the pattern is missing.

In certain cases the edges of the tile on which the roller has been impressed are shown as a dashed line. As the edge of the roller frequently coincides approximately with the edge of the tile this can be used to indicate where the edge of the die pattern may lie, even though the actual edge is not present. In the case of die 62, for example, the downward sloping elements of the design, to the left of the diamond and lattice pattern, cross over the edge of the tile. This would suggest that these downward sloping elements in die 62 represent part of the left hand border of the pattern.

A complication encountered when drawing certain die stamps is the presence of the bottom surface at different levels. In this case the lower surface is inked in black in the normal manner, whilst any higher surfaces are left white. Good examples of dies with bottom surfaces at different levels are dies 26 and 78. Die 109 also has two lower surfaces in one area of the pattern. In this case, to avoid confusion with the top surface which has also been added, the upper level of the impressed part of the pattern is shown hatched. Such features are important as they provide an additional aid in the identification of die patterns.

Dashed lines are used where the pattern has been damaged, although only where the original pattern can be reconstructed with a fair degree of accuracy, as for example in the damaged areas of dies 19, 21 and 111. For clarity where the full length of the die is known, part of the design is shown repeated. This repeated area is delineated by grey stippling.

Section 4: identification

One of the principal aims of the corpus is to allow easy identification of the die patterns. As an aid to identification all the die patterns currently known are grouped together by similarity of design in Figure 27a-j. This may allow identification of the exact die, or narrow down the number of possibilities. The half-size drawings in the corpus can then be consulted to confirm the identification. If the pattern of a tile is either not in the corpus, or increases the known area of a recorded pattern, the Relief-Patterned Tiles Research Group would be grateful for the information. (Our address for correspondence is given at the end of Section 16).

It should be noted that only one example of each die is shown in Figure 27, whilst in the corpus more than one part of the same die may be illustrated. Drawings of damaged dies are also omitted, as is any repeat of the pattern at the top of the drawing. Due to their large size, only part of the known pattern of dies 37 and 39 are shown in Figure 27. For the full extent of both patterns the drawings in the corpus should be consulted.

Difficulties of Identification

The majority of die patterns can normally be identified with little difficulty by careful attention to the details and size of the pattern. Difficulties of identification can, however, arise. Different rates of shrinkage on firing mean that the size of the pattern may not exactly match the illustrations in the corpus. This variation caused by firing can amount to a 12% loss in size.

Relief-patterned tiles are frequently mortar-covered, which again makes identification difficult. There are also frequent variations caused by the way in which the roller was held and applied whilst keying the tile.

The amount of wear is another factor influencing accuracy of identification. Generally most die patterns show little evidence of obvious wear. The majority of indistinct patterns seem to be due to weathering of the tile after manufacture, rather than wear of the roller itself. However, wear of the die can sometimes be detected, as Lowther (1955, 126) noted for die 16.

The major difficulty in identification concerns the patterns which are very similar in design. Dies 18, 46, 51, 84, 85 and 89 in particular are of this kind, as are dies 36, 41, 42, 93, 103 and 106. It is sometimes very difficult, particularly with small fragments, to say exactly which die is represented. It is for this reason that certain dies have been listed under their group number (see below) rather than being allocated individual die numbers. With some tiles the die pattern is so small and fragmentary that they cannot even be placed into any of the nine design groupings. In these cases they are listed as "Others". Also included in this category are some relief-patterned tiles which have been reported in publications but can no longer be located and checked.

Lowther's Groups

Lowther (1948) divided all the dies then known to him into nine Groups as listed below:

Group 1 ("W. Chevron")	Dies 1-5
Group 2 ("Dog and Stag")	Dies 6 and 7
Group 3 ("Florid")	Dies 8 and 9
Group 4 ("Compass")	Dies 10 and 11
Group 5 ("Diamond and Lattice")	Dies 12-16, 18-23, 37-40 and 46
Group 6 ("Billet")	Dies 24 and 25
Group 7 ("Rosette")	Dies 32-34
Group 8 ("Addenda")	Dies 17, 26-28, 30, 31 and 35
Group 9 ("Plain Chevron")	Dies 29, 36 and 41-45

In general these Groups have been abandoned. Certainly Groups 2, 3, 4 and 7 are represented by too few dies to act as meaningful classifications, and Group 8 merely serves as a repository for a series of unrelated dies. Groups 1, 5 and 9 have been retained to some degree in helping to split up the uncertain dies. These three Groups, together with Group 6, represent the vast majority of certain dies (as indeed they did in Lowther's original publication).

Section 5: types of tile with relief-patterned keying

There are seven types of tile that are known to have been given relief-patterned keying.

1. Box Flue-Tiles

Box flue-tiles are keyed on both front and back faces and their sides are left unkeyed. In each side there is usually a rectangular cutaway which allowed the lateral circulation of heated air between adjacent stacks of tiles (Fig. 3). The cutaways were presumably made by cutting round a block of wood or similar material held against the surface of the tile before it was fired (Fig. 2.1).

Two cutaways are present in each side of tiles keyed with dies 6, 49 and 71. Two cutaways were functionally necessary when tiles lay in a horizontal position spanning two vertical stacks (Fig. 2.2).

The standardisation of the size of box flue-tiles was never universal. However, by the Hadrianic period box tiles seem to have been widely produced to a fairly standard size. Measurements taken from fourteen complete tiles keyed with dies 4, 5, 6 and 14 give a height of 403–425 mm, a width of 155–180 mm, and a depth of 105–125 mm. Most of these were found at the villa on Ashted Common, but the group includes specimens from London and Reigate. The size of box flue-tiles with relief-patterned keying is discussed in more detail in section 6.

2. Double Box Flue-Tiles

These tiles are similar to those of standard type, but are characterised by their much greater width (Fig. 2.3). The only complete example with relief-patterned keying has die 5 on its front and back face and comes from Ashted in Surrey (Lowther 1929, pl. IV). This tile measures 327 mm in height, 287 mm in width, 154 mm in depth and has a wall-thickness of 18 mm.

3. Double Box-Flue Tiles with Central Division

In the early second century the tiliary which produced the tiles in fabric group 1 (discussed in Section 9) supplied innovative types of box-tiles to their customers.

(i) Type 1

This type of centrally-divided box-tile is represented by specimens from the Eastbourne villa, now in the Royal Ontario Museum in Toronto, Canada and in the Towner Art Gallery and Local History Museum in Eastbourne (pl. 1). Lowther recognised how these tiles were used when he found specimens (unstamped) in his excavations at Ashted. They were laid flat and were substituted for *bipedalis* bricks bridging the *pilae* of a hypocaust adjacent to the wall (Figs. 2.4; 4). Only one of the divisions of the tile was provided with cutaways and this was set next to the wall. The cutaways allowed heated air from the hypocaust to pass from below the floor, through one division only of the tile, and up into the tile-jacketing of box-tiles set above this division. This arrangement was an ingenious alternative to the system employed at Angmering (type 2).

The top and bottom surfaces of the three Eastbourne tiles measure 324×457 , $c 305 \times 463$, and 347×456 mm, whilst the depth is 133 mm. The specimen in the Towner Gallery has one side (that which abutted the cement covering the wall of the room) keyed with die 19; the other side is unkeyed. The surviving top/bottom carries combed keying and the base of the surviving triangular cutaway is $c 70$ mm and from apex to base it measures 55 mm. The oval cutaway measures $c 107 \times 75$ mm along its axes. Thickness of the tile wall varies between 17 and 24 mm with the central division 28–29 mm thick splaying to $c 55$ –65 mm at its junction with the top/bottom of the tile.

(ii) Type 2

A second type of centrally-divided box-tile is represented by an example from the Angmering bath-building in Lewes Museum (Fig. 2.5). The tile is 257–260 mm in width; 456–469 mm high; 140–144 mm deep. The sides are 17/18 mm thick and the central division is 28 mm thick, splaying out to $c 69$ mm at its junction with the faces of the tile. There is a semi-circular cutaway at the top of each side and in the central division. Both sides are keyed (with die 19), although in other specimens the sides are unkeyed. The front face is keyed with die 21,

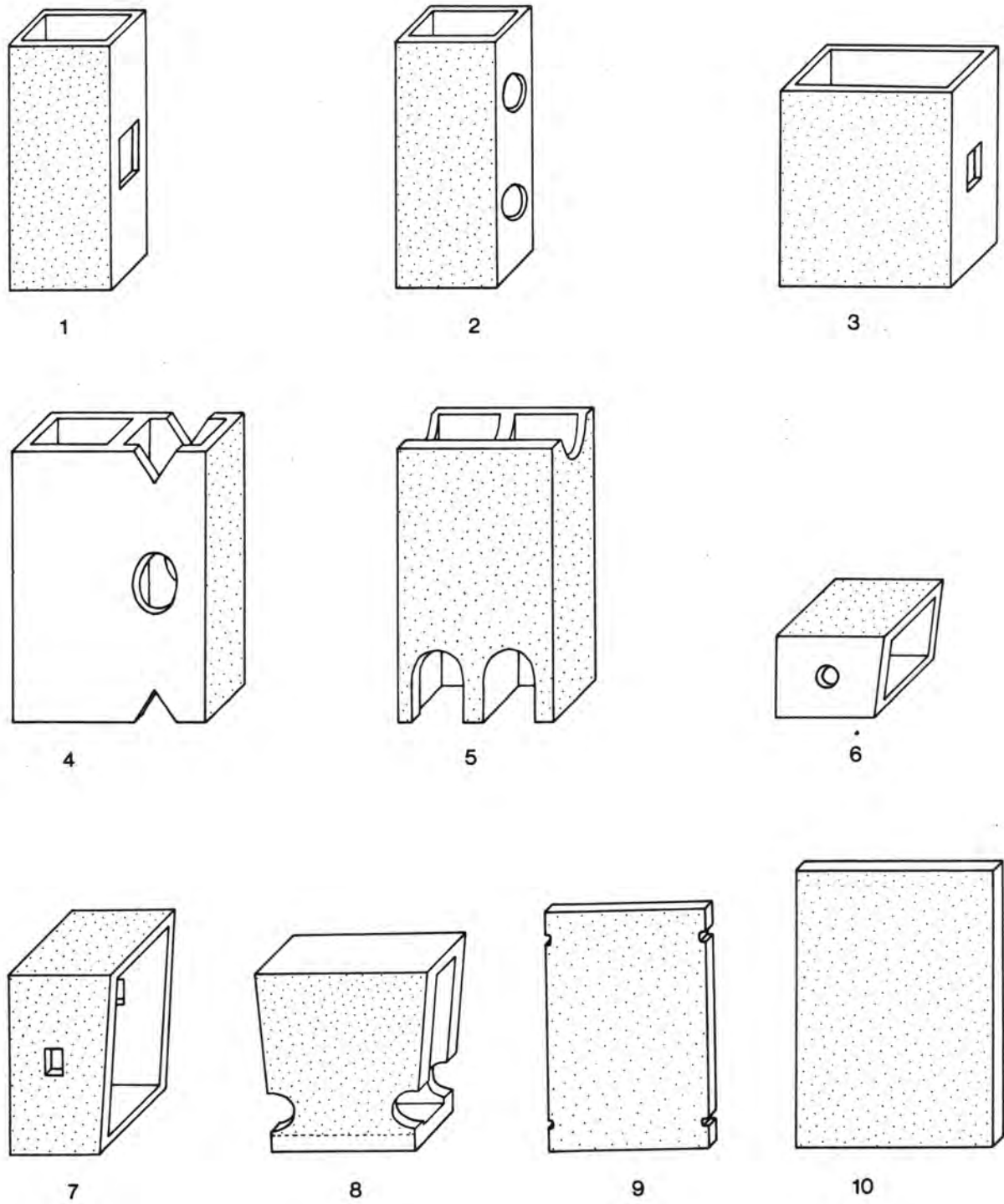


Fig. 2. Types of tile with relief-patterned keying (keyed faces shown stippled): 1. Box flue-tile with single vent; 2. Box flue-tile with double vent; 3. Double width box flue-tile; 4. Double width box flue-tile with central division (type 1); 5. Double width box flue-tile with central division (type 2); 6. Voussoir, smaller size type; 7. Voussoir, larger size type; 8. 'Westhampnett' voussoir; 9. Notched wall tile; 10. Keyed flat tile

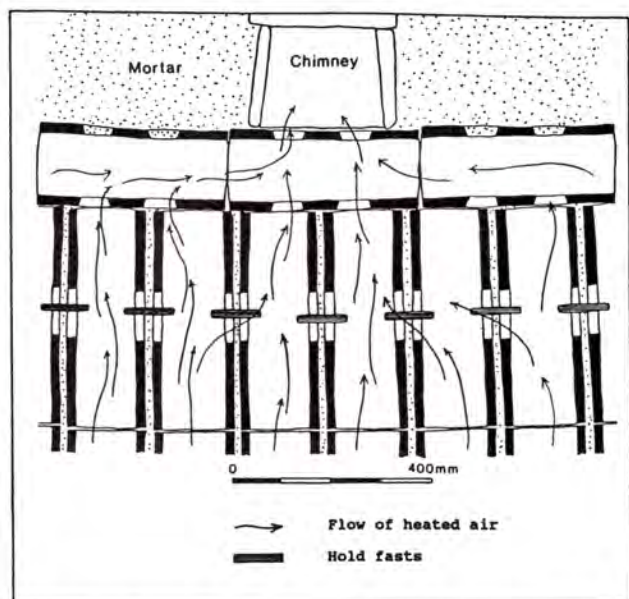


Fig. 3. The use of horizontal box flue-tiles spanning rows of vertical flue-tiles in a hypocaust system (after Black 1985)

and the rear face is unkeyed. The latter would have been set against the mortar facing of the room wall. The adherence of this mortar facing to the tile was apparently not required to be as strong as that of the plaster on the front of the tile which faced towards the room and carried wall-painting or other decoration.

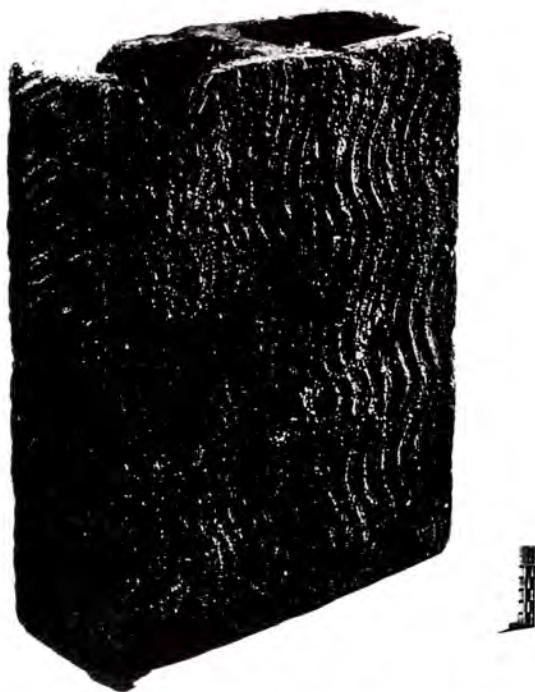


Plate 1. Double width box flue-tile with central division (type 1) showing the use of both combing and keying with die 19 (reproduced by permission Royal Ontario Museum, Canada)

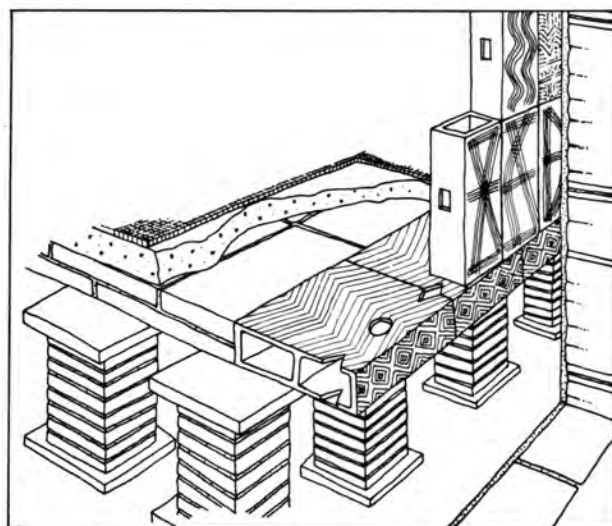


Fig. 4 The use of horizontal box flue-tiles with central divisions (type 1) in conjunction with vertical box-flue tiles in a hypocaust system (after Lowther 1931)

In the front face at the bottom of each division of the Angmering tile is an arched cutaway 86–88 mm wide at the base and 140–143 mm high. Such cutaways would only be found in those tiles at the bottom of tile stacks standing on the basement floor of a hypocaust level with the *pilae*, and were designed to let the heated air enter the jacketing below floor level. Similar cutaways occurred on standard box-tiles stamped with die 4 at Ashted.

4. Voussoir Tiles

Hollow voussoir-tiles have a face with one side perpendicular to the base and the other at a slight angle, forming a surface which is slightly wedge-shaped. When placed together these tiles formed an arch. Vaulted rooms in bath-buildings incorporated arches of voussoir tiles, either continuous or spaced out in concrete vaulting, and these communicated with the wall-jacketing of a hypocaust and conducted heated air over the vault. The height of a voussoir is the distance from the bottom to the top of the face. The width of the face at the bottom is the "lesser width" and at the top is the "greater width". The depth of voussoirs is the distance between the two faces.

It was noted above that the depth of 2nd century box-tiles was c 105–125 mm and their width c 155–180 mm. The height and depth of some voussoirs correspond to these measurements so that arches formed of them rested directly on the tops of stacks of box-tiles and had no other support. Fragments of tiles in the Lowther Collection (B.M. Acc. Nos. P 1973 4-3 9; 11; 21) come from voussoirs of this type (Fig. 2.6). These had their base and top keyed, the first two with die 4 and the last with die 1. Their depth was c 170 mm; the height can be calculated at c 135 mm. The lesser width was c 165 and the greater

width *c* 180 mm. The faces were unkeyed and there was a circular cutaway placed centrally in each face.

Voussour tiles from Canterbury keyed with die 32 had a height calculated at *c* 300 mm; a lesser width of 140–160 mm and a greater width of *c* 170 mm; and a depth of 210–220 mm (Fig. 2.7). These were designed to be supported not only on the top of the wall-jacketing, but also on the mortar facing of the wall and the wall itself for some 175 mm (illustrated in Black 1985, 355, Fig. 1). Presumably this provision gave a much better insurance against any collapse of the tiles in the vault or the jacketing than if the voussours were supported on the box-tile jacketing alone.

The Canterbury voussours were stamped with die 32 on all four surfaces. This is found comparatively frequently with voussours and infrequently with box flue-tiles, so that a small fragment with two adjacent keyed surfaces can usually be regarded as part of a voussour. The same applies to a fragment of keyed surface with part of a cutaway in it. Additionally, although the thickness of the walls of voussours varies, it is often greater than that of box flue-tiles.

'Westhampnett' Voussours

As with box-tiles an innovative type of voussour was produced in fabric group 1 (see Section 9). This has been christened the 'Westhampnett' type of voussour (Fig. 2.8) because complete examples were found built into Westhampnett Church near Chichester in the last century (Hills 1868, 214, pl. 16). The depth of 'Westhampnett' voussours varies between 115 and 145 mm and the height is about 300 mm. The lesser width is *c* 240 mm and the greater width *c* 290 mm. There is a semi-circular cutaway cut out of each side of both faces just above the level of the base. When the tiles were placed together in an arch these would form a series of circular openings. These voussours sometimes have a combination of combing and relief-patterned keying on the same tile, and in some cases at least the top is left unkeyed, like the back surfaces of the centrally-divided box-tiles from Angmering. The wall thickness of 'Westhampnett' voussours can exceed 30 mm, and one base from Wiggonholt is 45 mm thick.

5. Notched Wall Tiles

One fragment of tile from Lower Wanborough (die 54) has a notch or nail-setting. The complete tile would have had four such settings (Fig. 2.9), two in matching position in each of the longer sides. It would have been used in a vertical wall-jacketing where stacks of tiles would have been held in place by iron hold-fasts passing through ceramic spacers ("spacer-bobbins") (Brodribb 1987, 67–69, Fig. 5).

The original size of the Lower Wanborough tile is unknown, but it is unlikely to have been very different

from the complete examples from London, with knife scored keying, used as the basis for Figure 2.9.

The adjective *parietalis* ("wall-tile") in the accusative case is found as part of an advertisement of the tile-maker Cabriabanus in dies 31 and 59. Brodribb (1987, 60) has suggested that *parietalis* refers to the flat tiles with nail-settings used in wall-jacketings. The entries for *parietalis* and *parietarius* in the standard dictionary (Lewis and Short 1879) lend some support to this since the words tend to be applied to things growing on or attached to walls. However, the only known tile fragments keyed with these dies happen to be voussours. In view of this uncertainty, the use of *parietalis* to refer to a particular type of tile is best avoided (see further below, section 13).

6. Keyed Flat tile

Large flat tiles (*c* 471 × 329 mm) keyed with die 53 were excavated at the Shakenoak villa (Brodribb *et al* 1973, 40, no. 73; 1978 Fig. 11), (Fig. 2.10). Since these lacked nail-settings they were designed to be used horizontally rather than vertically. The size is very similar to that of combed tiles from Fishbourne (Cunliffe 1971b, 44 no. 6: *c* 486 × 318 mm), and the approximate ratio of 3:2 suggests that they represent a type of *lydion* tile (1.5 by 1 Roman feet). Such tiles were commonly used in walling or in flooring (Brodribb 1987, 37–40).

Thick tiles with relief-patterned keying are known from one other site in the west of England and from two sites in London. Two specimens from Gutter Lane, London, may be keyed with die 12 and a fragment from Christchurch Greyfriars/Newgate Street, London, with either die 16 or die 108. Fragments keyed with die 39 have been found at Cirencester as well as at Lower Wanborough. It is not possible to say if these are keyed flat

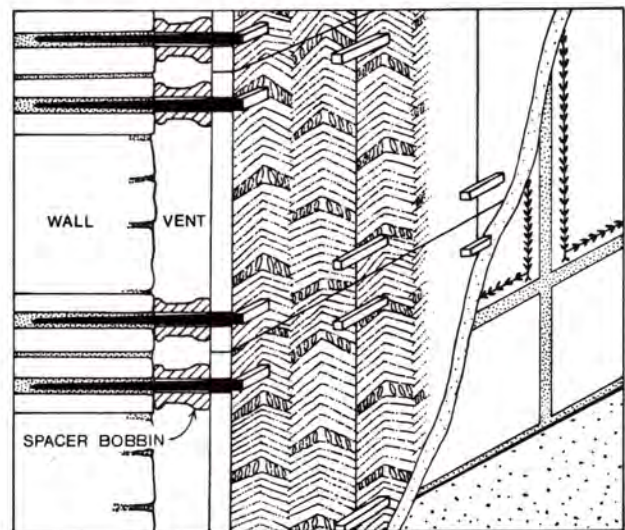


Fig. 5. The use of wall-tiles and spacer bobbins in a hypocaust system

tiles or notched wall tiles. The fragments are too small to be certain whether nail-settings were originally present.

The thickness of keyed flat tiles and notched wall tiles is usually between 20/25 and 35 mm, and this is a useful criterion for distinguishing small fragments of these from fragments of box flue-tiles, though not from voussoirs. Tegulae which fall within the same thickness range will lack keying.

7. Curved Tiles

Large curved tiles with relief-patterned keying are extremely uncommon. So far only two dies, 18 and 37, are known to have been used to key such tiles. A semi-circular tile keyed with die 18 from King William Street, London, has an incomplete length of *c* 340 mm, an internal diameter of *c* 250 mm, and a thickness of *c* 36 mm. Another tile, from Trinity Square, London keyed with die 37 has a length of at least 576 mm and is up to 48 mm thick. It is not semi-circular but is better described

as "semi-oval" in section. The internal measurement from edge to edge is *c* 170 mm, and from the mid-point of this line to the furthest point of the curve is *c* 155 mm. A further fragment, of uncertain size, came from 27–30 Lime Street, London. This is keyed with a diamond and lattice design, but the tile is too small to determine the exact die type present.

The all-over keying must have been intended to carry or be set in mortar or other adhesive material. One suggestion is that the curved tiles were employed as an element in columns or engaged columns. Stacked on end, one on top of another, they would not have been very stable and could have had no load-bearing function, but could have enclosed a fill of rubble concrete, thereby avoiding the expense of a column made of solid bricks. The keyed exterior surface would have carried a layer of stucco or plaster perhaps fluted in imitation of stone or marble. Apart from the London examples, fragments of curved bricks are only known from Littlecote Park, Wiltshire (die 18) and Wiggonholt, Sussex (die 37).

Section 6: box flue-tile size

This section covers two aspects. First is a more detailed examination of the size of standard shaped box flue-tiles which in this case involves discussion of height, width, depth and thickness; second, the size of the cutaways cut into the plain sides of the box flue-tiles. The dimensions of box flue-tiles are largely governed by the size of the mould (for information on flue tile manufacture see Morgan 1979, 395–9), and the rate of shrinkage on firing. The latter is believed to lead to variations in size in the order of 10–12%.

Cutaway size, on the other hand, is largely a reflection of the personal preference of the individual tilemaker. Two tile-makers producing tiles of the same size may easily cut out vents of different size or shape. There are, however, certain limits on cutaway size: if they are too large the tile may be weakened, whereas if they are too small the vents may not function efficiently.

1. Box Flue-Tile Dimensions

Analysis of the dimensions of standard box flue-tiles keyed with a roller is handicapped by the limited number of complete, or near complete, tiles which have survived. Of 23 such tiles known almost half come from a single site, Ashtead in Surrey. However, when size is plotted certain tentative patterns begin to emerge (Figs. 6a–c).

The most striking feature of Figure 6a which plots height against width, is the separation of the London tile keyed with die 23(?). Significantly, this is the only tile from the tilery which is believed to have operated in south-west Sussex (fabric group 1, see Section 9). The remaining tiles seem to form a reasonably tight cluster although it is unlikely that all the differences, particularly in width, can be accounted for by shrinkage. Dies 4, 12 and 71 from London are taller than all but one of the Ashtead tiles. This would suggest that a slightly larger mould was used, at least for the examples keyed with die 71.

The Ashtead tiles seem to fall into two overlapping groups: those keyed with dies 4 and 6, which group with the Reigate examples and the unprovenanced tile from

Suffolk, and those keyed with dies 5 and 14. The latter group may represent the use of a slightly larger mould.

The tiles keyed with dies 35 and 49 seem to separate out, but more examples of each die will be needed to say whether these differences are significant.

When height against depth is plotted (Fig. 6b) no clear pattern emerges, although die 23(?) again clearly separates out. The only interesting feature concerns the tiles from London keyed with die 71, which have a greater depth than the other examples, including dies 4 and 12 from London. On this evidence the mould used to make the tiles keyed with die 71 must be different to that used for the other tiles plotted in Figure 6b. This may even indicate production from a different tilery.

2. Cutaway Size

The plot of rectangular shaped cutaway size by length and breadth shows a number of interesting groupings (Fig. 6c). Dies 4, 5 and 6 from Ashtead clearly separate out from the tiles with die 14 from the same source. This would suggest that the tilemaker who made the cutaways in the tiles keyed with die 14 was different from the tilemaker(s) who made them in the other Ashtead tiles. Whether he used relief-patterned die 14 exclusively is open to question. It is even possible that keying and making the cutaways in the sides of a tile were undertaken by different individuals.

The Reigate tiles keyed with die 5 along with the unprovenanced tile from Suffolk and die 35 from Gadebridge Park form a reasonably discrete group. The London examples, however, fall into no particular group, although the cutaways in die 4 are not too dissimilar in size from those in box tiles keyed with die 14.

The two box tiles keyed with die 71, *in situ* at Billingsgate bath-house, have two approximately round cutaways in each plain side. These vary in diameter from 55–58 mm to 67 mm. Unfortunately, the cutaways on the other box tile still *in situ* in the baths, keyed with die 23(?), cannot be seen. The differences in cutaway shape provide further circumstantial evidence that the tiles

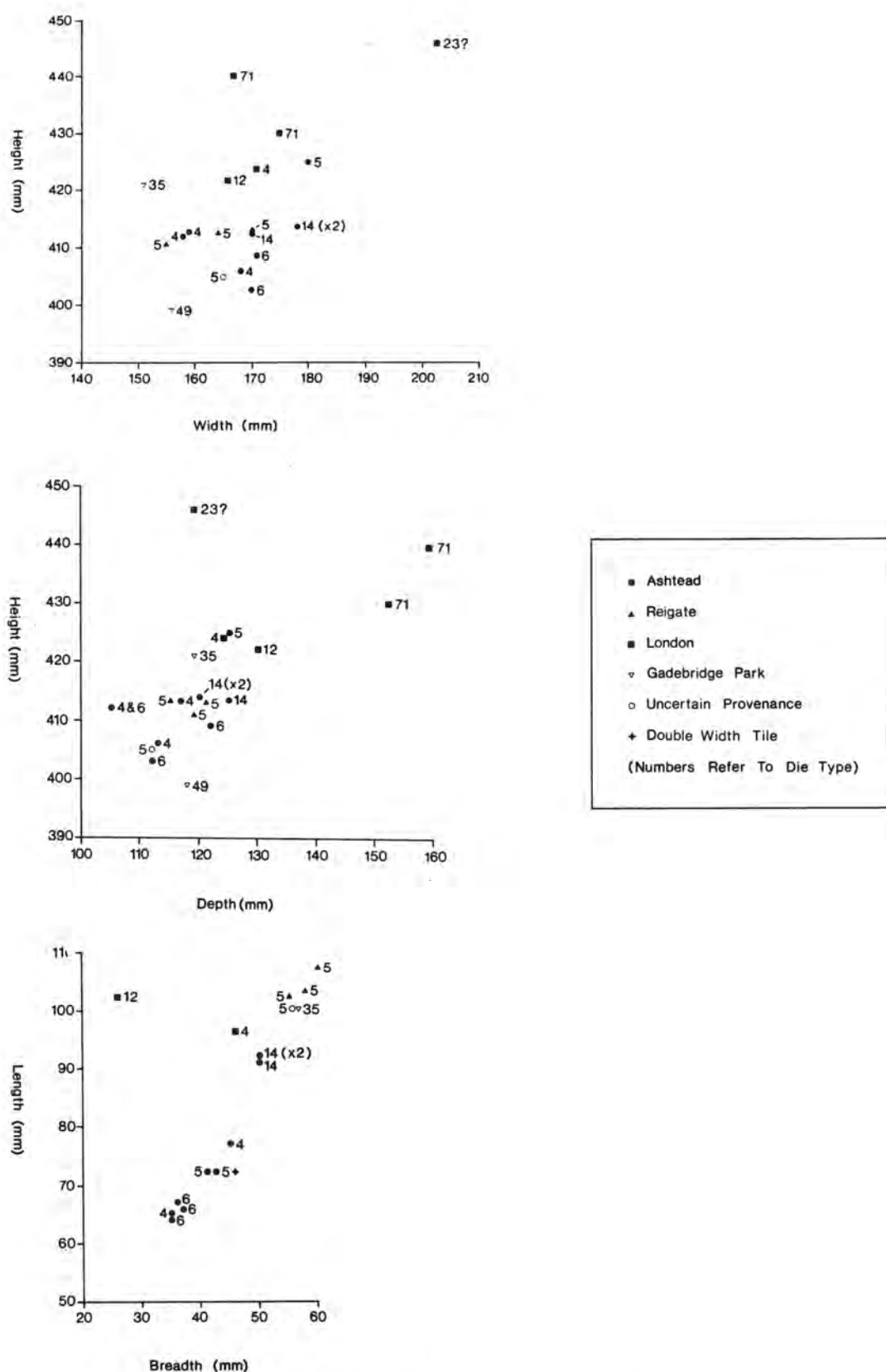


Fig. 6. The size of box flue-tiles and their associated cutaways:
a. flue-tile height and width; b. flue-tile height and depth; c. cutaway size

keyed with die 71 may have come from a different kiln source from the box flue-tiles with dies 4 and 12.

The abnormal height of the tiles keyed with die 71, coupled with their twin-cutaways, suggest that their original function may have been to form a horizontal flue, each tile spanning two stacks of vertical flue tiles. Although this may have been their intended use, both

tiles are actually set vertically into the walls at the Billingsgate bath-house.

The complete tile from Gadebridge Park keyed with die 49 has two oval shaped cutaways in each plain side. These measure approximately 56–58 mm on their short axis and 64–68 mm on their long axis. Whether this tile could also have been used as a horizontal flue is uncertain.

Section 7: tile kilns producing relief-patterned tile

There are very few tile kilns which can be stated with certainty to have produced relief-patterned tiles. A number of relief-patterned tiles have, however, been found in the vicinity of known or suspected tile kilns.

It would seem highly likely that there are many other, as yet undiscovered, tile kilns in southern and central England which manufactured relief-patterned tile. The kiln source of a number of relief-patterned tile groups, made using distinctive clay types (see Section 9), has still to be determined.

Listed below are all the relief-patterned tile die types made at known kiln sites, or believed to be associated with sites of tile manufacture. The number given in brackets after the die type is the example number under which they are listed in the corpus.

Bedfordshire

- a) Harrold (Lodge Farm): Die 64 (Exp. 3)

Berkshire

- a) Pamber (Little London): Die 39 (Exp. 4)
- b) Shaw: Die 54 (Exp. 4)

Hertfordshire

- a) Potters Bar (Parkfield): Die 32 (Exp. 7)
- b) Elstree-Tiles found in the vicinity of a possible tile kiln: Dies 16 (Exp. 9), 29 (Exp. 3), 36 (Exp. 2)
- c) Colney Street (Netherwild Farm) – Tiles reused in a 4th century bath-house near known tile kilns: Dies 4 (Exp. 8), 5 (Exp. 8)

Middlesex

- a) Brockley Hill-Found during excavations of pottery kilns and an associated structure. Possibly from tile kilns known to have been in operation in the Brockley

Hill area: Dies 21 (Exp. 9), 43? (Exp. 2), Group 9 (Exp. 2), Uncertain (Exp. 14)

Oxfordshire

- a) Long Hanborough – A suspected tile kiln has produced tiles in the same fabric as relief-patterned examples from nearby villas: Die 51 (Exp. 1), Die 85 (Exps. 1 and 3); none are known from Long Hanborough itself.

Surrey

- a) Ashted Common: Dies 1 (Exp. 1), 66 (Exp. 3). Tiles used at the adjacent villa presumed to have been made at Ashted Common: Dies 4 (Exp. 1), 5 (Exp. 1), 6 (Exp. 1), 14 (Exp. 1)

- b) Reigate (Doods Farm) – Probable tile kiln: Die 5 (Exp. 4)

Sussex

- a) Hartfield (Great Cansiron Farm): Die 5A (Exp. 2)

Wiltshire

- a) Minety: Die 56 (Exp. 1)
Excavation in 1974 on the main kiln mound recovered three specimens of die 56 in the fill of the kiln.

Certain relief-patterned tiles which are known or are believed to have come from specific tile kilns lack distinctive rock or mineral inclusions in their clay matrix. This means that it is very difficult to compare such tiles to other relief-patterned tiles from the surrounding areas without scientific analysis. Only two scientific studies have so far been carried out on tiles lacking distinctive inclusions, and these are discussed in Section 8.

Section 8: thin section and neutron activation analysis studies

Analysis of Tiles from Sites in Surrey and Sussex

[A.P. Middleton and M.R. Cowell]

The use of thin-section petrography to characterise ceramic material is well established (see for example reviews by Peacock 1970 and Williams 1983), and the associated employment of textural analysis (Peacock 1971) is also well known (see for example Darvill and Timby 1982; Middleton *et al* 1985 and Streeten 1982). Similarly, the use of neutron activation analysis (NAA) to characterise products from different geographical sources is another well established approach (see for example review by Perlman 1984).

Petrographic analysis has been successfully applied to the characterisation of Roman tiles (for example Johnston and Williams 1979), but such attempts are often frustrated by a lack of distinctive fabrics. However, useful results have been obtained when textural analysis methods have been employed, particularly when supported by the results from NAA (Betts 1982, 1991). A dual approach such as this offers the advantage that results from the two techniques are complementary; *viz.* discrimination based mainly upon the nature of the aplastic inclusions (petrography) and discrimination based mainly upon variations in the clay matrix (NAA).

In this project use was made of both techniques to characterise relief-patterned (and associated) tiles from several sites to the south of London. Included were tiles from consumer sites at Ashted, Beddington, Beddingham, Great Cansiron and Titsey, and from known production sites at Ashted and Hartfield.

These tiles were selected because the presence of relief-patterned tiles keyed with die 5A (Beddington and Hartfield), or with its recut die 5 (Ashted, Beddington and Titsey), offered a better than usual chance that the assemblages under comparison would be broadly contemporary. No relief-patterned tiles had been found at Great Cansiron but its proximity to the kiln-site at Hartfield suggested its inclusion.

The aim of the study was to establish the relationships

between the production and consumer sites, in particular to attempt to answer the question posed by Lowther (1948a) – namely, were the tilers itinerant or were the tiles themselves transported from centralised production sites?

The tiles were grouped according to their petrographic fabrics using a simplified, computer-assisted textural analysis approach (Middleton *et al* 1991), and also on the basis of cluster analysis of the data from NAA. With few exceptions, there was good agreement between the groupings based upon the two techniques. The results are presented in detail elsewhere (Middleton *et al* 1992) and only the main conclusions will be summarised here. The findings suggest that it is possible to distinguish the products of different tile kilns and to draw some tentative conclusions regarding the production and distribution of tiles in this part of south-east England.

It seems that the relief-patterned tiles were made from the same clays as other types of tile, and no evidence was found to support the notion that kilns/clamps were set up especially to manufacture flue tiles. The results also suggest that the consumer sites were in general supplied with tile from several sources, and there is evidence that tiles (at least from the tilerly at Hartfield) were transported over quite wide areas. Tiles keyed with die 5A were present at Beddington in two different fabrics: one from the Hartfield kiln, the other from a different, so far unlocated, source. Both of these fabrics differed from that of tiles from Beddington keyed with die 5, which originated from the Ashted tilerly.

Thus it would appear that the organisation of the tile industry, in particular the production of relief-patterned tiles, was quite complex. In the case of die 5A/5, such flue tiles were produced alongside other tile types by craftsmen who were, to some extent at least, itinerant. The marketing of their products may sometimes have involved “middlemen” who maintained stocks of tiles brought from more than one kiln-site, perhaps for their own use or to be sold on to others for use in building projects such as the villa at Beddington.

Although the study has provided some new insight into tile production and distribution, the scope for further

investigation using combined petrographic and chemical analysis to characterise tile from different sources would seem to be considerable.

Analysis of Tiles from the North Oxford Area

Johnston and Williams (1979, 375–85) thin-sectioned 22 plain and five relief-patterned tiles from 13 sites in the North Oxford region, including examples from the suspected tile kiln at Long Hanborough. Included in the analysis for comparative purposes was a sample of die 46 from Chelmsford, Essex (exp. 1). This was believed at the time to be the same die as that used on a tile analysed from North Leigh in Oxfordshire.

The results of the thin section work showed that the suspected kiln at Long Hanborough was probably producing relief-patterned tiles for local villas at Stonesfield (die 85?, exp. 3) and North Leigh (die 51, exp. 1), as well as a site at Hardwick (die 85, exp. 1). Hardwick was stated by Johnston and Williams to lie some 22.5 km (14 miles) to the north-east, but the tile they analysed came from a place of the same name, 8.7 km (5.5 miles) to the south-east of the possible Long Hanborough kiln. The plain tiles from Stonesfield and

Shakenoak also seem on analysis to belong to the same fabric group. To date, however, no relief-patterned tiles have been found at Long Hanborough, although the similarity in fabric of such tiles from elsewhere and the plain tiles from this site does suggest a common source.

The fabric of a relief-patterned tile from Worsham Bottom (die 25, exp. 2) matched a plain tile from Widford and two plain tiles from Shakenoak. These tiles seem to be from a different origin from the Long Hanborough fabric group. The distribution of die 25 suggests their source may be the Minety tile-works in Wiltshire (see Section 9, fabric group 7).

The Chelmsford tile is, perhaps not surprisingly, very different from all the North Oxford tiles examined. Because the Chelmsford and North Leigh examples thin-sectioned were both believed to be die 46 this was taken (Johnston and Williams 1979, 382) as evidence for the tilemaker, or the die, moving from Oxfordshire to a different tiler supplying Chelmsford (or vice versa). Unfortunately, the North Leigh example is not die 46 but die 51 (exp. 1) so there is no basis for the proposed movement of either a roller stamp or tile-maker between North Oxford and the tileworks providing tiles to Chelmsford.

Section 9: relief-patterned tile fabric groupings

It is far easier to look at the distribution of relief-patterned tiles if the clay from which they are made contains distinctive rock and mineral inclusions. For example, the tiles found at Braughing, Brixworth and Piddington are in the same shelly clay type (fabric type) as those made at the tilery at Harrold in Bedfordshire. Even if the location of the tile kiln is not known, the distribution of tiles in the same distinctive fabric often gives an indication of where the source kiln may lie.

The majority of tiles which contain more distinctive rock and mineral inclusions have been studied using either a handlens or a low powered binocular microscope. The fabric types identified by one of the authors (IMB) have been compared with the Roman tile fabric reference collection housed in the Museum of London. Each fabric group almost certainly represents tiles manufactured at the same tilery or tile-making area. Unfortunately, in the time available it has only been possible to look at a relatively small proportion of the relief-patterned tiles found in Britain. It is hoped that with further research more fabric groupings may become apparent.

Certain fabric groups contain die stamps which are also found on tiles of a distinctively different fabric. In this case the individual examples which belong to the fabric group are listed. Die 96 for example, occurs in two fabrics. Only examples 1, 2 and 4 belong to fabric group 1; the other example of die 96, (exp. 3) is in a different fabric and is presumably from a different kiln source. Recognition of relief-patterned tile occurring in more than one distinctive fabric type is important as it provides clear evidence for the use of the same wooden roller at more than one tilery.

Fabric Group 1, Black's (1985)

'London-Sussex' tile group

Dies: 19–24, 37, 40, 60, 70, 83, 86, 87 (Exp. 2), 95, 96 (Exps. 1, 2, 4), 109, 111–113

Museum of London fabric types

Fabric 3054: Fairly sandy fabric, common quartz (0.2–1 mm) with frequent iron oxide (up to 1.5 mm). Occasional

cream silty bands. Many tiles characterised by red and cream "grog" inclusions ranging in size from 1–5 mm. Normally light brown, orange or red.

Fabric 3059: As 3054, but characterised by numerous voids left by the burning out of organic temper (up to 8 mm). From the same tile production site as tiles in fabric 3054.

A common source for Museum of London fabrics 3054 and 3059 is substantiated in London where dies 21, 23 and 37 occur on tiles in both fabrics. The division into two fabric types is not, however, always clear cut. Occasionally there are tiles the fabric of which contains only small amounts of organic temper.

Thin section of dies 19, 22, 23 and 86 from Bullock Down and Arundel by Angela Hodgkinson revealed that the tiles in Museum of London fabric 3059 can be placed into two groups. One group is characterised by a significantly higher proportion of larger quartz grains, giving a sandier texture. As both fabrics were found to contain chaff temper, a likely explanation for the difference is that they represent variations in batches of clay used at the same tilery.

In London and Winchester the vast majority of tiles known to be in fabric group 1 are either box-flue or voussoir tiles. It is possible that the tilery supplying tiles in this fabric specialised in the manufacture of these two types of tile. However, this can only be confirmed by the examination of the fabric of other tiles on many more sites with box-tiles and voussoirs in fabric 1.

Kiln Source: Probably south-west Sussex

Distribution: Greater London, Hampshire, Kent, Surrey, Sussex (Fig. 7). Fabric group 1 has a clear regional distribution. There is a concentration of tiles occurring on villa sites situated in Sussex on the southern side of the South Downs. The origin of tiles in fabric group 1 is unknown, although the distribution suggests production at a tilery in the Chichester-Arundel area. Only one fragment is known from Kent, die 19 from Lullingstone (exp. 6), and this tile has almost certainly been reused from elsewhere. In London, tiles in fabric group 1 occur on 22 sites in the city (discussed in more detail below).

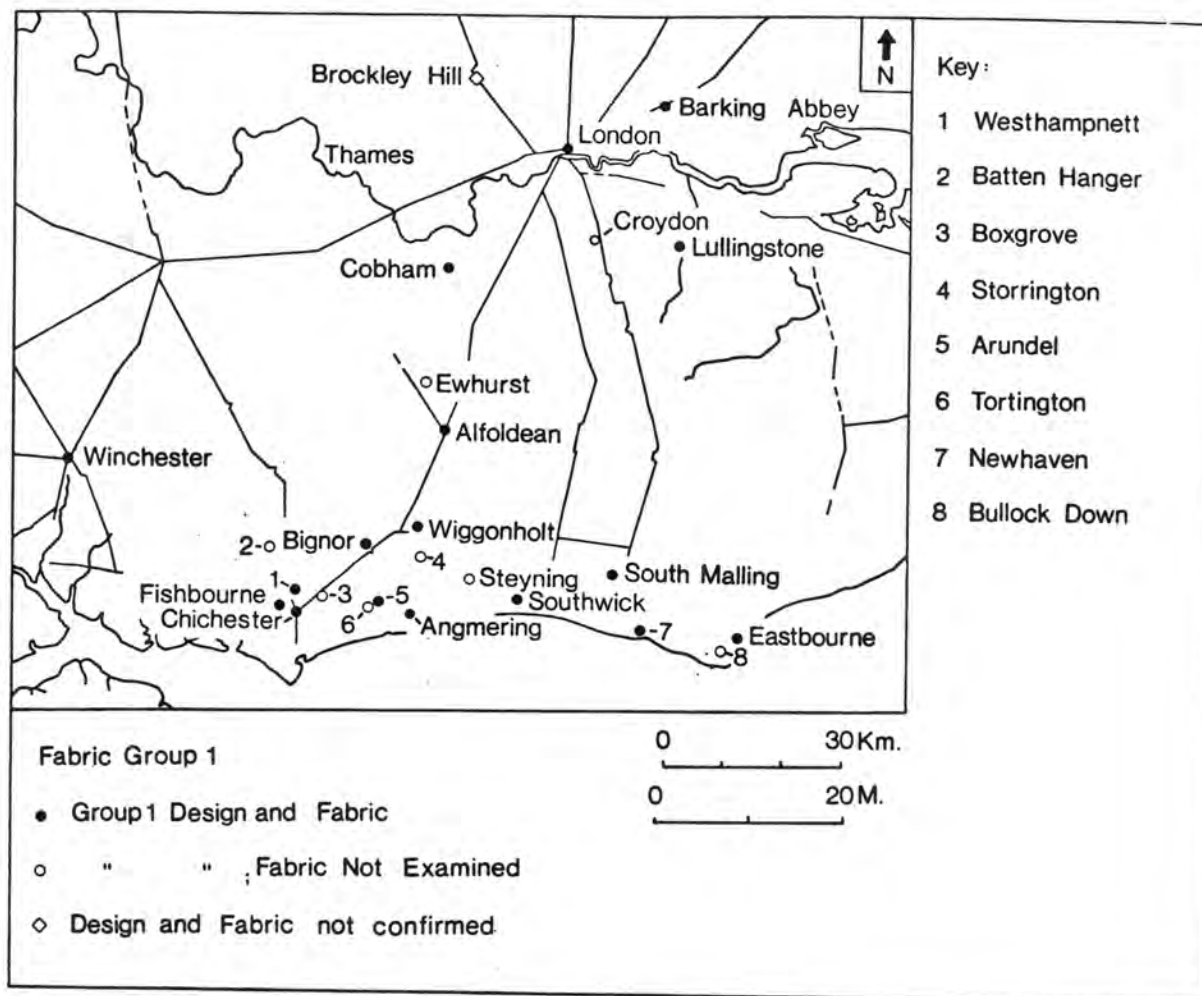


Fig. 7. Distribution of tiles in fabric group 1

However, these are certain imports as they differ in fabric from the vast majority of tile used in Roman London, which originates predominantly from kilns situated to the north of the city (Betts 1987, 28). On no site in London do tiles in fabric group 1 form more than one percent of the total Roman tile assemblage.

On two sites there are tiles keyed with fabric group 1 dies but in a distinctly different fabric. These are die 87 (exp.1) from Upmarden villa and die 96 (exp.3) from Lavant, both in Sussex. This would suggest that the rollers with these designs were in use at more than one tiliary.

Fabric Group 2

Dies 2 (Exps.1-2,4,6,9), 11 (Exps.1-2,6,11)

Museum of London fabric type

Fabric 3069: Fine sandy fabric, common quartz (up to 0.3 mm) with frequent iron oxide (up to 2.5 mm) and a scatter

of cream silty pellets and lens shaped inclusions (up to 3 mm) and muscovite mica (up to 0.05 mm). Occasional calcareous and flint fragments. Varied colour, can be either light brown, light grey, orange, cream or red.

Kiln Source:

Hertfordshire or possibly Buckinghamshire

Distribution: Berkshire, Buckinghamshire, Hertfordshire, London (Fig. 8). The majority of sites with relief-patterned tiles in fabric group 2 cluster in Hertfordshire and Buckinghamshire. The only major anomaly is the occurrence of die 2 at Sutton Courtenay in Berkshire. However, this tile is now lost and may not be in fabric 3069. The tiliary producing tiles in fabric group 2 almost certainly lay somewhere within the Hertfordshire-Buckinghamshire cluster of sites.

The London evidence is interesting as die 2 occurs in both fabric group 2 and in a different red fabric lacking distinctive inclusions. The latter is a fabric type common in London but cannot be linked to any specific tiliary.

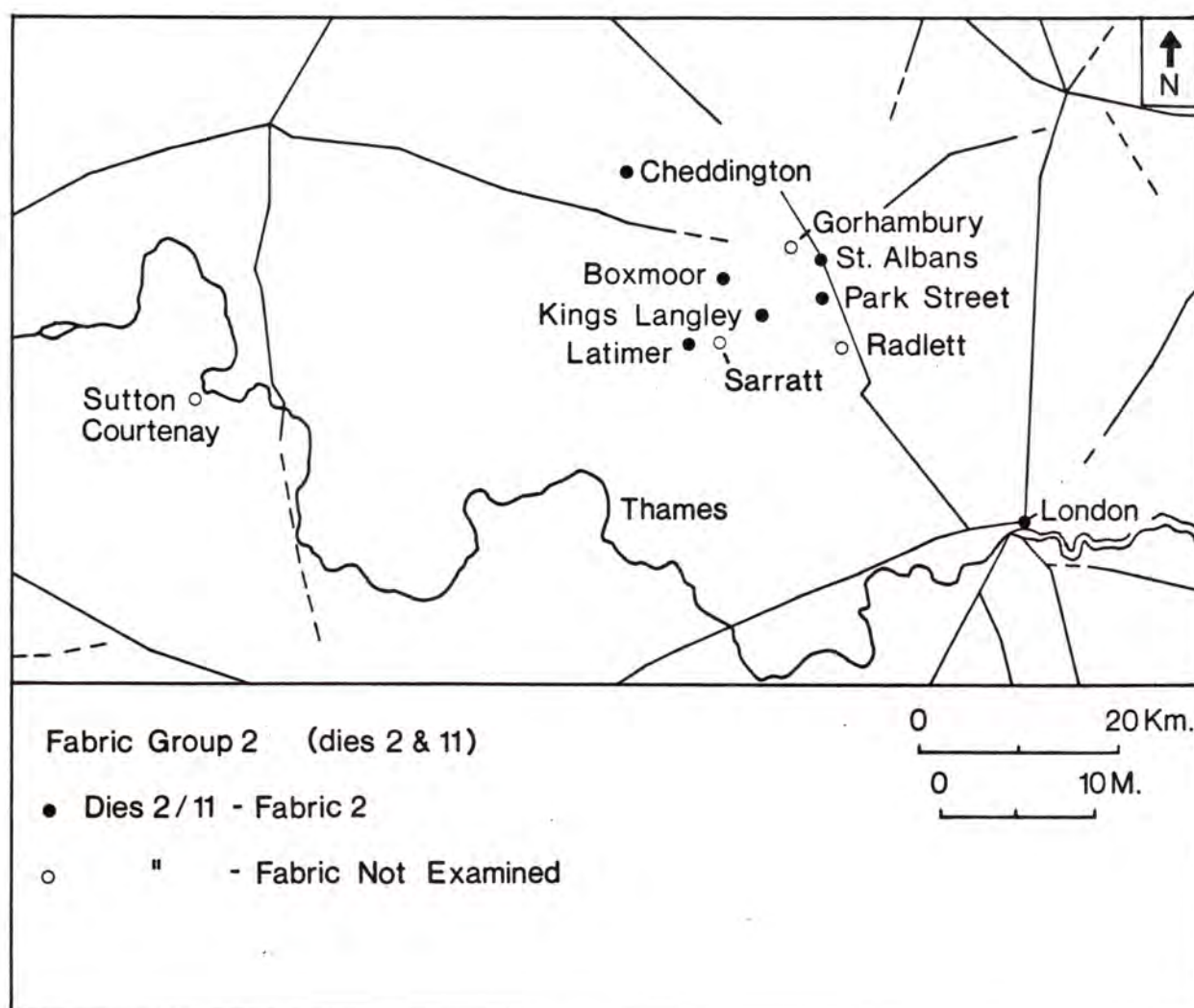


Fig. 8. Distribution of tiles in fabric group 2

Tiles in fabric group 2 are very rare in London and are clearly imports. There seems little doubt that die 2 was used to key tiles at two different tileries.

The London examples in the different red fabric are dies 2 (exp. 8) and 11 (exps. 3–4, 7–9). The other examples of dies 2 (exps. 3, 5, 7) and 11 (exp. 10) are either lost or have not been examined.

Fabric Group 3

Dies 44, 63

Museum of London fabric types

Mostly a variant of fabric 3006, or 3006: Fairly sandy, common quartz (up to 0.4 mm) and occasional muscovite (up to 0.05 mm), and iron oxide. Most tiles have the quartz inclusions of fabric 3006, with occasional silty bands and lens shaped inclusions (up to 3 mm) which are more characteristic of fabric 3028. Red in colour.

Kiln source: Unknown

Distribution: Essex, Kent, London.

At present there are too few examples of tiles in fabric group 3 to suggest the location of the tilerly.

Fabric Group 4

Dies 12 (Exp. 22 only), 16 (Exp. 1 only), Group 9 (Exp. 15 only). No other examples of dies 12 and 16 are in fabric group 4.

Museum of London fabric type

Fabric 2454: Varying amounts of quartz, sometimes rose coloured (mostly up to 0.5 mm). Scatter of iron oxide (up to 1 mm) and calcium carbonate (up to 2 mm). Normally fired yellow, white or pink. The Eccles examples have a streaky fabric comprising bands of cream and pink, particularly the examples keyed with die 16.

Kiln Source: Eccles Area, north-west Kent

Distribution: Eccles Villa and Canterbury, Kent. The relief-patterned tiles in fabric group 4 were produced at a tile kiln somewhere in the Eccles area principally for construction work at the villa. Die 16A, also from the Eccles villa (Exp. 9) is in a completely different fabric which must have come in from a different tilery.

Fabric Group 5

Dies 64, 123

Museum of London fabric type

Fabric 2456: Characterised by frequent shell inclusions (up to 4 mm) with occasional iron oxide (up to 0.3 mm). The tile margins are frequently light brown or red, the core a reduced grey colour.

Kiln source: Harrold, Bedfordshire

Distribution: Hertfordshire, Northamptonshire, Bedfordshire (Fig. 9). These shelly tiles were made at the tile and pottery manufacturing site at Harrold in Bedfordshire.

Shelly tiles found at Harrold include relief-patterned box flue-tiles keyed with die 64, dating to the late 2nd century (Brown 1994, 79).

Fabric Group 6

Die 73, Group 9 (Exp. 17: possibly die 43 or 54)

Fabric Type

Normally orange or reddish-orange coloured clay matrix with creamy-white silty bands and lens shaped inclusions. Common iron oxide (up to 1 mm) with occasional quartz (up to 0.5 mm). The plain chevron example (Group 9) has slightly more quartz inclusions but would appear to originate from the same kiln source. Similar to Museum of London fabric type 3018.

Kiln source: Possibly north-west Kent

Distribution: Kent, London (Fig. 10). Currently the only relief-patterned tiles in fabric group 6 are from London, Lullingstone and Chalk. It has not been possible to check the fabric of the uncertain example from Mucking (die

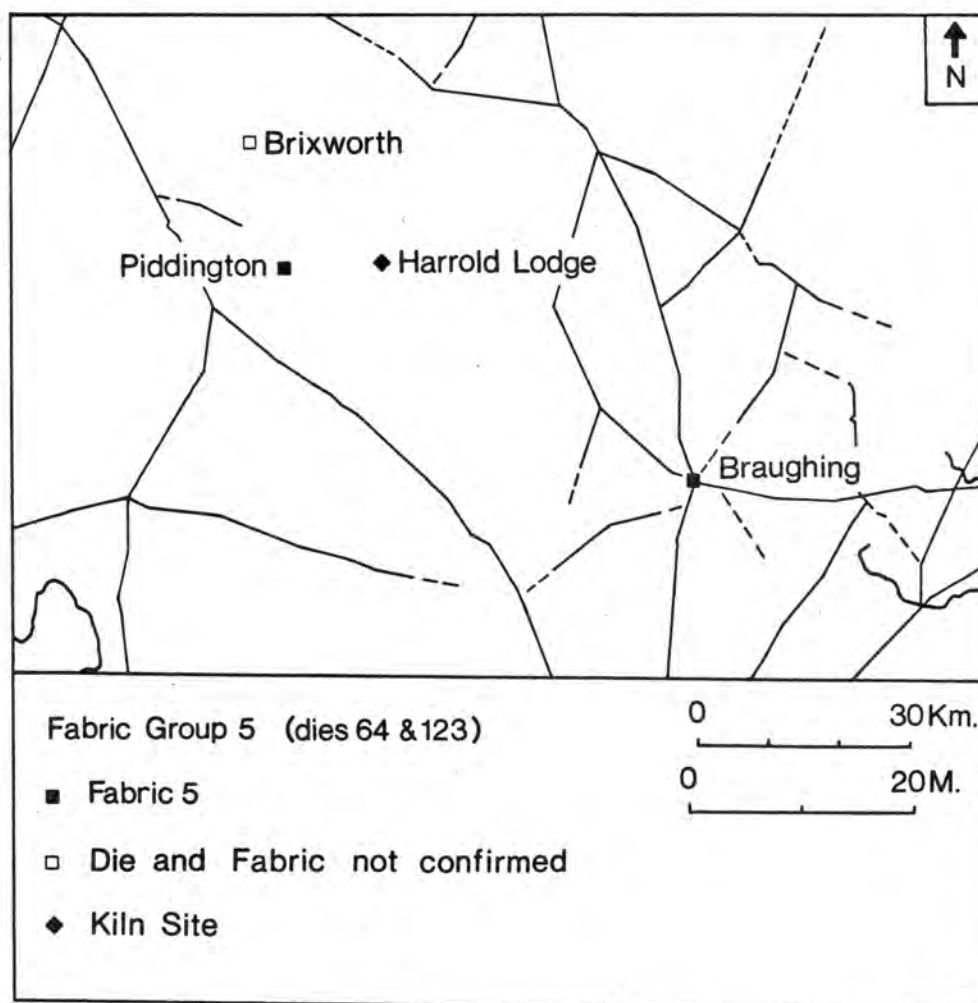


Fig. 9. Distribution of tiles in fabric group 5

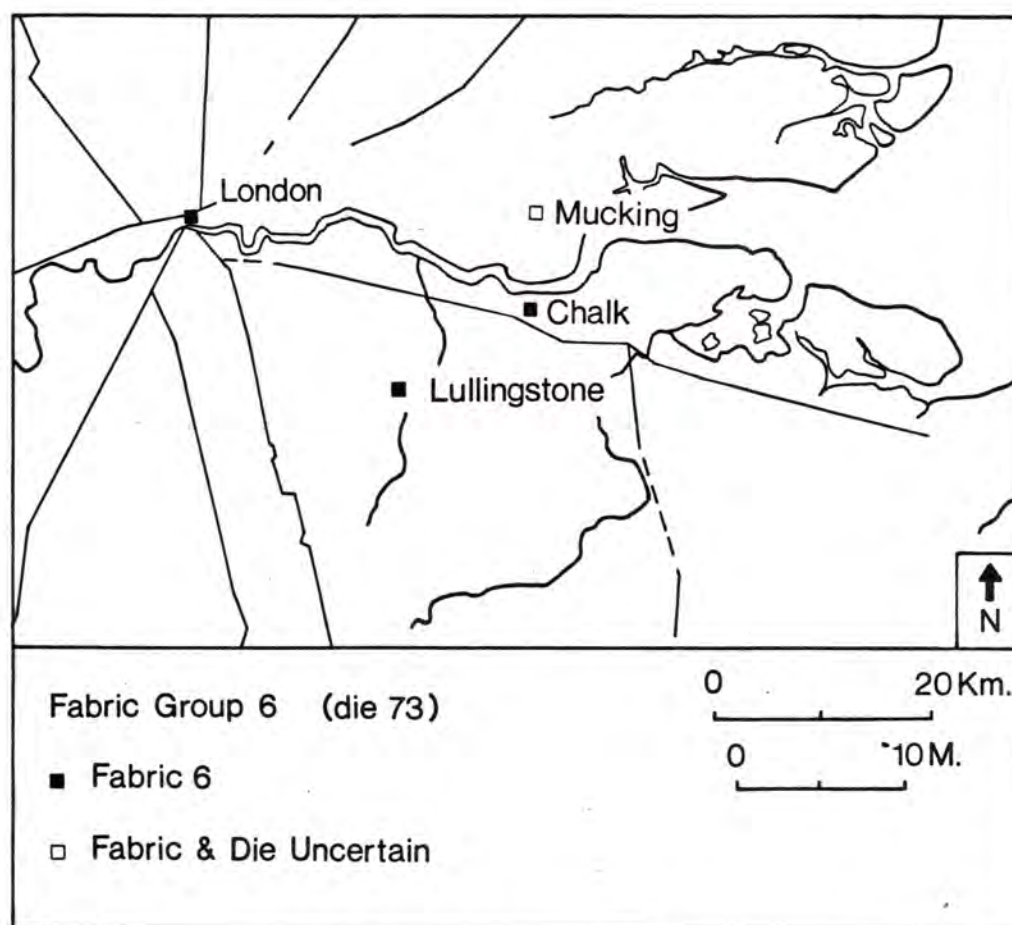


Fig. 10. Distribution of tiles in fabric group 6

73, exp. 4) as the specimen is too fragile to obtain a fresh break for analysis. Presumably the base tiliary was located somewhere in north-west Kent.

Fabric Group 7

Dies 25, 53, 56, 92

Fabric Type

Normally reddish-orange although large amounts of grey overfired are known; both in hard fabric with only a few signs of sand tempering and containing in the fracture creamy-white flecks or streaks with small fragments of iron ore. All samples appear grainy with sparse quartz grains and occasional angular flints. In the groundmass are quartzite, plagioclase feldspar and ferrous oxides.

Kiln source: Minety, North Wiltshire

Evidence from pottery production at the Minety tile-works suggests that production began in the Flavian period continuing until at least the early 3rd century. Die 92 was recovered from the Roman town at Wanborough in a road ditch dated c AD 80–150. The three fragments

of die 56 from the kiln mound probably relate to earlier tile production which is as yet unexcavated.

The tiles in fabric group 7, made at Minety, have a specific West Country distribution, with examples from north Wiltshire, south Gloucestershire, west Oxfordshire, west Berkshire and Somerset. It is possible that building-contractors were involved with building at the various sites shown in Figure 11.

Distribution of distinctive Fabric Types in London

Figure 12 plots the distribution of relief-patterned tiles in distinctive fabric types in London. These constitute around 22% of the relief-patterned tile recovered from excavations in central London, north of the Thames. The majority of these are in Museum of London fabric types 3054 and 3059 (fabric group 1), which are believed to originate from a single tiliary somewhere in south-west Sussex.

Although they are almost certainly from the same kiln source, the two fabrics do not share the same distribution.

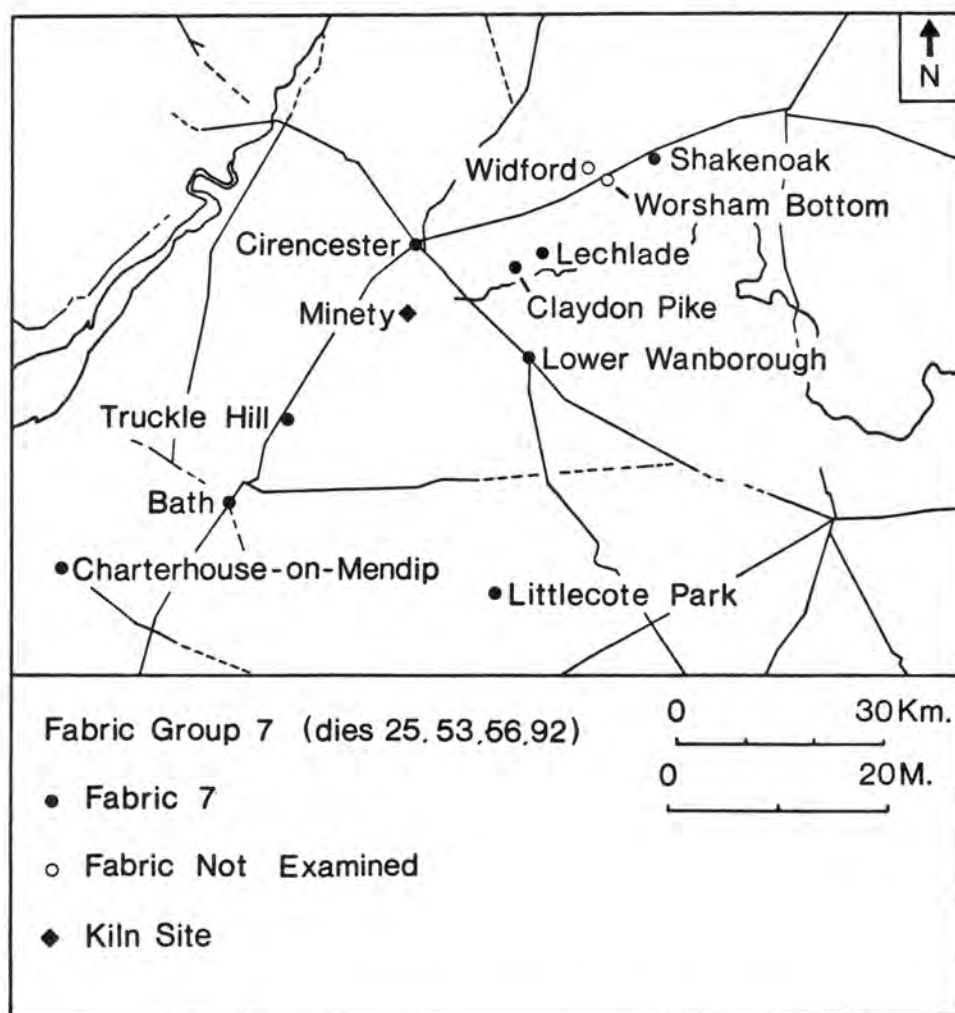


Fig. 11. Distribution of tiles in fabric group 7

Three out of five tiles in fabric 3059 are found in the area south of the basilica, east of what is presumed to be the Governor's Palace. In contrast, tiles in fabric 3054 are predominantly found west of the Walbrook, south-east of the fort. This would imply that tiles in fabric 3059 were used in different buildings from those in fabric 3054.

A box flue-tile in fabric 3054 is still *in situ* at Billingsgate bath-house in Lower Thames Street (Fig. 12, site 7). Tiles in the same fabric are also associated with the site of the so-called Governor's Palace (Fig. 12, sites 14 and 85).

All tiles keyed with dies 44 and 63 are in a fabric group 3. Both dies were almost certainly used to key tiles at the same tiliary, and both were used in the hypocaust heating system of the Cheapside baths (Fig. 12, site 17). The baths may well have been built by the military, for the use of army personnel in the fort just to the north-west. The bath-house has two periods of construction although neither can be dated with any precision. All that can be said is that the use of the baths seems to date from

the late 1st or early 2nd century (Perring 1991, 73) to around the mid 2nd century (B. Davies pers. comm.).

There are two further examples of tiles keyed with die 63. One was found west of St Mary le Bow church (Fig. 12, site 18), whilst the other came from Milk Street (Fig. 12, site 57). As both tiles were found close to the Cheapside bath-house it seems reasonable to assume they may originally have formed part of it. Presumably the tiles were dispersed at some date after the baths were demolished around the mid 2nd century.

There are also two further examples of tiles with die 44. One came from the site of the amphitheatre (Fig. 12, site 38) to the north-east. The other example came from Northumberland Alley (Fig. 12, site 64), which is situated east of the Walbrook in the north-east corner of the city. It seems very unlikely that this particular tile could have derived from the Cheapside baths.

Also present in London are relief-patterned tiles in fabric groups 2 and 6. At present there are too few examples of either to allow meaningful discussion of their distribution.

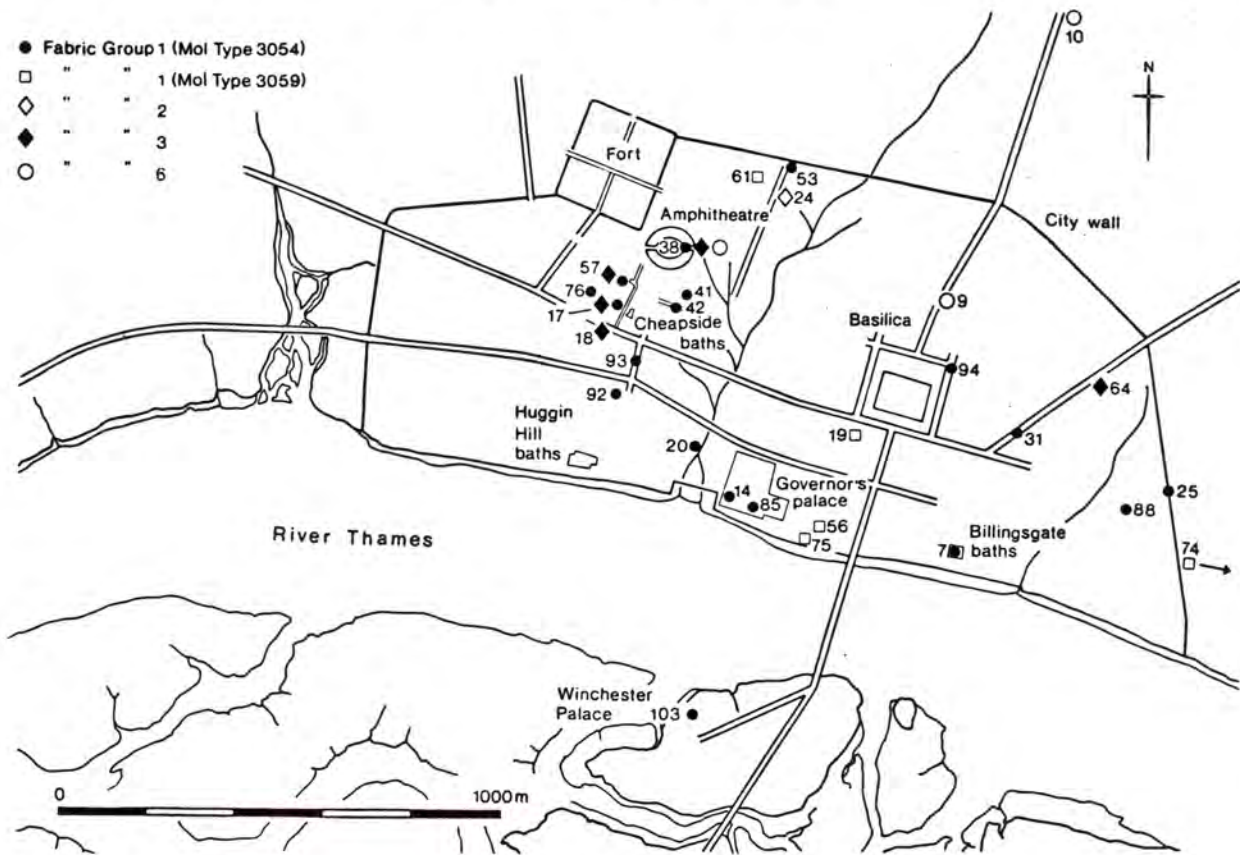


Fig. 12. Distribution of distinctive fabric types in London

Section 10: distribution

The overall geographical distribution of relief-patterned tile has changed little since Lowther's original work. The most obvious difference is the vast quantity of material from the excavations in London.

1) Distribution of Relief-Patterned tile outside London

Of the counties in existence prior to 1973, those directly bordering on London and nearby have the largest number of sites at which relief-patterned tile has been found with 19 sites in Essex, 15 in Hertfordshire, 17 in Kent, 20 in Surrey and 29 in Sussex. Other counties with five or more sites where relief-patterned tile has been found are Buckinghamshire, Hampshire, Northamptonshire, Oxfordshire and Wiltshire. Further from London examples occur as far away as Scampton in Lincolnshire (the most northerly example), Kenchester in Herefordshire and Charterhouse on Mendip in Somerset. As yet no examples are known from the Isle of Wight, Norfolk, Devon, Cornwall, Worcestershire, Shropshire, Cheshire, Derbyshire or further north. No examples are known from Wales.

As regards type of site, the civitas capitals have produced many examples, viz. Canterbury (21 dies), St Albans (21 dies), Chichester (11 dies), Cirencester (6 dies), Leicester (5 dies), Winchester (4 dies) and Silchester (4 dies). Of the coloniae, relief-patterned tile is known from Colchester (8 dies) and Lincoln (2 dies). Other roadside settlements at which several different dies have been found include Chelmsford (7 dies), Brockley Hill (at least 2 dies), Wall (4 dies), Alfoldean (6 dies), Wiggonholt (8 dies) and Lower Wanborough (8 dies). Villas with major collections include Park Street (4 dies), Lullingstone (10 dies), Ashted (6 dies), Chatley Farm Cobham (9 dies), Fishbourne (8 dies), Angmering (5 dies), Tarrant Street Arundel (5 dies) and Littlecote Park (4 dies). The large collections from Lullingstone and Cobham may well be the result of the use of demolition rubble from London. Die 72 from Stonea is certainly an example of relief-patterned tile brought to a site from elsewhere. The only known temple sites at which this tile

has been found are Farley Heath (die 4: probably as make-up from a nearby villa site) and Gosbecks Farm, Colchester (die 8).

Table 1 shows the sites in the various counties in which relief-patterned tile has been found. Although distribution by county is artificial, it does give a good idea of the geographical distribution and this table can usefully be compared with a similar table included by Lowther in his study.

Table 1. Location of Relief-Patterned Tile

The letter 'U' denotes tiles where the die type is uncertain. U1 are of 'W-chevron' design, U5 of 'diamond and lattice' design and U9 of 'plain chevron' design.

County and site	Die number
BEDFORDSHIRE.(Bd)	
1. TOTTERNHOE	1?
2. SANDY	32 120
3. HARROLD	64
BERKSHIRE.(Be)	
1. SUTTON COURTENAY (now Oxfordshire)	2
2. LITTLE LONDON, PAMBER	39
3. OLD WINDSOR	46 51?
4. SHAW, NEWBURY	54
BUCKINGHAMSHIRE.(Bu)	
1. DELL FARM, LATIMER	5 11
2. CHEDDINGTON	11
3. HIGH WYCOMBE	12
4. STANTON LOW	32
5. GOREFIELDS near STOKE GOLDINGTON	32
6. SAUNDERTON	58
7. WUGHTON on the GREEN	U
8. UNPROVENANCED probably BUCKINGHAMSHIRE	12
CAMBRIDGESHIRE.(Ca)	
1. STONEA	72
2. LITLINGTON	U1

County and site	Die number	County and site	Die number
DORSET.(Do)		10.GORHAMBURY	11 36 115
1. TARRANT HINTON	5	11.BRAUGHING	16 64
ESSEX.(Es)		12.ELSTREE	16 29 36
1. RIDGEWELL	4 33 U5	13.PARKFIELD, POTTERS BAR	32
2. CHELMSFORD	4 6 8 16 16A 44 46 U9	14.GADEBRIDGE PARK, HEMEL HEMPSTEAD	35 49
3. COLCHESTER	5 8 9 13 14 27 29 46 U9	15.WELWYN BY-PASS	58
4. BOXTED, STEBBING	5A	HUNTINGDONSHIRE.(Hu)	
5. BRADWELL	5A, 35	1. GODMANCHESTER	16
6. IVY CHIMNEYS, WITHAM	5A	(now Cambridgeshire)	
7. BROADFIELDS FARM, RAYNE	5A 9 13 16	KENT.(Ke)	
8. MALDON	5A	1. CANTERBURY	4 16 16A 18 29 32 38 41-43 61-63 76 77 85 93 97 108 121 122 U9(3)
9. ALRESFORD	8 26 29	2. BEDENS FIELD, NORTH CRAY	4 13 U
10.GOSBECKS FARM, COLCHESTER	8	(now Greater London)	
11.GESTINGTHORPE	12	3. RICHBOROUGH	9 85 U9
12.WARRENS FARM, GREAT TEY	16 46?	4. LULLINGSTONE	9 12 13 16 19 35 69 73 78 110
13.HEYBRIDGE	16	5. DARENTH	10 31
14.GREAT CHESTERFORD	32	6. FARNINGHAM MANOR HOUSE, FARNINGHAM	10 65 69
15.MUCKING	57 73	7. OLIVER CRESCENT, FARNINGHAM	10 28
16.MARGARETTING	74	8. SPRING WOOD, KEMSING	12 99
17.BARKING ABBEY (now Greater London)	86	9. ORPINGTON STATION, ORPINGTON	12
18.PANFIELD	U	(now Greater London)	
19. LITTLE HALLINGBURY	U	10.ECCLES	12 16 16A
GLOUCESTERSHIRE.(Gl)		11.CHALK	14 33 73
1. GREAT BARRINGTON	12	12.FRINDSBURY	16A
2. CIRENCESTER	25 39 53 56 68 85	13.EAST WEAR BAY, FOLKESTONE	16A 65
3. ROUGH GROUND FARM, LECHLADE	56	14.DOVER	27
4. CLAYDON PIKE	92	15.ALLENS FARM, PLAXTOL	31 59
HAMPSHIRE.(Ha)		16.HARTLIP	33 U5
1. ROAKE FARM, BROUGHTON	1	17.STABLE MEADOW ALLOTMENTS, NORTH CRAY (now Greater London)	U1
2. SILCHESTER	3 27 38 39	LEICESTERSHIRE.(Le)	
3. WINCHESTER	38 39 87 98 U5	1. LEICESTER	7 9 13 30 67
4. WEST PARK, ROCKBOURNE	39	LINCOLNSHIRE.(Li)	
5. CHOSELEY FARM, ODIHAM	U	1. SCAMPTON	9
HEREFORDSHIRE.(Hf)		2. LINCOLN	27 102
1. KENCHESTER	8	LONDON.(Lo) (for individual sites see next section)	
(now Hereford & Worcester)		1-6 8-14 16 16A 18 19 21-24 27-29 31? 32 33 35-37 40 42 44 58 63 65 66 69-71 73 78-80 84-86 88-91 93 97 100 101 103 108? 109? 110 113 116-118 124 U1(4) U5(11) U9(9) U(12)	
HERTFORDSHIRE.(He)		MIDDLESEX.(Mi)	
1. ST ALBANS	1 2 4 5 5A 9 11 13 14 16? 36 58 66 69 75 104-107 115 119 U5	1. BROCKLEY HILL	21? 43? U9 U
2. OLD PARKBURY, RADLETT	1 2?	(now Greater London)	
3. PARK STREET	2 16 50 58	2. ISLEWORTH	66
4. BOXMOOR	2 14 32	(now Greater London)	
5. NEWHALL FARM, SARRATT	2		
6. KINGS LANGLEY	2 11		
7. NETHERWILD FARM, COLNEY STREET	4 5		
8. HAMPER MILLS, WATFORD	4? 5		
9. WOOD LANE END, HEMEL HEMPSTEAD	9		

County and site	Die number	County and site	Die number
3. STAINES (now Surrey)	104	14. TITSEY PARK, TITSEY	5
NORTHAMPTONSHIRE.(No)		15. KINGSTON-UPON-THAMES	14
1. KETTERING	9	16. RAPSLEY, EWHURST	20
2. TOWCESTER	16?	17. DORKING	69
3. PIDDINGTON	49 123	18. OLD TOWN, CROYDON	109
4. LODGE LEYS, BRIXWORTH	64	19. HEADLEY COURT, LEATHERHEAD	U1
5. EASTON MAUDIT	72	20. PIXHAM, DORKING	U1
6. GREAT WELDON	94	SUSSEX.(Sx)	
NOTTINGHAMSHIRE.(Nt)		1. THE BREDE, CHITCOMBE	1
1. CASTLE HILL, EAST BRIDGFORD	17	2. FISHBOURNE	4 13 19 22 48
(this site was termed Whitton in Lowther's corpus).			55 60 81 U5
OXFORDSHIRE.(Ox)		3. CHICHESTER	4 19 20? 21 23
1. BECKLEY	4 13		48 55 60? 81
2. ALCHESTER	14 38		87 112
3. WORSHAM BOTTOM, BURFORD	25	4. NORTH HILL, STORRINGTON	19?
4. WIDFORD	25	5. ALFOLDEAN	4 5 16? 22 23?
5. WOODPERRY	32		66
6. DORCHESTER on THAMES	35	6. GREAT CANSIRON	5A
7. NORTH LEIGH	51	7. PRESTON COURT,	5A
8. SHAKENOAK	51 53 56	BEDDINGHAM	
9. HARDWICK BY PASS	85	8. PITLANDS FARM, UPMARDEN	5A 87
10. STONESFIELD	85?	9. ANGMERING	19 21-24
RUTLANDSHIRE.(Ru)		10. LICKFOLD, WIGGONHOLT	20 21-23 37
1. GREAT CASTERTON	72		83 86? 111 U5
(now Leicestershire)		11. EASTBOURNE	19
SOMERSETSHIRE.(So)		12. NEWHAVEN	19 20? 22
1. CHARTERHOUSE on MENDIP	25	13. FROST HILL, BULLOCK DOWN	19 21 109?
2. BATH (now Avon)	53 56	14. BATTEN HANGER	19 22
STAFFORDSHIRE.(St)		15. SHEPHERDS GARDEN, ARUNDEL	20
1. WALL	16 16A 17 45	16. WESTHAMPNETT	21 22 U5
	U5	17. RANSCOMBE HILL,	21 95
SUFFOLK.(Sf)		SOUTH MALLING	
1. BAYLHAM MILL, CODDENHAM	9	18. SOUTHWICK	21 96 U5
2. UNPROVENANCED	5	19. TARRANT STREET, ARUNDEL	22 23 40 86
SURREY.(Su)			109
1. ASHTEAD COMMON	1 4-6 14 66	20. HIGH DOWN, ANGMERING	23 24
2. PURBERRY SHOT, EWELL	1 5 14	21. MARKET FIELD, STEYNING	37
3. ASHTEAD PARISH CHURCH	4 5? 6 14	22. TORTINGTON	86
4. WINDMILL BANK,	4	23. LITTLE OLDWICK COPSE, LAVANT	96
WALTON-ON-THE-HILL		24. FISHBOURNE HARBOUR	96?
5. CHATLEY FARM COBHAM	4 7 9 13 15 19	25. BIGNOR	96
	23 24 113	26. BOXGROVE	112
6. FARLEY HEATH, ALBURY	4	27. FERNHURST	U
7. BEDDINGTON	4 5 14 66	28. BOTOLPHS, SHOREHAM	U5
8. EWELL	4 66	29. CHILGROVE 2	U
9. PACHESCHAM,	4	WARWICKSHIRE.(Wa)	
LEATHERHEAD		1. CAVES INN	67 114
10. WOODLANDS PARK,	4 14	WILTSHIRE.(Wi)	
LEATHERHEAD		1. LOWER WANBOROUGH	3 12 25 39 54
11. WALTON HEATH	4 6?		56 68 92
12. STOKE D'ABERNON	4	2. EDINGTON	13
13. DOODS FARM, REIGATE	5	3. LITTLECOTE PARK	18 39 68 92
			U5
		4. MINETY	56
		5. TRUCKLE HILL,	56
		NORTH WRAXALL	
		6. STANCHESTER	U

A summary of the distribution of sites (based on pre-1973 counties) at which individual dies have been found is given in Table 2. Only dies found at more than one site are included. The letter 'U' indicates tiles whose place of origin is not known, whilst the number in square brackets lists the total number of sites from which the die has been found.

Table 2. Number of Die Types Listed By County

Die	Lo	Sy	Sx	Es	Ke	He	Wi	Bu	Ha	Gl	Other
1[10]	3	2	1			2			1		Be
2[10]	3					6					Be
3[25]	23						1		1		
4[30]	8	11	3	2	2	3					Ox
5[18]	4	6	1	1		3	1				Sf,Do
5A[14]	5	3	5	1							
6[6]	2	3		1							
7[2]	1										Le
8[8]	3			4							Hf
9[21]	8	1		2	2	2					No, Sf, Li, Le, U(2)
10[11]	8				3						
11[12]	5					3		2			U(2)
12[30]	20			1	4		1	2		1	U
13[19]	7	1	1	2	2	1	1				Ox, Le, U(2)
14[12]	1	6		1	1	2					Ox
16[18]	3		1	4	3	4					St, Hu, No
16A[11]	5			1	4						St
17[2]											St,Nt
18[5]	3				1		1				
19[11]	1	1	8		1						
20[5]		1	4								
21[16]	5		7								Mi,U(3)
22[9]	1		8								
23[15]	6	1	6								U(2)
24[8]	5	1	2								
25[5]						1				1	Ox(2), So Li
27[9]	5			1	1				1		
28[9]	8				1						
29[6]	2			2	1	1					
31[3]	1				2						
32[9]	1			1	1	2		2			Be,Ox
33[4]	1			1	2						
35[10]	6			1	1	1					Ox
36[9]	6					3					
37[5]	3		2								
38[4]					1			2			U
39[7]							2		3	1	Be
40[5]	4		1								
42[8]	7				1						
43[2]					1						Mi
44[4]	3			1							
46[4]				3							Be
48[2]			2								
49[2]					1						No
51[3]											Ox(2), Be

Die	Lo	Sy	Sx	Es	Ke	He	Wi	Bu	Ha	Gl	Other
53[3]											1 Ox,So
54[2]							1				Be
55[2]			2								
56[7]							3			2	Ox,So
58[11]	7					3		1			
60[2]			2								
63[6]	4				1						U
64[3]						1					No,Be
65[5]	3		2								
66[8]	2	3	1			1					Mi
67[2]											Le,Wa
68[3]							2			1	
69[7]	3	1			2	1					
70[2]	2										
71[6]	6										
72[3]											Ca, No, Ru
73[5]	2			1	2						
78[4]	3				1						
80[5]	5										
81[2]			2								
84[2]	2										
85[14]	8				2					1	Ox(2),U
86[6]	2		3	1							
87[3]			2								Ha
88[3]	3										
89[2]	2										
90[2]	2										
92[3]							2			1	
93[5]	4				1						
96[4]			4								
97[2]	1				1						
101[3]	3										
104[2]						1					Mi
108[2]	1				1						
109[4]	1	1	2								
110[3]	2				1						
112[2]			2								
113[2]	1	1									
115[2]						2					
116[7]	7										
118[4]	4										

A more detailed discussion of the distribution of some of the dies is given below.

Dies 1 and 4 (Figures 13 and 14)

Dies 1 and 4 were in contemporary use at the tile-works on Ashted Common in Surrey. In the case of die 4 there is a very heavy concentration of sites in Surrey (11) together with one site in the very north of Sussex (Alfoldean). Eight sites in London have produced die 4 and there are additionally sites in Hertfordshire, Essex, Oxfordshire and Kent, together with two sites in the south of Sussex. There appear to be two centres of distribution, a main one in Surrey and a secondary one in the St Albans area.

At some sites in Surrey tile was undoubtedly reused, deriving from other sites marked on the distribution map.

The distribution of die 1 also shows centres in Surrey and around St Albans, with outliers in Hampshire and Sussex and three sites in London.

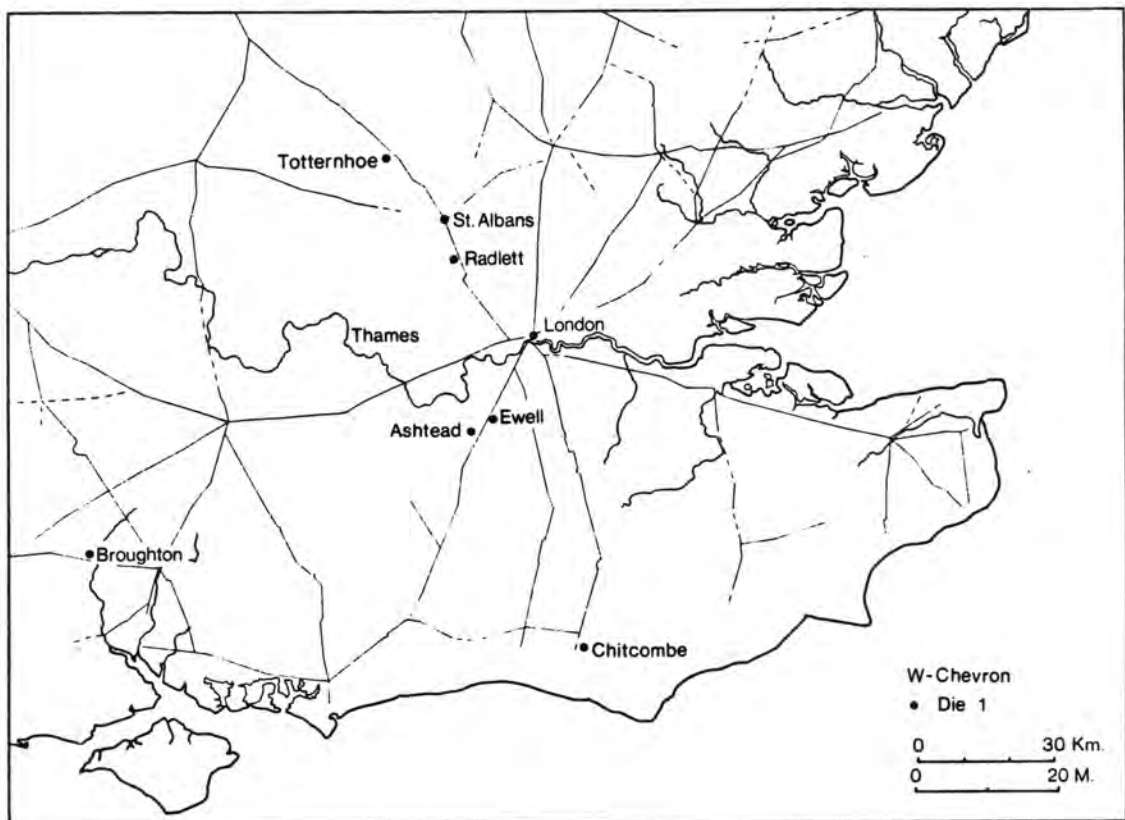


Fig. 13. Distribution of die 1

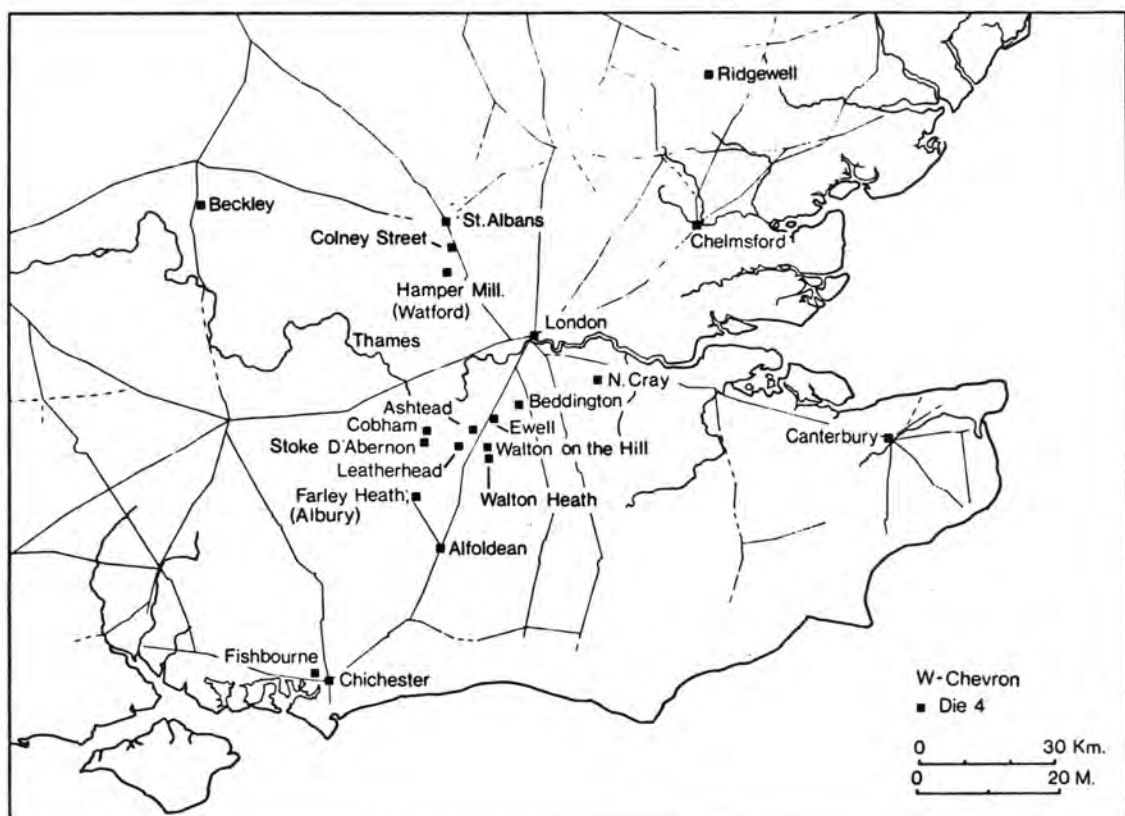


Fig. 14. Distribution of die 4

Die 5A. (Figure 15)

Die 5A has been found at 14 sites: five in both Essex and London, three sites in Sussex and a single site in Hertfordshire. The distribution clearly indicates production at a tiliary in mid Essex which in addition to supplying local sites supplied London. The tile-maker also worked in Sussex where his products have been found at the tile-kiln at Hartfield and at the villa at Beddingham which was supplied from Hartfield. Surprisingly, tiles keyed with die 5A but in a different fabric from the Hartfield tiles were also supplied to the Beddingham villa (see Section 8). It is presumed that the source of these was also south of the Thames. The fabric of the other Sussex tiles, from the villa at Upmarden, has yet to be examined.

Die 9 (Figure 16)

Die 9 is the most widely distributed of all the known dies, with no obvious centre to its distribution. It has been found on eight sites in London and also in the adjoining counties of Surrey, Essex, Kent and Hertfordshire, and further afield in Nottinghamshire, Suffolk, Leicestershire and in Lincolnshire (at Scampton which is the most northerly site at which any die has been found). This widely scattered distribution is very difficult to rationalise.

Die 10 (Figure 17)

Examples of die 10 have been found at eleven sites, eight of which are in London and the other three in north-west Kent. There is a similarity in distribution to die 12 (discussed below), the source tiliary probably being located in north-west Kent and most of the products reaching London.

Die 12 (Figure 18)

Thirty sites have produced specimens of the diamond and lattice die 12, the majority of examples coming from London. The remaining sites include a cluster in Kent at the villas at Lullingstone, Eccles, Orpington and Kemsing. Outliers occur at Gestingthorpe in Essex, High Wycombe in Buckinghamshire, Great Barrington in Gloucestershire and Lower Wanborough in Wiltshire. The other two examples are unprovenanced although one of these is probably from Buckinghamshire, and has been included in the total for that county.

It is found only once in a distinctive fabric (fabric group 4) at Eccles, where tiles keyed with it were produced locally. At the other sites it occurs in an undistinctive fabric that cannot be assigned to a particular tiliary or even a particular area. The cluster of sites in north-west Kent suggests that the source tiliary may well have been in this area, where tiles could have been produced conveniently for London. The scattered distribution north

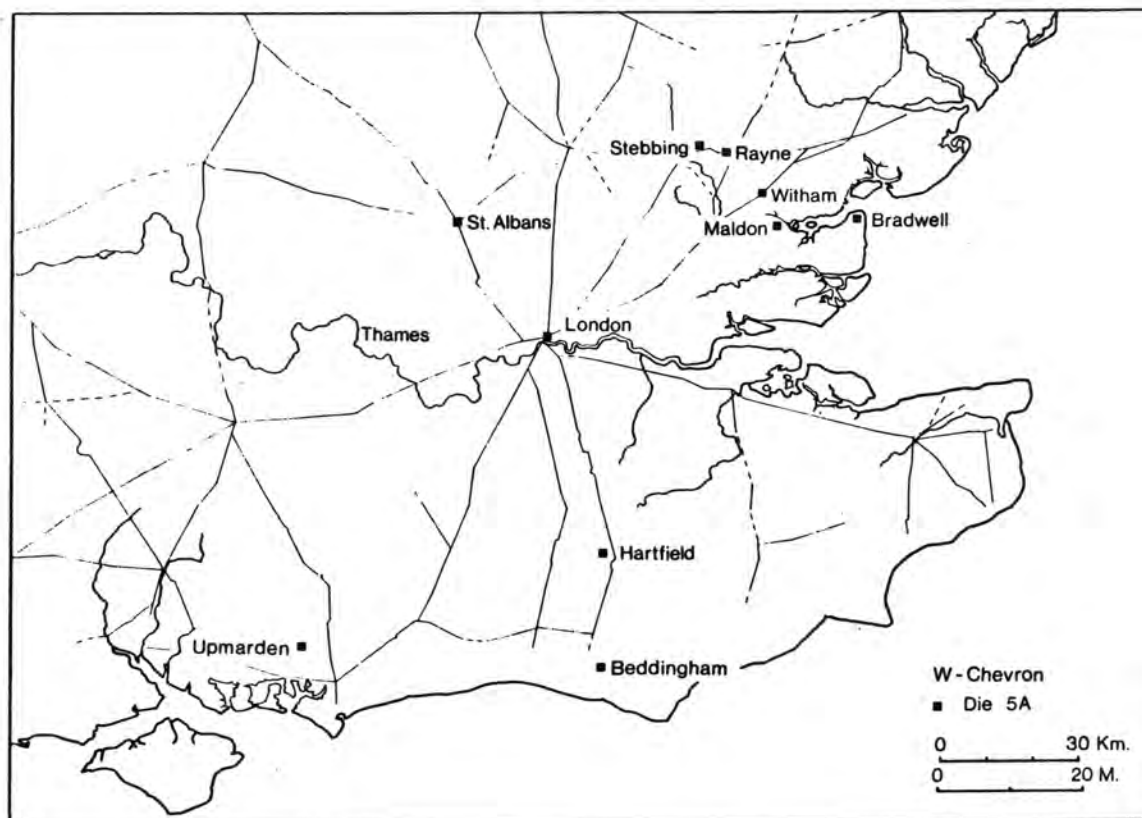


Fig. 15. Distribution of die 5A.

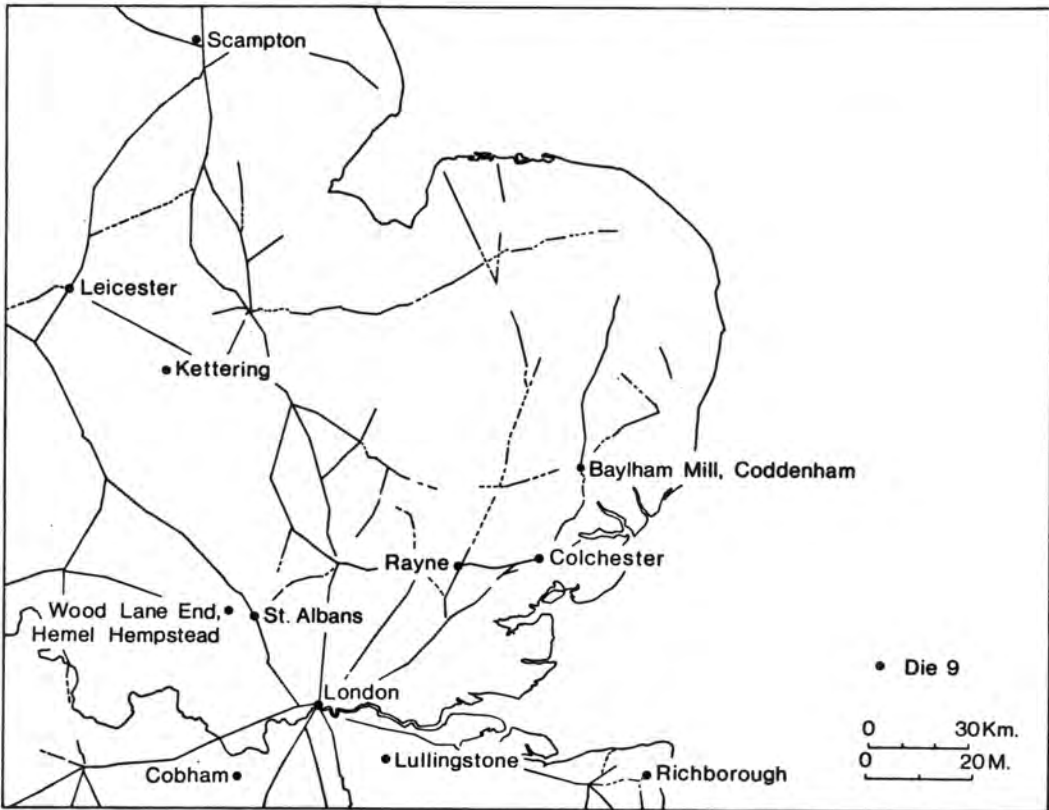


Fig. 16. Distribution of die 9

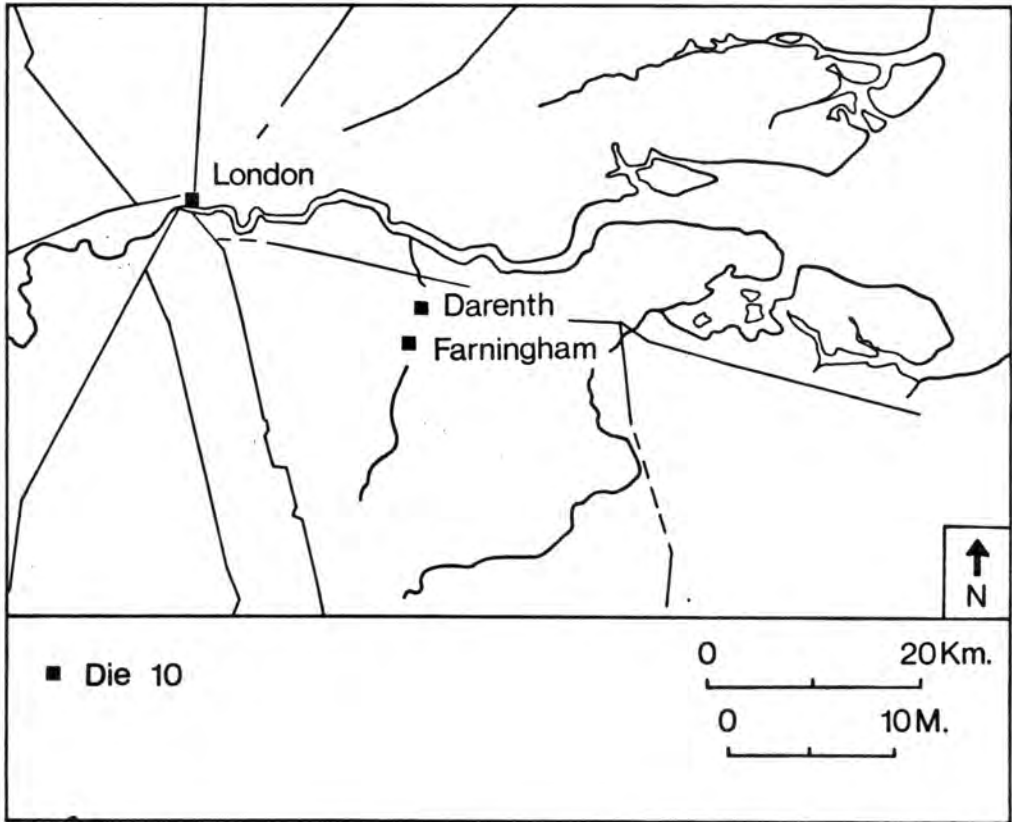


Fig. 17. Distribution of die 10.

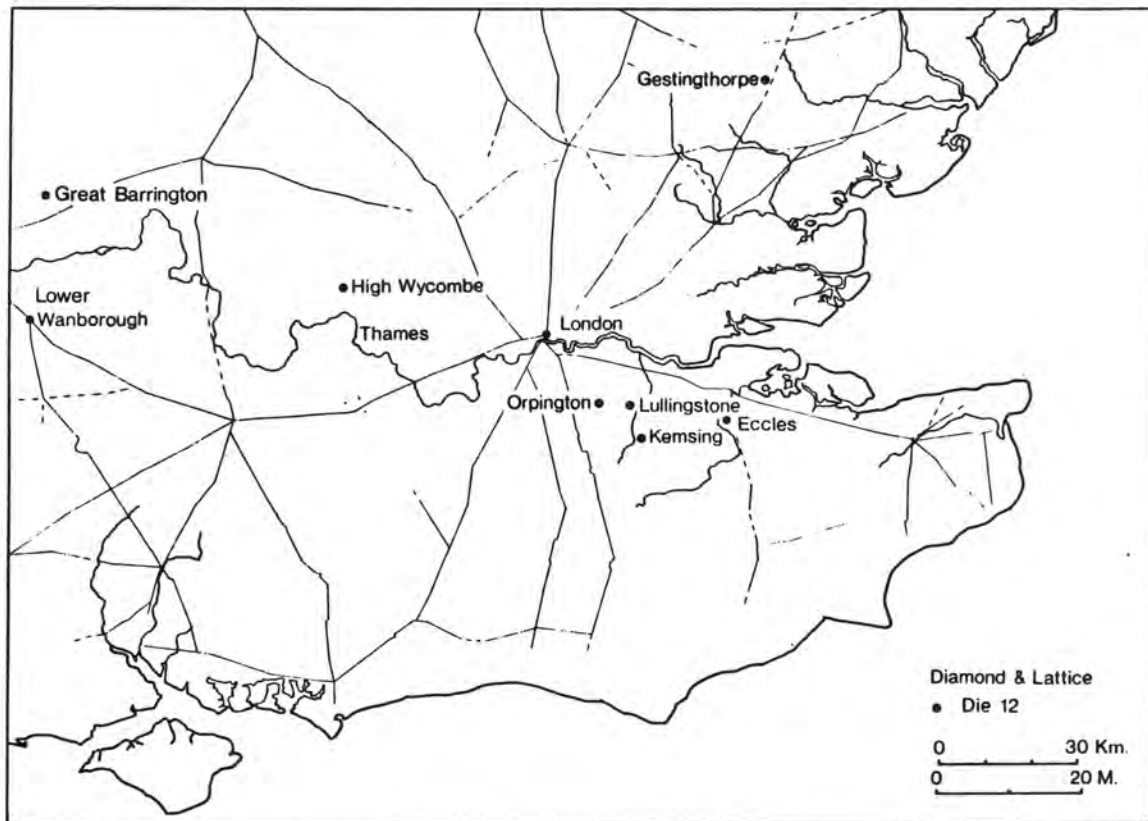


Fig. 18. Distribution of die 12

of the Thames is in need of explanation. Possibly a tile-maker travelled from site to site producing tiles for a particular job at each but perhaps a more plausible explanation would be the activity of a middle-man, building contractor or supplier of building materials, presumably based in London, who supplied tiles for individual building projects.

Die 32 (Figure 19)

Die 32 has been found at nine sites all of which, with the exception of Canterbury, are north of the Thames. The tile-maker who used the roller producing die 32 seems to have specialised in the manufacture of hollow voussoirs for use in vaults rather than the common box flue-tiles. He may have worked at a tiler at Parkfield, Potters Bar, in Hertfordshire where the tiles were associated with what may have been a drying-kiln rather than an actual tile-kiln. The wide dispersion of examples of die 32, with no apparent concentration in the vicinity of the Parkfield kiln site, suggests either that building-contractors bought up these tiles and sent them where they were needed, or that the tile-maker may have travelled with his roller to work at other tileries. This second suggestion is almost certainly true in the case of the example from Sandy in Bedfordshire where the tiles are in a fabric different from those found at Parkfield.

Die 58 (Figure 20)

Examples of die 58 occur at 11 sites of which seven are in London, three in Hertfordshire and one in Buckinghamshire, thus suggesting a base tiler in Hertfordshire, possibly near St Albans, from where again the bulk of the products were sent to London.

The distribution of individual die types, together with the information derived from the analysis of various fabric groupings, suggests several modes of production.

a) Local Production.

Relief-patterned tiles produced at a kiln site and used solely for sites in the immediate area of the kiln site.

b) London Production.

Tiles produced at a kiln site in the vicinity of London primarily for use in London, though perhaps with some use at sites close to the kilns.

c) Itinerant Production.

Tiles keyed with a particular die produced at more than one kiln site, with the tile-maker moving from site to site with his roller.

d) Building Merchants' Suppliers.

Here the relief-patterned tiles are produced at one central kiln site, or possibly at two or more at different times,

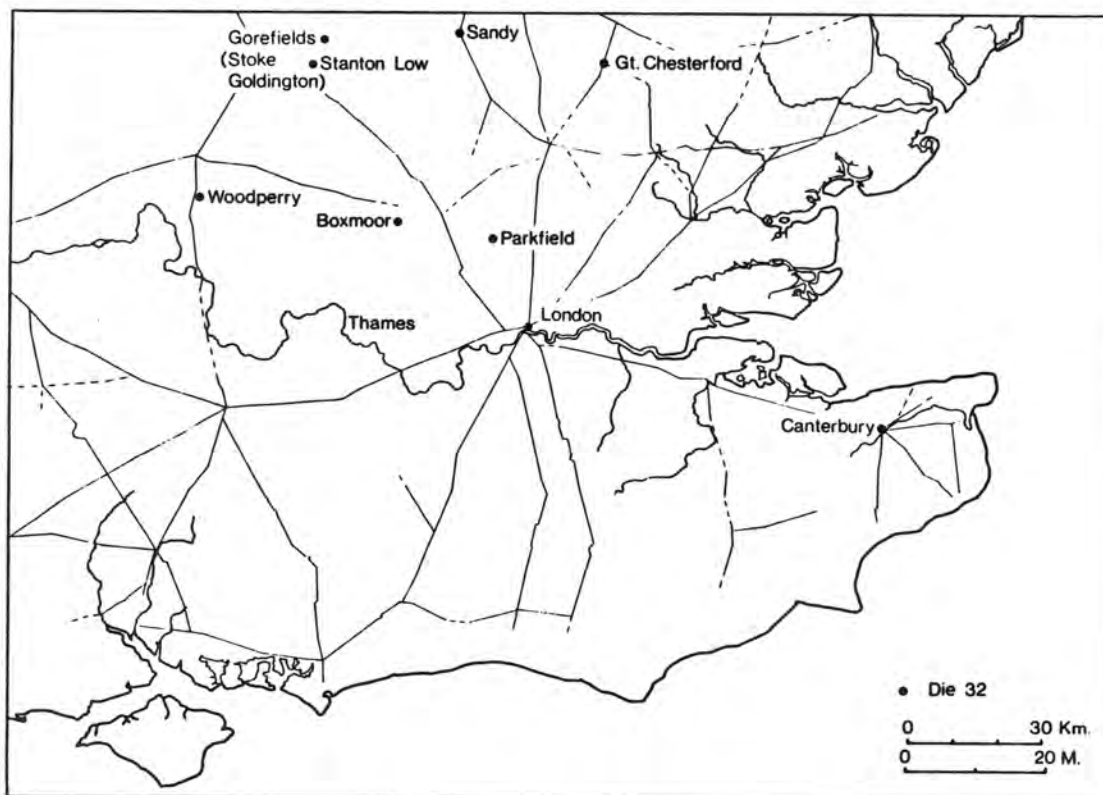


Fig. 19. Distribution of die 32

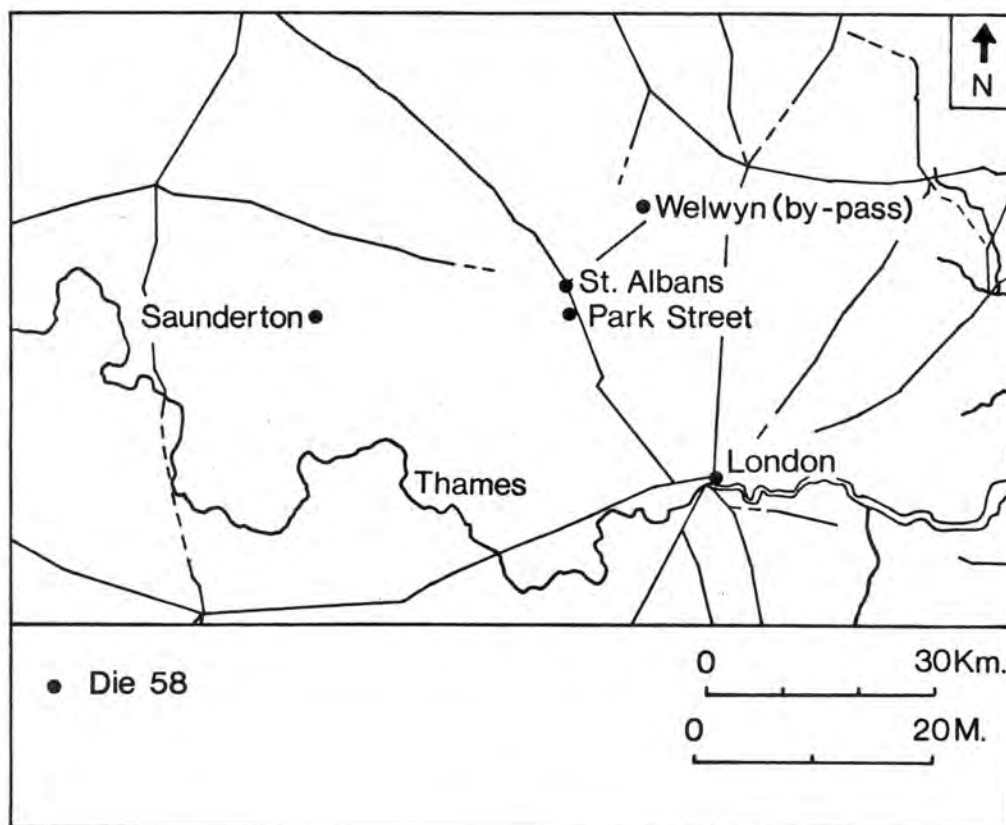


Fig. 20. Distribution of die 58

and then taken to particular building projects possibly over long distances.

These four modes of distribution probably represent the very simplest options and no doubt will need to be modified in the light of further research. Nor are they mutually exclusive: a tile maker could be producing for a), b) and d) at the same time.

Most of the dies discussed here can be dated to the reign of Hadrian, and there is no doubt that the building industry in Britain entered a boom period following the visit of the emperor in AD 122. The progress of this, and its eventual slow-down, must be reflected in the distributions of relief-patterned tiles and what they can tell us about the organisation of the tile-industry.

Table 3. Location of Relief-Patterned Tiles in London

The die types found at each location are included in square brackets after the site name. Information concerning each site can be found in the Museum of London archaeological archive. The letter 'U' denotes tiles where the die type is uncertain. U1 are of 'W-chevron' design, U5 of 'diamond and lattice' design and U9 of 'plain chevron' type.

(A) NORTH OF THE THAMES

ABACUS HOUSE / 33-39 GUTTER LANE [8 16? 80? 116 118 U9]
 58-63 ALDERMANBURY [3]
 ANGEL COURT / 30-35 Throgmorton Street [10 42 58]
 BALTIC HOUSE (Leadenhall Street) [9]
 Beaver House, SUGAR LOAF COURT [27]
 BILLINGSGATE BATH HOUSE / 100 Lower Thames Street [3? 19 21 23? 66 71 118 124]
 BILLINGSGATE MARKET (Lorry Park / Lower Thames Street)[12 27 28 80 U5 U9]
 28-34 BISHOPSGATE [11 28 73 U9]
 158-164 BISHOPSGATE [73]
 BLACKFRIARS UNDERPASS [9]
 BUCKLEBURRY HOUSE (11-20 Walbrook) [13]
 9-11 BUSH LANE [36 89]
 48-50 CANNON STREET [9 80]
 CAPEL HOUSE / 54-62 New Broad Street [1]
 52-54 CARTER LANE [80?]
 100-116 CHEAPSIDE (Sun Life Assurance) [18 40 44 63 85]
 CHEAPSIDE (West of St. Mary le Bow) [63]
 29-32 CLEMENTS LANE [23 37 86]
 9 CLOAK LANE [10 11 24 93]
 COLEMAN STREET [U]
 50 CORNHILL [110]
 62 CORNHILL [3 12]
 6-7 THE CRESCENT [5 23]
 2-3 CROSS KEY COURT [2]
 9 CROSSWALL [9]
 16 CROSSWALL / America Square [13]
 DLR SHAFT / LOTHBURY [3 12]
 DLR SHAFT / BUCKLEBURRY [97]
 DOMINANT HOUSE (85 Queen Victoria Street) [5A 27 42 85]
 DOWGATE HILL HOUSE / Upper Thames Street / 14-16 Dowgate Hill [1 3]

EAST INDIA HOUSE, Leadenhall Street [12 28]
 5-12 FENCHURCH STREET [100 U9]
 47-49 FENCHURCH STREET [109?]
 93-97 FENCHURCH STREET [58]
 107 FENCHURCH STREET [71]
 FINSBURY CIRCUS [3]_FOSTER LANE [82]
 GPO Middle Area, NEWGATE STREET [10 28? 69]
 55-60 GRACECHURCH STREET (Midland Bank) [85]
 GUILDHALL ART GALLERY / GUILDHALL YARD [3 5A? 13 29 42 44 78 118? U5 U9]
 GUILDHALL HOUSE / 81-87 Gresham Street [3]
 HOOPER STREET [29]
 HUGGIN HILL [42 85]
 11 IRONMONGER LANE [23 36 84]
 24-25 IRONMONGER LANE [24]
 36-37 KING STREET [33 79 116]
 KING WILLIAM STREET [12 18]
 LAURENCE POUNTNEY LANE [3]
 6 LAURENCE POUNTNEY LANE [2]
 LEADENHALL COURT / Gracechurch Street [4? U]
 LEADENHALL MARKET [10]
 71-77 LEADENHALL STREET / 32-40 MITRE STREET [12]
 27-30 LIME STREET [3 U5]
 LLOYDS BUILDINGS, CANNON STREET STATION (North Side) [12 16A 23 24 36 71 84 85 89 113 116 U5]
 44 LONDON WALL [21]
 MARK LANE [8]
 Midland Bank, 33-34 POULTRY [6]
 MILES LANE / 132-137 Upper Thames street [13? 80 86]
 1-6 MILK STREET [3 40 63 U5]
 10 MILK STREET [3 12 U5]
 MITRE SQUARE / 10-11 Mitre Street [28 U5]
 49 MOORGATE / 72-73 Coleman Street [85 118]
 55 MOORGATE [21 35]
 NEW FRESH WHARF, Lower Thames Street [35 58]
 North Bank of Thames, East of Southwark Bridge [5]
 9 NORTHUMBERLAND ALLEY [44]
 OLD BAILEY Central Criminal Court [28]
 PENINSULAR HOUSE / 112-116 Lower Thames Street [U]
 PETER'S HILL / Castle Baynard Street / Lower Thames Street [3 8 12 14 42 85 90 91 93 101]
 POST OFFICE / NEWGATE STREET [4 9 10 12 16A 27 35 65 88 93 101]
 PUDDING LANE / 118-127 Lower Thames Street [3 6 9 13 58 U9]
 61 QUEEN STREET [78]
 40-66 QUEEN VICTORIA STREET [36]
 RANGOON STREET / 61-65 Crutched Friars [3]
 ROYAL MINT [21 22?]
 ST ALBANS HOUSE, Wood Street [3 11 12 16A 21 28]
 ST BARTHOLOMEW'S HOSPITAL [10] St Bride's Church, BRIDE LANE [110]
 ST MAGNUS / New Fresh Wharf / Lower Thames Street [18 58]
 SEAL HOUSE / 106-108 Upper Thames Street [5A 11 12 35 78 U(2)]
 SHADWELL DOCK [U]
 STAFFORD HOUSE (corner of Cannon Street and King William Street) [4]
 SUNLIGHT WHARF / Upper Thames Street [16A]
 SWAN LANE CAR PARK / 95-103 Upper Thames Street [10 12]
 THAMES EXCHANGE BUILDINGS / Upper Thames Street [3 4 5A? 10 12 16 16A 36 42 65 93 101 116 117 U5 U9 U]

THAMES STREET (now Lower and Upper Thames Street)
[21 71 U5]
TRIANGLE, BILLINGSGATE BUILDINGS / 101–110 Lower
Thames Street [35 103 U9 U]
TRINITY PLACE [5]
TRINITY SQUARE [37]
68 UPPER THAMES STREET [2 3? 12 13 66 G9]
152 UPPER THAMES STREET (site of Bush Lane) [3 24 36]
UPPER THAMES STREET / Dowgate / Walbrook Wharf
(Public cleansing Department) [4 88]
Unprovenanced, LONDON [3(2) 5 8 9(2) 10 11 12 13(2) 21
22 27 31 40 82 84 U1]
WALBROOK [9]
WATLING COURT / 41–53 Cannon Street [3 5 5A 12 27 32
37 40 42 69 70 71 U1(2) U5(2)]
WELL COURT / 44–48 Bow Lane [1? 70]
1–7 WHITTINGTON AVENUE [23 24 35 69]

(B) SOUTH OF THE THAMES

CALVERTS BUILDINGS (15–23 Southwark Street) [3 4 11
12 13 58 108? 116 U1 U]
CATHEDRAL CRYPT / Southwark [71]
CHAUCER HOUSE [12]
11–19 ST. THOMAS STREET [4 U]
REDCROSS WAY / Thrale Street [63]
South bank of R. Thames, near London Bridge [U]
WINCHESTER PALACE / Southwark [3 4 9 13 40 65 85 88
116]

2) Distribution of relief-patterned tile in London

Relief-patterned tiles are currently (late 1990) known from 103 sites in the central London area (Table 3). The majority are from the area enclosed within the circuit of the Roman city walls thought to have been constructed between AD 190 and 230 (Perring 1991, 92). Many of these tiles have been found in excavations undertaken since 1973 by the Museum of London.

It is apparent from Figures 21a and 21b that relief-patterned tiles are spread widely throughout Roman London. There is, however, a concentration in certain areas of the city. West of the Walbrook river, the majority of relief-patterned tiles have been found between the Thames and the fort, whilst east of the Walbrook the majority were found around the basilica, and between the basilica and the Thames.

The distribution of relief-patterned tile cannot be taken as an indication of the extent of the urban area in the first half of the 2nd century. Many tiles have been redeposited and cannot be related to the buildings in which they were once used. Certain tiles were even found on sites outside the urban area. Die 3, for example, was found at Rangoon Street (Fig. 21a, site 73) in an area which remained devoid of any kind of buildings throughout the Roman occupation.

The percentage of Roman sites in London with relief-patterned tile is surprisingly high. The Museum of London archive catalogue for the City of London (Schofield 1987)

describes 113 sites excavated between 1972 and 1986 with Roman stratigraphy. Of these a total of 42 (37%) produced relief-patterned tiles. Even this figure may well be an underestimate, as the ceramic building material from a number of these sites has yet to be fully catalogued.

One of the few areas where relief-patterned tile is notably absent is in the interior of the fort. This is not too surprising as there is, as yet, no evidence for the use of relief-patterned tile from any military building in Britain.

However, the Cheapside bath-house close to the fort may have been built for military use and relief-patterned tiles were used in what may be a military bath-house at Saalburg fort in Germany (Section 14).

Listed below are the numbers of fragments of relief-patterned tile found on sites in London. It is clear from this list that most sites produce only between one and five specimens. Only six sites have produced more than twenty fragments and these are discussed in more detail below.

Number of Tiles	Number of sites
1–5	79
6–10	11
11–15	3
16–20	4
>20	6

Excavations at Huggin Hill baths in the 1960s and 1989 (Fig. 21a, sites 28 and 40; latter not illustrated as adjacent to site 28) have produced 43 fragments of relief-patterned tile. However, this figure may rise as the remaining building material from the 1989 excavations is washed and recorded. Only four dies are represented; dies 5A, 27, 42 and 85. There seems little doubt that tiles keyed with these four dies were used in the bath complex, although as none was found *in situ* there is no indication when they were installed. The baths are believed to have been constructed in the Flavian period and underwent a number of substantial modifications before deliberate demolition sometime in the mid-late 2nd century (P. Rowsome pers. comm.).

Excavations at Cannon Street Station (Fig. 21a, site 14) in 1988 produced 24 fragments of tile representing 11 different dies (12, 16A, 23, 24, 36, 71, 84, 85, 89?, 113 and 116), together with one diamond and lattice pattern of uncertain type. Many of these would originally have formed part of the heating system of a large monumental building, the so-called Governor's Palace, which stood on the site.

A large number of different dies was also found at Watling Court (Fig. 21a, site 92), excavated in 1978. This produced 44 fragments of relief-patterned tile, the majority of which were keyed with dies 40 and 70. Ten other dies were present (dies 3, 5, 5A, 12, 27, 32, 37, 42, 69 and 71) together with two unidentified plain chevron and four diamond and lattice designs. Only three dies (40, 69 and 70) were found in Roman levels, and it is

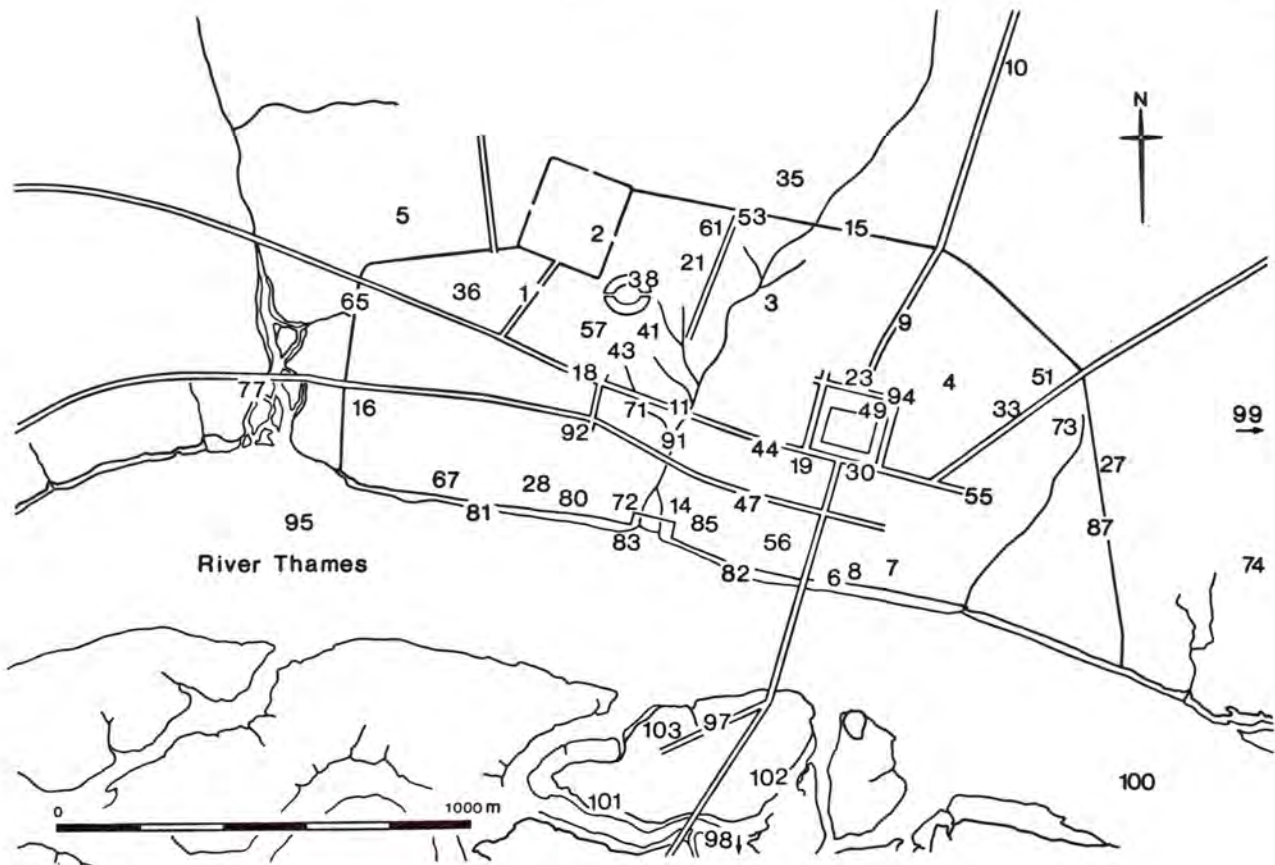


Fig. 21a. Distribution of relief-patterned tile in London

No Map	Site Name	No Map	Site Name
1 /A	Abacus House/33-39 Gutter Lane (ABC87)	26 /B	9 Crosswall (XWL79)
2 /A	58-63 Aldermanbury (AMB87)	27 /A	16 Crosswall/America Square (ASQ87)
3 /A	Angel Court/30-35 Throgmorton Street (ACW74)	28 /A	Dominant House, 85 Queen Victoria Street (DMT88)
4 /A	Baltic House, Leadenhall Street	29 /B	Dowgate Hill House/Upper Thames St/14-16 Dowgate Hill (DGH86)
5 /A	St. Bartholomews Hospital	30 /A	5-12 Fenchurch Street (FEN83)
6 /A	Billingsgate Market Lorry Park/Lower Thames Street (BIG82)	31 /B	47-49 Fenchurch Street (FEC80)
7 /A	Billingsgate Bath House/100 Lower Thames Street (GM111), (BIL75), (BBH87)	32 /B	93-97 Fenchurch Street (FST85)
8 /A	Triangle, Billingsgate Buildings/101-110 Lower Thames St (TR74)	33 /A	107 Fenchurch Street (FCS87)
9 /A	28-34 Bishopsgate, London (BOP82)	34 /B	Foster Lane
10 /A	158-164 Bishopsgate (OPS88)	35 /A	Finsbury Circus
11 /A	DLR Shaft/Bucklersbury (BUC87)	36 /A	GPO, middle area, Newgate Street (POM79)
12 /B	9-11 Bush Lane (GM210)	37 /B	55-60 Gracechurch Street (Midland Bank) (GM69)
13 /B	48-50 Cannon Street (CS75)	38 /A	Guildhall Art Gallery/Guildhall Yard (GAG87), (GYE92)
14 /A	Lloyds Buildings, Cannon Street Station (North side) (LYD88)	39 /A	Guildhall House, 81-87 Gresham Street (GDH85)
15 /A	Capel House, 54-62 New Broad Street (CAP86)	40 /-	Huggin Hill (GM80): not on map, adjacent to site 28.
16 /A	52-54 Carter Lane (CAT86)	41 /A	11 Ironmonger Lane (GM219)
17 /B	100-116 Cheapside, (Sun Life Assurance) (GM37)	42 /B	24-25 Ironmonger Lane (IRO80)
18 /A	Cheapside, west of St. Mary Le Bow	43 /A	36-37 King Street (KNG85)
19 /A	29-32 Clements Lane, London (CLE81)	44 /A	King William Street
20 /B	9 Cloak Lane (CKL88)	45 /B	King William street
21 /A	Coleman Street	46 /B	Laurence Pountney Lane (LPL73)
22 /B	50 Cornhill	47 /A	6 Laurence Pountney Lane (LAU85)
23 /A	62 Cornhill (CIL86)	48 /B	Leadenhall Court/Gracechurch Street (LCT84)
24 /B	2-3 Cross Keys Court (OPT81)	49 /A	Leadenhall Market
25 /B	6-7 The Crescent (CST85)	50 /B	East India House, Leadenhall Street
		51 /A	71-77 Leadenhall Street/32-40 Mitre Street (LEA84)
		52 /B	27-30 Lime Street (IME83)

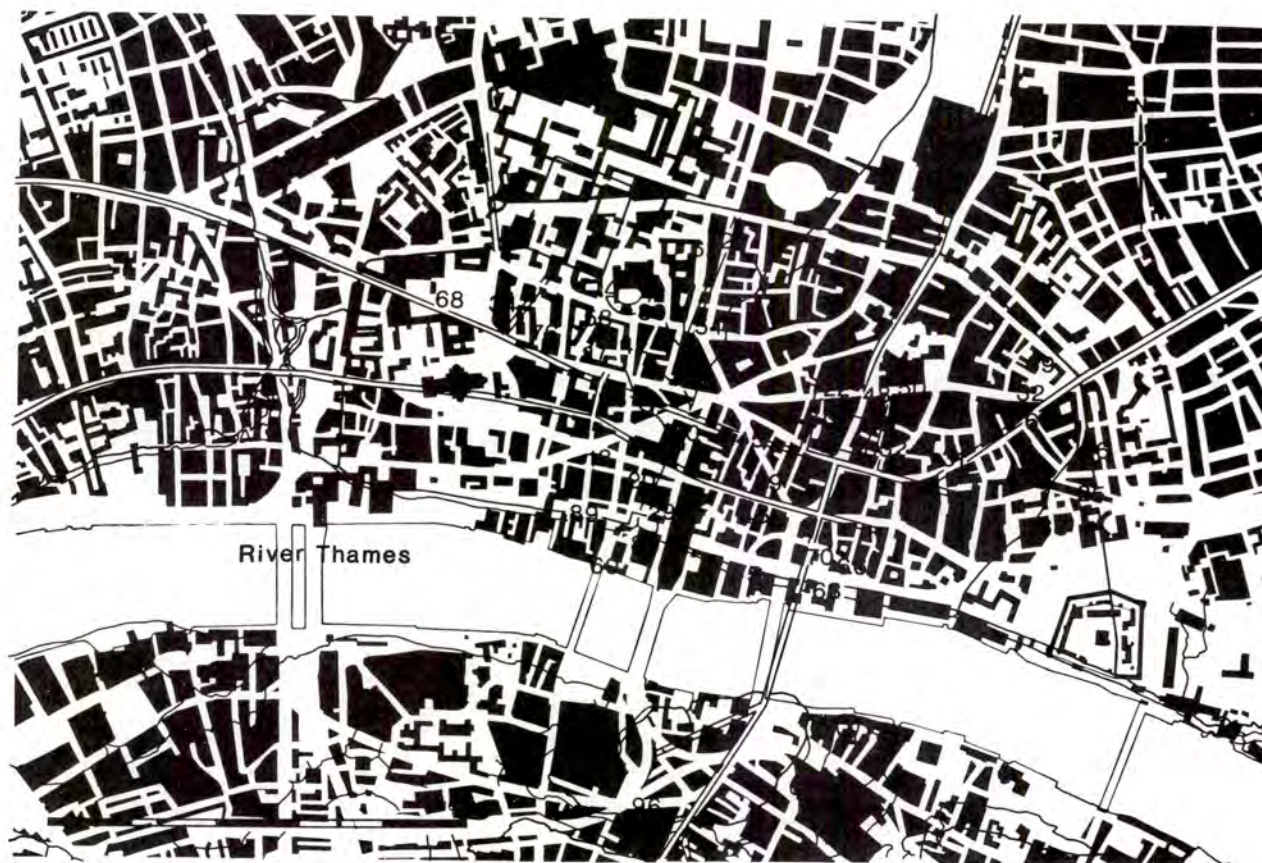


Fig. 21b. Distribution of relief-patterned tile in London

No Map	Site Name	No Map	Site Name
53 /A	44 London Wall (LDW84)	79 /B	Stafford House, King William Street/Cannon Street
54 /B	DLR Shaft, Lothbury (LHY88)	80 /A	Beaver House/Sugar Loaf Court (SLO82)
55 /A	Mark Lane	81 /A	Sunlight Wharf/Upper Thames Street (SUN86)
56 /A	Miles Lane/132-137 Upper Thames Street (ILA79)	82 /A	Swan Lane Car Park/95-103 Upper Thames Street (SWA81)
57 /A	1-6 Milk Street (MLK76)	83 /A	Thames Exchange Buildings (TEX88)
58 /B	10 Milk Street (MIL72)	84 /-	Lower and Upper Thames Street: not on map, exact location not known.
59 /B	Mitre Square/10-11 Mitre Street (HTP79)	85 /A	152 Upper Thames Street (site of Bush Lane) (GM25)
60 /B	North bank of Thames, east of Southwark Bridge (MFS76)	86 /B	Upper Thames St/Dowgate Walbrook Wharf (Public Cleansing Depot) (GM156)
61 /A	55 Moorgate (MGT87)	87 /A	Trinity Place
62 /B	49 Moorgate/72-73 Coleman Street (MOG86)	88 /B	Trinity Square
63 /B	New Fresh Wharf, Lower Thames Street (NFW74)	89 /B	68 Upper Thames Street (VRY89)
64 /B	9 Northumberland Alley (NHA86)	90 /B	Walbrook
65 /A	Old Bailey Central Criminal Court (GM131)	91 /A	Bucklersbury House, 11-20 Walbrook
66 /B	Peninsular House/112-116 Lower Thames Street (PEN79)	92 /A	Watling Court, 41-53 Cannon Street (WAT78)
67 /A	Peter's Hill/Castle Baynard Street/Upper Thames Street (PET81)	93 /B	Well Court/44-48 Bow Lane (WEL79)
68 /B	Post Office/Newgate Street (GPO75)	94 /A	1-7 Whittington Avenue (WIV88)
69 /B	Midland Bank, 33-34 Poultry	95 /A	Blackfriars Underpass (boat) (GM181)
70 /B	Pudding Lane/118-127 Lower Thames Street (PDN81)	96 /B	Calverts Buildings, 15-23 Southwark Street, Southwark (CB80)
71 /A	40-66 Queen Victoria Street (GM135)	97 /A	Cathedral Crypt, Southwark (SCC77)
72 /A	61 Queen Street (QUN85)	98 /A	Chaucer House, Southwark (CH75)
73 /A	Rangoon Street/61-65 Crutched Friars (RAG82)	99 /A	Hooper Street (HOO88)
74 /A	Royal Mint (MIN86)	100 /A	South bank of Thames, near London Bridge
75 /B	Seal House/106-108 Upper Thames Street (SH74)	101 /A	near Red Cross Way/Thrale Street, Southwark
76 /B	St. Albans House, Wood Street (ABS86)	102 /A	11-19 St Thomas Street, Southwark (11STS77)
77 /A	St. Brides Church, Fleet Street (WFG62)	103 /A	Winchester Palace, Southwark (WP83)
78 /-	St. Magnus, New Fresh Wharf/Lower Thames Street (SM75): not on map, adjacent to site 63.		

possible that the design classed as die 70 may actually be part of die 40. They were all from Hadrianic or Antonine contexts, and are almost certainly residual. There is no evidence for masonry buildings with hypocaust heating at Watling Court (Perring et al 1991).

At Pudding Lane (Fig. 21b, site 70) 21 fragments of tile were recovered, representing five different dies: 3, 6, 9, 13 and 58 (16 examples) and one plain chevron pattern of uncertain type. The flue tiles keyed with die 58 are believed to have been used in the masonry buildings constructed behind the Roman waterfront in the late 2nd century and subsequently modified in the 3rd and 4th centuries (Milne 1985, 31).

South of the Thames, excavations on the site of Winchester Palace, Southwark (Fig. 21a site 103), revealed 178 fragments of relief-patterned flue tile. The earliest tile is keyed with die 116 and came from a floor make-up dated *c* AD 70–120 in a clay and timber building (Building 9, Room B).

The majority of relief-patterned tiles were found in the destruction debris of two hypocausted masonry buildings (Buildings 13 and 14). Building 13 was constructed after *c* AD 120 and demolished *c* AD 250 or later (B. Yule pers. comm.). Flue tiles keyed with four die patterns (dies 9, 13, 40 and 65) were used in the building, and there are single specimens of tiles keyed with with two other dies (dies 4 and 85) which may also have been used in the same building. A summary of the tile present is listed below:

Die Type	Duct between Rooms A & C	Room B	Room A/B	Room C	Room D	TOTAL
4	—	—	—	1	—	1
9	15	2	5	86	1	109
13	—	—	—	6	—	6
40	—	1	—	—	—	1
65	—	7	—	—	—	7
85	—	1	—	—	—	1
?	—	1	1	—	—	2

The solitary specimen of tile with die 40 is clearly reused as it was found in a wall repair. Similarly, most fragments of die 65 came from the foundations of Room B, and there is no evidence that flue-tiles with this die were used as heating flues in Building 13.

Building 14 has a *terminus post quem* of AD 150–250 and was demolished *c* AD 287, or later. From demolition rubble of Room A came single specimens of tiles keyed with dies 9, 58 and 65. The demolition material in Room B included tiles with dies 65 (14 specimens) and 90 (1 specimen). There was also a small mortar-covered fragment which could not be identified. A further specimen of die 65 came from robbing of the south-west wall footings of Building 14.

The other relief-patterned tiles from Winchester Palace comprise dies 3, 4 (both 1 specimen), 9 (17 specimens), 12, 13, 16?, 40 (all 1 specimen), 65 (4 specimens), 88 and 90 (both single specimens). The die type of one small fragment could not be identified.

South of Winchester Palace lies the site of Calverts Buildings (15–23 Southwark Street), (Fig. 21b, site 96) which produced a total of 32 relief-patterned flue tiles. The earliest, die 58, came from a floor make-up in Building 6, a clay and timber hypocausted building dated *c* AD 90–120.

Seven flue tiles were found in late Roman robber trenches dug into the hypocaust of a masonry building (Building 7) constructed in AD 150–200 and probably demolished by the late 3rd or 4th century. There seems little doubt that these tiles originally formed part of the building. Four die types were present: dies 3 (three specimens), 4, 11 and 12 (two specimens).

The other die patterns found on flue tiles at Calverts Buildings were dies 13 (two specimens), 108? and 116, together with further examples of dies 3 (three specimens), 11 (three specimens) and 12 (seven specimens). In addition there were seven tiles which are too small or worn to identify the die patterns present, although one is of 'W-chevron', type.

Section 11: dating methods

When Lowther published his catalogue in 1948, almost no dating evidence was available for the majority of die patterns. Today, many of Lowther's die stamps are at least provisionally dated, although the quality of the dating evidence varies widely. There has been less success in determining the date of many of the dies found since 1948. This is partly due to many dies being found at comparatively fewer sites than those die patterns published by Lowther. Generally, the more sites at which a die is found, the more likely that at least one site will supply dating evidence. In addition, dating is not yet available for many dies found in London in the late 1980s and early 1990s.

A number of types of dating evidence are used in the dating section accompanying each die in the corpus catalogue, each of which varies in its reliability.

Context Dating

Context dating is the term given to tiles found in a dated feature or layer in excavation, and *in situ* in a building or structure.

Tiles found *in situ* in a building should, in theory, provide the most secure dating evidence. However, this is not always the case. Even if the date of building construction is known, box flue-tiles and other tiles with relief-patterned keying could have been added after the initial work, or have been reused in a later re-build.

The number of tiles which have been found *in situ* is very small, and even some of these are poorly dated (see corpus for details).

1) Ashted Common villa, Surrey

- Die 1(?) (Exp.1) Lowther states that tiles with die 1 were found in one of the rooms, but this cannot be confirmed.
- Die 4 (Exp.1) Many specimens found in Room 6.
- Die 5 (Exp.1) Partition between Rooms A and B of the bath-suite attached to the villa house.
- Die 6 (Exp.1) Used as *pilae* in Room 6 and in a channelled hypocaust in Room 4.

2) Docklands Light Railway Shaft, Lothbury, London

- Die 3 (Exp. 22) In wall of hypocausted building.
- Die 12 (Exp. 23) As above.

3) Batten Hanger, Elsted villa, Sussex

- Die 19 (Exp. 11) Reused as *pilae* in the *caldarium* of a late Roman bath-suite.

4) Angmering bath-building, Sussex

- Die 19 (Exp. 2) From a detached bath-building probably belonging to a villa.
- Die 21 (Exp. 3) From the bath-building. The same tile is also keyed with die 19 (Exp. 2).

5) Billingsgate bath-building, London

- Die 23(?) (Exp. 13) In the west wall of the *caldarium* of the bath-building.
- Die 71 (Exp. 1) As above.

6) Lullingstone villa, Kent

- Die 69 (Exp. 3) From the hot-bath of Room 22 of the bath-suite.

7) Upmarden villa, Sussex

- Die 87 (Exp. 1) Two complete tiles from Room 4 of Building 1.

The majority of dating evidence comes from tiles which have been excavated from dated layers or features. Regrettably, a high proportion of such dating is of little use since the tiles are residual in contexts of later date.

Circumstantial Dating

Circumstantial dating is the term given when tiles which come from an undated feature or layer can be related to a structure of known date. This is especially useful on rural sites such as villas where flue tiles can be assumed to have been used in a particular suite of rooms or in a bath-house. In this case, the tiles can still be assigned a

conjectural date even if they are found in layers not directly associated with these heated rooms.

Dating by Association

Certain dies are repeatedly found together on a number of different sites, and this raises the possibility that they are contemporary in date. This means that if one die is dated, then a similar date can be suggested for other dies with which it is associated. The reliability of dating by association is obviously less than that for other kinds of dating evidence. However, it does provide the only dating evidence for a small number of die patterns.

Dating by Fabric Association

A number of die groupings, based on the fabric types discussed in Section 9, have been determined. Each group almost certainly represents tiles manufactured at the same tilery or tile-making area. Thus, they are all likely to be contemporary, or nearly so, particularly if only a small number of die types is present. This means that such dies can be provisionally dated by their association with dated die patterns which occur on tiles in the same distinctive fabric.

Fabric Groupings

Where dies occur in more than one fabric type, individual example numbers have been used to denote which belongs to the fabric group under discussion.

- Fabric Group 1. Dies: 19–24, 37, 40, 60, 70, 83, 86, 87 (Exps. 2, 3), 95, 96 (Exps. 1, 2, 4), 109, 111–113.
- Fabric Group 2. Dies: 2 (Exps. 1, 2, 4, 6, 9), 11 (Exps. 1, 2, 6, 11)
- Fabric Group 3. Dies 44, 63
- Fabric Group 4. Dies 12 (Exp. 22), 16 (Exp. 1)
- Fabric Group 5. Dies 64, 123
- Fabric Group 6. Die 73
- Fabric Group 7. Dies 25, 53, 56, 92

Progressive Wear of Die Patterns

Additional dating evidence can be derived from the study of the condition of the recessed part of the pattern on tiles keyed with the same die. Where they show progressive wear of the die a relative chronology can be established, even if the die itself is undated. Regrettably, very little work has been done on the amount of wear visible on the majority of die patterns; nor, more importantly, has any experimental work yet been carried out to ascertain the rate at which rollers wear in normal use.

Die patterns showing evidence of roller wear include die 16. Lowther (1955) noted that examples at Wall and Canterbury were stamped when the roller was fresh and unworn; at Chelmsford the roller was showing signs of wear; at Godmanchester further wear was evident; whilst by the time it was used on tiles supplied to Braughing the roller was exceedingly worn. Another roller showing progressive wear is that used for die pattern 22. It is unworn at Angmering, very worn at Wiggonholt, and possibly recut at Arundel.

At some point during the use of die 13, a crack opened up on the roller. The tiles with the cracked die 13 are therefore later than those keyed with it before the crack appeared. Specimens both with and without this crack have been noted at Leicester. A similar crack has been noted on an example of die 49 from Piddington (Exp. 2), and on die 84 from London (Exp. 3).

Recutting of Dies

Dies which have been recut provide an additional form of dating. The recut roller die must be later in date than the original roller die. However, the usefulness in dating is limited by the fact that it is impossible to know for how long the dies were used before they were recut. It is also extremely difficult to determine whether a die is a recut, or whether it is a close copy of an existing die.

The dies showing evidence of recutting are:

- 1) Definite recut dies:
 - Die 5A recut to die 5
 - Die 6 recut to die 7
- 2) Probable recut dies:
 - Die 64 recut to die 123
 - Die 66 recut to die 78
 - Die 69 recut to die 80
 - Die 113 recut to die 24
- 3) Possible recut dies:
 - Die 1 recut to die 110
 - Die 20 recut to die 21
 - Die 22 recut to die 109
 - Die 58 recut to die 35
 - Die 59 recut to die 31

A number of plain chevron dies from London and Canterbury have two distinct bottom surfaces: dies 41, 118 and Group 9 (Exps. 4 and 12). On the illustrations of these dies the lower surface is shown black whilst the higher surface is left white. Such a feature would result if some of the original top surface of the pattern on a roller was trimmed away in the course of being recut. It is also possible that accidental damage to the roller produced the same effect.

Similarity of Die Patterns

Some die patterns are very similar in design. It is possible that they were made by the same die-maker, particularly if they frequently occur together on the same sites. This would suggest that they are contemporary, or nearly so. Dies showing marked similarities in pattern are listed below (excluding possible re-cuts):

Diamond and Lattice Designs:

Dies 16, 16A, 108, 119

Dies 18, 46, 84, 85, 89, 115

Dies 79, 82

Plain Chevron Designs:

Dies 36, 106

Dies 42, 93

Billet Designs:

Dies 104, 105

Diamond and lattice dies 79 and 82 are known only from London whilst billet dies 104 and 105 are found only at St Albans and Staines. Plain chevron dies 42 and 93 occur only at sites in London and Canterbury. Plain chevron dies 36 and 106, on the other hand, occur on a number of sites but are found together at St Albans. The other diamond and lattice groups showing similarities in design occur on a wide variety of sites and for these a contemporary, or near contemporary, date is far less certain.

One of the authors (EWB) has studied the chronological development of die patterns in relation to the available dating evidence. Full details of this work, including discussion of the distribution patterns and the organisation of the Roman relief-patterned tile industry, are contained in Black (1985, 353–376) and Black (forthcoming 2).

Section 12: Experimental work

Preliminary work has been carried out on the production of an experimental roller based on the patterns found on Roman relief-patterned tiles.

Mr 'Woody' White, a professional woodcarver, has carved a roller based on the Lowther drawing of die 4 to test how easy it would be to cut such a complex pattern on a cylinder. Beech was chosen as the wood, and the pattern was drawn onto paper which was then attached to the blank roller. Using a sharp knife the pattern was cut

through on to the roller. The paper was then removed and the areas that needed to be removed were cut out with a chisel. The whole operation took a little over three hours and the pattern produced by the roller was found to be very close indeed to the pattern on the tiles. Mr White felt that the carving of any of the patterns in the original Lowther publication would be relatively simple using this method.

Section 13: literate patterns

One of the unkeyed tops of several 'Westhampnett' type voussoirs visible in the exterior of the south chancel wall of Westhampnett church has a graffito *CALVI*: 'of Calvus' (Tomlin 1979, 251 No. 96) or *CALV.F*: 'Calv(us) made (this)' (RIB II 1993, 119). Calvus is a Roman *cognomen* and it is therefore possible that a Roman citizen was named on the tile. However, *peregrini* (non-citizens) could also adopt Roman *cognomina*, and Tomlin (1979, 237) has warned against making the assumption that all names on tiles were the names of tile-makers rather than of more or less casual visitors to a tile-works. A further intriguing possibility exists, since *Calvus* is not only a name but an adjective meaning 'bald'. The unkeyed top of the voussoir may have suggested to some joker a chance to mock the baldness of a fellow tile-maker. If this was the case, we can sympathise with his victim but the graffito does not then provide us with a name. However, it gives us something more valuable, since the ability to joke in Latin, if this is what the graffito shows, attests a relatively high level of competence in the language.

The Westhampnett voussoir with the graffito probably had relief-patterned keying since others built into the church were keyed in this way. It shows a competence in Latin in the earliest period of relief-patterned tile production, although at this period there were no literate designs. It is a reasonable inference that the need to produce such designs, attested later, indicates that changes had occurred in the organisation and/or the scale of tile production.

Die 31 is an advertisement, reading *parietalem Cabriabanu(s) farbicavi*: 'I Cabriabanus manufactured (this) wall-tile' (RIB II 1993, 91). Cabriabanus may have used the adjective *parietalis* for several different types of tile designed to be attached to or to rest on walls, rather than for one particular type. However, it seems more likely that the missing substantive was intended to be *tubum* or *tubulum*, the accusative case of the noun (*tubus*) meaning a pipe. Ceramic pipes were generally used to conduct water but *tubus* was also used from the third quarter of the 1st century AD to refer to box tiles forming flues in hypocaust systems. Seneca (*Epistulae*

90.25) refers to *inpressos parietibus tubos* when he wants to specify the latter and it is easy to see how this circumlocution could have been supplanted by *tubus parietalis* and then by *parietalis*. *Tub()* is found unqualified and written in what is possibly the same hand on tiles from Wiggonholt and Battern Hanger in West Sussex (Winbolt and Goodchild 1940, 66–7 and information from J. Kenny). Although a different adjective, *cuniati*, is certainly used for voussoirs in the Wiggonholt graffito, the tiles keyed with die 31 were voussoirs and it seems that the term (*tubum*) *parietalem* was also applied to these. Despite the transposition of b and r in *farbicavi* and the Celtic name of the tile-maker (Holder 1896, col.666: where the reading is given as *Cabriabantus* and other names with the root *Cabr(i)* - are listed), the advertisement is consistent with other indications (eg. Tomlin 1979, 247 (no. 47); 249 (no. 80); 251 (no. 100)) that Latin terms were used in referring to tiles, and presumably for other aspects of the tile-making industry. *Cabriabanus* probably appears again in the design of die 59. Although only a small part of the original pattern survives, the die seems to have the same letters as die 31.

Die 63 has the letters *PXTXP* preceded by a leaf-stop. The two saltires were presumably also intended as stops. The final P seems to have been cut originally as F. The combination PTF immediately recalls the series of stamps found on tiles in the Cotswold region of which the main centre of production was the tile-works at Minety in Wiltshire (McWhirr and Viner 1978; Darvill 1979). The stamps (*TPF*, *TPFA*, *TPFB*, *TPFC*, *TPFP*) are usually found on *tegulae*, but Clifford (1955, 70) records a *TPFP* stamp on a box-tile from the Lillyhorn villa. The interpretation is aided by a series of stamped bricks from Lincoln used in a bath building thought to belong to the period of the foundation of the colony, probably towards the end of Domitian's reign (Petch 1962, 68). The series is *LVLA*, *LVLD*, *LVLE* and *LVLF*. Bogaers (1977, 277) has restated the suggestion (*contra* Todd 1966) that the constant first three letters refer to the owner of a civilian tilery. He has proposed that the last, variable, letter 'might refer to a special kiln or to part of the production of the

kiln, or most probably they could be an abbreviation of the *cognomen* of a person who, in the service of the owner, was responsible for a part of the production of the tiler in question' and he draws a comparison with the TPF series of stamps. Since all the final letters in the four stamps from Lincoln come in the first six letters of the alphabet, and three out of five of those from Minety also do so, it looks more likely that a simple alphabetical sequence was being used to denote a particular kiln or section of a tile-works. The *TPFP* stamp could include the abbreviated *cognomen* of a tile-maker or the proper name of part of the clay-workings in an abbreviated form.

Both LVL and TPF could be the initial letters of the *tria nomina* of Roman citizens who owned or managed tile-works. However, die 63 suggests that TPF may be rather more complicated. The die was cut originally as PTF, which transposes the first two letters occurring on the series of stamps from Minety. The final F was then changed to P. From this it seems that there was a connection between the letters on die 63 and the Minety series of TPF stamps, and also that the combination TP was the important element which could serve as a trademark (for a well-established product). In this case the initial P in die 63 will have become redundant after the die was altered. The replacement of F by P indicates that F was not so important, and cannot therefore have been part of the *tria nomina* of the tile-works' owner, least of all his *cognomen*. It is suggested that TP represents the *nomen* and *cognomen* of the tile-works' owner or manager which someone wished displayed on die 63.

That the letters PT rather than TP appeared in the original version of die 63 was presumably because the die cutter and the tilemaker who wanted the die cut were not the same person. Oral instructions for the order would have allowed scope for carelessness. The habit in Gaul and Britain of treating the *nomen* as a patronym which might change from generation to generation, rather than as a familial name that was constant, may explain the error (cf RIB 67 from Silchester: a dedication by Titus Tammonius Vitalis son of Saenius Tammonius). F could stand for *F(ecit)*: (he) made (this), but Wiseman (1979, 225) has pointed out that if this was the case it would be expected to occur as the final letter, which it does not in the Minety stamps *TPFA*, *TPFB*, *TPFC* and *TPFP*. The letter F also occurs on Roman brick stamps of the 1st and 2nd centuries as an abbreviation for *Fig(u)linae* ('clay workings') in the formula *EX F(igulinis)*, followed by the name of the clay pits or of their owner (Helen 1975, 37–75). Helen (1975, 74) also notes the use of *F*, *FIG*, *FIGL* and *FIGVL* to stand for *Figulinum (Opus)*, and this seems a possible expansion for the F in the TPF series of stamps. TPF will then stand for *T(.....) P(.....) F(igulinum Opus)*: 'the tile product of

T(.....) P(.....)'. The initials of the *nomen* and *cognomen* will not represent an individual tile-maker, nor necessarily the owner of the *figulinae*, but more likely the *officinator*, the individual who organized and managed tile production by one group of workers at Minety (cf Helen 1975, 48–9). The letters A, B, C and P distinguished locations and/or individuals within the production. Detail of this sort will not have held any interest for customers so that the stamps at Minety must be regarded as codes or checks applied in the manufacturing process, and not as an advertisement. However, in die 63 the letters are accompanied by elaborate stops and these make it likely that die 63 was intended as an advertisement. The leaf stop was in fact also used rarely in literate mortarium stamps which were intended to advertise the products of an individual potter or a group of potters (Hartley 1972, 377, Fig. 146, No. 36).

The form of the letters in die 63 cannot be closely matched in the series of stamps from Minety, though there are some general similarities, and the elaborate stops are absent. Nor do the fabric and distribution of the tiles keyed with die 63 match those of Minety products. The link between die 63 and the Minety stamps, if it existed as proposed here, is therefore not straightforward nor easily explicable.

Die 6 has the initials *G.I.S.* separated by inverted triangular stops above the confronted figures of a wolf and stag that form the main elements in the design. Below are the letters *I.V.FE*. The first set has been explained as the initial letters of the *tria nomina* of the citizen owner of a tile-works, and the second set as the name of the tile-maker:

I(.....) V(.....) FE(cit); 'I(.....) V(.....) made(this)'. Since there is no *praenomen* beginning with I, I.V. must represent *nomen* and *cognomen*. If *G.I.S.* represent *tria nomina* then both men may have shared the same *nomen* and it is possible that the tile-maker I.V. was a freedman of *G.I.S.* (Black 1985, 362). There is a fair likelihood that the actual names were *G(aius) I(ulius) S(.....)* and *I(ulius) V(.....)* (Black 1987, 65 and pers. comm. P. Wiseman). Again on the analogy of Roman brick stamps, the status of I.V. may have been somewhat more elevated. As an *officinator* he may have managed the operation of the manufacture for his patron *G.I.S.*

Die 13 incorporates the letters *I.V.T.* (or *I.V.TO*) and die 33 has the letters *V.I.* In both cases it seems reasonable to derive the letters from the I.V. of die 6, though in die 33 they have been transposed. Although all three dies could have been used by a single tile-maker, it is equally possible that the initials of an *officinator* were incorporated into the designs of dies used by tile-makers working under him, and that I.V. became a trademark and advertisement for their products.

Section 14: relief-patterned tile from other provinces

There has been no detailed search by members of the Relief-Patterned Tiles Research Group for relief-patterned tile from outside Britain but recently Dietwulf Baatz has made a study of such tiles from South Hessen in western Germany (Baatz 1988). All the tiles with relief-patterned decoration noted by Baatz are flat tiles, in contrast with Britain where most relief-patterned decoration is on box flue-tiles or hollow voussoirs.

Five patterns are illustrated by Baatz as shown in figure 22. Each is named after the site at which it was first recorded. Further subdivision is made on the grounds of tile colour. The designs of all five patterns belong to Lowther's "Diamond and Lattice" group.

Figure 23 indicates the distribution of relief-patterned tile in South Hessen. The sites include the military or mansio bath-house at the Saalburg fort, villas at Gross-Umstadt and Haselburg, and civitas capitals at Frankfurt am Main (Heddernheim) and Dieburg. All five patterns

have been found at Dieburg, and four at the villa at Haselburg near Hummetroth.

The dating evidence indicates that production of relief patterned tiles in Hessen occurred in the second half of the 2nd century, and they are thus later than many of the examples found in Britain.

It should be noted that the illustrations in the paper by Baatz do not follow the normal convention of having the raised area shown in white, but have the raised area in black. To avoid possible confusion they are illustrated here in Figure 22 where they have been redrawn using the standard convention.

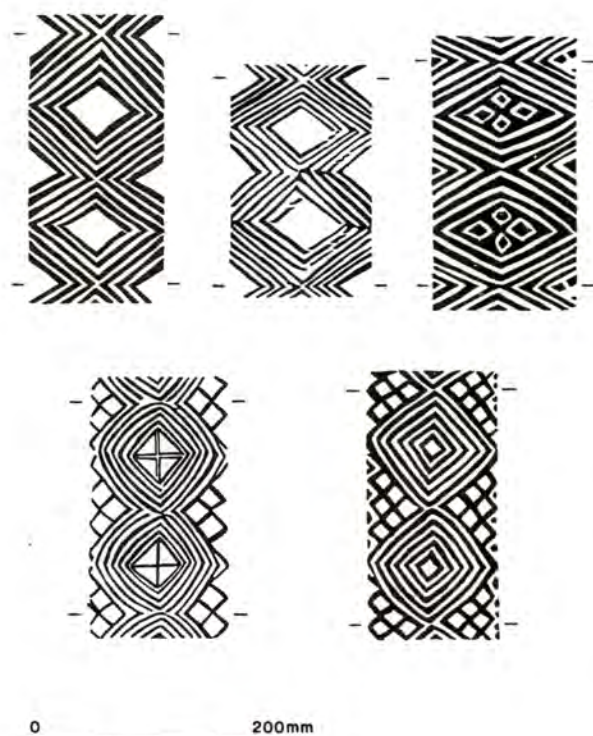


Fig. 22. German relief-patterned tile designs

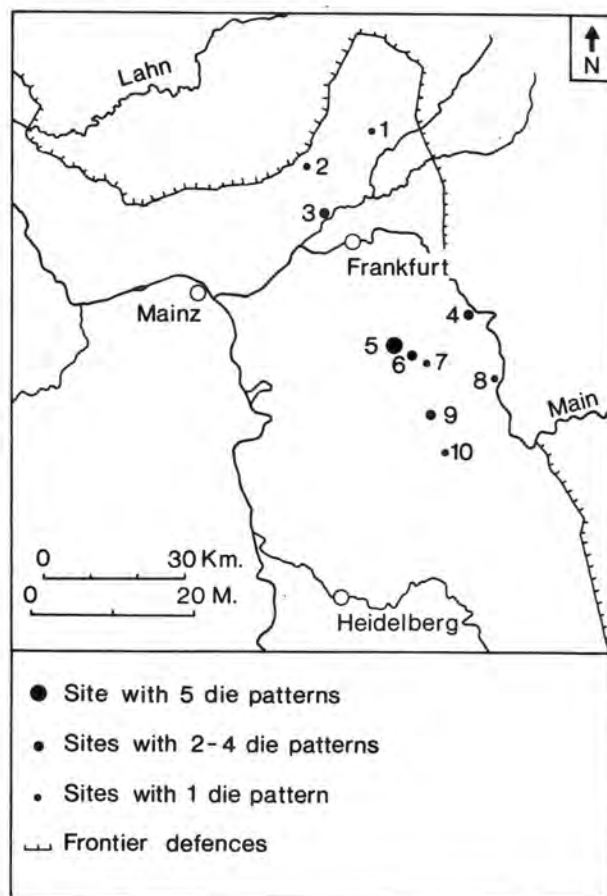


Fig. 23. Distribution of German relief-patterned tile.

1. Friedberg, 2. Saalburg, 3. Frankfurt am Main (Heddernheim), 4. Stockstadt a. M., 5. Dieburg, 6. Gross-Umstadt, 7. Semd, 8. Obernburg, 9. Haselburg bei Hummetroth, 10. Steinbach i. o.

Section 15: relief-patterned daub

M. Russell

Fragments of patterned daub walling, baked in the intense heat of accidental fires, have been recovered from a number of Roman sites, mostly in the south-east of England.

Wattle and daub is a building material which is quick and easy to use, and the early Roman towns of Verulamium, Colchester and London (Fig. 24) all appear to have been substantially built using this method (Frere 1972; Crummy 1984; Marsden 1987). The designs noted upon some pieces of Roman daub walling from these and other sites have been compared to those on relief-patterned tiles, but, unlike the tile, there is some dispute over how the clay patterns were produced. Three methods of impression have been suggested: flat stamps; roller stamps; carved shuttering.

The flat stamp was first suggested by St. John Hope (1902, 25) and Bushe-Fox (1913, 10). Frere (1972, 73–5) was not totally convinced, but suggested that a flat stamp would have been easier to make and operate on daub walls than a roller die. Though comparatively easy to make, the flat stamp is certainly not easier to operate and has been shown to create serious problems with suction (Russell 1988; Russell 1990). Such problems do not occur when using the roller die, which, unlike the direct pressure of the flat stamp on relatively small portions of clay walling, runs the design out in a series of continuous strips.

The main characteristic of a stamp in the form of a roller is therefore a strip of patternation that repeats without signs of overlap. Such continuous strips of patternation have been identified on daub from two sites: Colchester, Essex (Crummy 1984, 20–23; 40) and Fishbourne Harbour, West Sussex (Rudkin 1986, 64) (Fig. 25). At Colchester the keyed area consists of vertical chevron panels 260 mm in width with a 10 mm border. At a vertical interval of c. 210 mm repetition of pattern occurred, (which gives the total circumference of the roller die). With these measurements an attempt to reconstruct both pattern and roller dimensions can be made. (I say ‘attempt’ as it is not known how much the daub has shrunk during the baking process. All measurements are thus the minimum dimensions of the roller). Its diameter was 67 mm and its width 260/280 mm (Russell 1988, 20–21; 26–27; Russell

1990, 93–5). At Fishbourne Harbour the roller dimensions were smaller: 110 mm in width, 47 mm in diameter (Rudkin 1986, 64; Russell 1988, 20–21; 28–29).

Carved shuttering, a recent idea, involves liquified daub being poured in between two chevron moulded boards (Wickenden and Drury 1988 84–86; Crummy 1984, 23). This theory can be discounted at Colchester, where it was originally suggested (Crummy 1984, 23), as the pattern preserved here has been shown to repeat continuously in strips, a characteristic of the roller die, and also at Chelmsford where areas of pattern can be seen to overlap (Wickenden and Drury 1988, 86). The idea as a whole can probably be discounted when the logistics of liquifying and pouring clay-daub into a mould are compared to the simple effort of direct key application with a roller.

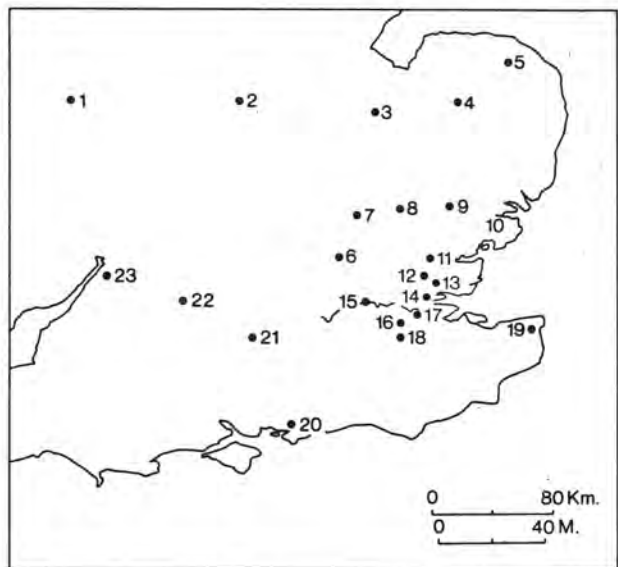


Fig. 24. Distribution of relief-patterned daub in 1988.
1. Wroxeter, 2. Leicester, 3. Grandford, 4. Ashill,
5. Bampton, 6. St Albans, 7. Baldock, 8. Great
Chesterford, 9. Gestingthorpe, 10. Colchester,
11. Chelmsford, 12. Billericay, 13. Wickford, 14. Mucking,
15. London, 16. Lullingstone, 17. Springhead, 18. Titsey,
19. Richborough, 20. Fishbourne, 21. Silchester,
22. Wanborough, 23. Frocester

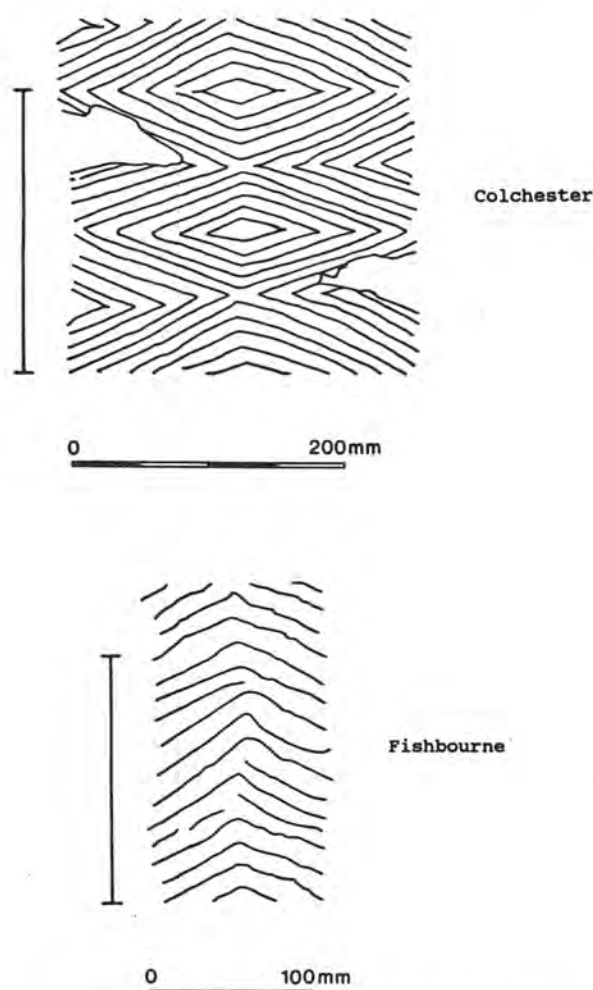


Fig. 25. Die patterns on relief-patterned daub from Fishbourne and Colchester

What positive evidence there is points towards the use of a roller in the keying of daub walls (Russell 1990, 96–7). It is therefore important to understand whether daub patterns can be equated in any way with the established patterns of tiles: any firm connection between the two would mean that theories concerning “tile-stamp” firms operating in distinct areas would need re-evaluation.

Between 1986 and 1988 the patterns on both tiles and clay walls were studied to see if any similarities were evident and to see how closely, if at all, the designs on the clay (Fig. 26 a-c) could be fitted into Lowther’s nine tile Groups (Russell 1988, 30–40). For the comparison 97 die types (dies 1–16 including 5A and 16A, dies 18–50, 53, 55–75, 77–97, 99 and 100) were compared to relief-patterned daub from 20 British sites (Lullingstone, Springhead and Richborough in Kent; Verulamium (insulae XIV and XVII) and Baldock in Hertfordshire; Colchester (Lion Walk), Mucking, Billericay, Gestingthorpe, Chelmsford and Sheepen in Essex; Silchester in Hampshire; Wanborough in Wiltshire; Fishbourne in West Sussex; Ashill and Brampton in Norfolk; Wroxeter

in Shropshire; Leicester in Leicestershire; Grandford in Cambridgeshire (Fig 24); and the sites of Lombard Street, 160–2 Fenchurch Street and 25–6 Lime Street in London). The results can be summarised as follows:

(i) There are definite die patterns that appear specifically on tiles or specifically on daub. No examples from Lowther’s tile Groups 1, 2, 3, 4, 6 or 8 have yet been found on daub. Likewise patterns on the daub such as the “Greek Key” designs from Grandford and Mucking (Fig. 26b), the “Diamond and Lattice” variations from London, Billericay, Wanborough and Chelmsford (Fig. 26a-b) and the “Diamond and Lattice/Chevron” combinations from Springhead (Fig 26a) have no parallels amongst the tile.

(ii) Though some “Diamond and Lattice” and “Chevron” daub patterns can be closely compared with examples on tile, none are completely alike. As the designs from these groups are essentially quite simple and easily reproducible, it would be surprising if one or two did not have a superficial resemblance to each other.

(iii) The groove and ridge size on the clay patterns is generally larger than that on the tile (despite the fact that the daub may have shrunk more from its original state during the accidental baking process).

At present, therefore, not one single die pattern used on clay walling can be directly related to one used on tile. This suggests that daub and tile stamping were separate activities.



Fig. 26a. Main designs found on relief-patterned daub



Fig. 26b. Main designs found on relief-patterned daub

This being the case, were the patterns on daub walls intended to be seen? Certainly the designs on the walls of building 8, Lion Walk, Colchester (Crummy 1984, 23) appear unnecessarily elaborate. Patterned daub from Ashill, Norfolk (Fig. 26c) has been described as decorative (Gregory 1973, 268–69) and lack of plaster on relief-patterned clay walls from Fenchurch Street and Newgate Street, London, has led to the belief that these too were intended to be seen (Marsden 1987, 96; Perring *et al* 1991, 85).

A crucial point is being missed here. The buildings excavated at Verulamium, insula XIV (Frere 1972), Fenchurch Street, London (Marsden 1987) and Lion Walk, Colchester (Crummy 1984) are interpreted as shops, block-built by a planning authority. The chance that later tenants would want, or could afford, to have their shop plastered was an eventuality which would have to be catered for, and daub walls can only be plastered if they have first been keyed (by roller, trowel or comb). Keying is only possible while the daub is still wet. In other words, keying can only be undertaken during the building process.

Plastering can therefore be seen as an optional extra and lack of plaster on patterned daub may now be explained: the later owner could not afford the time or the money to have his rooms decorated in this way. The possibility that keyed walls may have been exposed for some length of time before plastering was evidently realised at Colchester, where an attempt was made to make the purely functional key more visually pleasing.

This design was in fact later covered by plaster (Crummy 1984, 40).

The so-called “decorative” design on the clay-daub from Ashill (Fig. 26c) bears a similarity to tile die 74 (Russell 1988, 41–46; 51). Certainly the size of grooving on both examples exactly matches. As die 74 was intended to act as a key for plaster, there seems little reason to doubt the same functional explanation for the Ashill material.

The idea put forward that keying a clay wall by slashing or combing is quicker to execute and more efficient than a roller has been discredited (Russell 1988, 45–6). Few things disrupt a clay surface as quickly and efficiently for the future application of plaster, than a roller die. Taking this into consideration, relief-patterned daub should not be described as purely “decorative” unless it could be proved that the design in question would not retain plaster if plaster were applied. It may be that some attempt was made to render the daub key more visually pleasing where the length of time it would remain exposed before plastering was not known, but this does not alter the fact that the idea behind relief-patterned clay walling was purely functional.

A.W.G. Lowther first commented on the possible origins of relief-patterned keying, suggesting a Flavian date (Lowther 1948a, 10). Rodwell (1978), Johnston and Williams (1979) and Black (1985) have all largely agreed with this, and certainly no relief-patterned tile has been found in contexts earlier than AD 75. This contrasts with the date for relief-patterned daub.

Shops with keyed relief-patterned daub interiors at Colchester, Sheepen Hill (Niblett 1985, 9–12, 20), and Verulamium have been given a construction date of c. AD 49/50 and those at London slightly later. All these sites were destroyed during the Boudiccan uprising of AD 60/61. The crucial point is that large quantities of

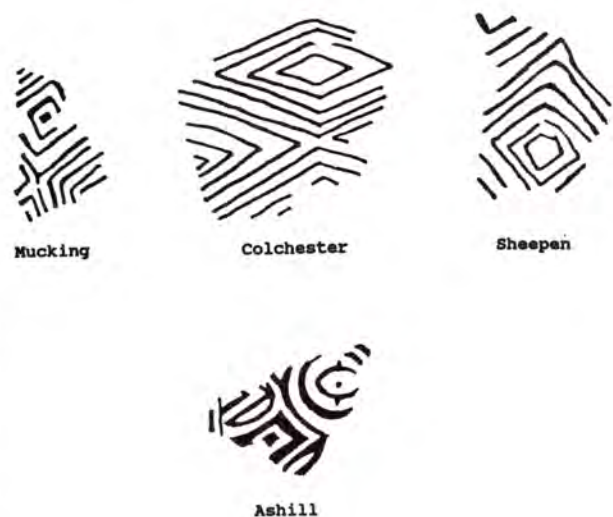


Fig. 26c. Main designs found on relief-patterned daub

keyed daub have been recovered from contexts some 25–30 years older than the first example of relief-patterned tile.

It would seem unlikely that the practice of keying daub with a roller was a spontaneous development, exclusive to Britain. Unfortunately any theories concerning an origin of the practice are dogged by a lack of sufficient continental dating. “Herring-bone” chevrons, scored into fresh mortar or clay to affix a plaster layer, are known on the Continent from many Republican and early Imperial sites. Barbet and Allag (1972, 952–51) wondered whether the practice of scoring developed from a basic Greek idea.

Mortar, impressed with a roller, was recovered from 2nd century AD contexts at Strasburg in France during the 1920s (Barbet and Allag 1972, 952–53). The patterns are similar to examples from Lowther’s Group 9, but the central rosette addition is quite unlike any known design. Small examples of daub keyed with a “W” chevron type design have been recovered from the commandant’s house of the Roman fort at Hofheim, Germany (Ritterling 1913, 43 Abb.13) and from timber structures at Braives in Belgium (Brulet 1981, 188 Fig. 78). The dating from both these sites is confused, but a late 1st century date is probable. Relief-patterned daub from South Hessen in west Germany is discussed and illustrated by Baatz (1988, 77–78).

Relief-patterned clay walling from a town house at Ehls in France (Hatt 1968, 419 Fig. 14 and 421) has been given a date of AD 100–160. The material is very similar to daub from the pre-Boudiccan shops at Verulamium (Frere 1972, 160–62) and therefore to tile die 40 from Lowther’s Group 5.

The probability is that the roller used for keying daub was a constructional tool which was developed (today we would say “marketed”), possibly from small scale European origins for use in the unusually large building schemes of the south-east lowlands of the new province of Britain. The main projects in this new scheme were buildings at Colchester, Verulamium and London in AD 49/50 following the departure of the military. Outside Britain few comparable large scale building projects constructed substantially out of wattle and daub were ever conceived beyond this date. A lack of similar keyed material on the Continent should not, therefore, be surprising.

After *c.* AD 200 we find no examples of relief-patterned daub in this country. It may be that the material is not preserved in the archaeological record, but it may be significant that many new major building schemes were conducted substantially in stone and not in wattle and daub.

It has been shown that not only do relief-patterned tiles appear to post-date relief-patterned daub by *c.* 30 years, but also, in most cases, tile rollers were smaller and more intricately patterned. The reason for this diversification seems clear: the tiles were products of individual tile makers/firms who wished to distinguish their work from that of their competitors. Daub roller designs, however, changed very little from a basic pattern, as keying walls was only a very minor part of the building industry.

It seems reasonable to view daub and tile relief-patterned keying as essentially similar practices (*i.e.* the keying of material for the later application of plaster), with tile-keying having evolved from keying daub, but the two belonging to separate and distinct industries.

Section 16: conclusions

This corpus represents the only complete catalogue of relief-patterned tiles found in Britain since Lowther's pioneer work published in 1948. Much has changed since Lowther's study. The number of dies known has increased from 47 to 124. Certain die patterns which were only known from small fragments (such as dies 5A, 35 and 42) can now be fully reconstructed. In addition, certain drawing errors in Lowther's work can at long last be corrected.

Clearly, future discoveries will lead to further additions and alterations. New material from excavation or the analysis of material from older excavations will, it is hoped, lead to the discovery of yet more die patterns and the reconstruction of those still only partly known. In the case of certain dies, such as 7 and 26, we know no more of the pattern than Lowther published in 1948. It is even possible that certain dies, which are now numbered separately, could turn out to be different parts of the same pattern.

Another area where future discoveries will undoubtedly prove beneficial is in the dating of die patterns. This ultimately depends on the dating of the contexts in which relief-patterned tiles are found, based on other archaeological material such as pottery and coins and, where possible, on the application of scientific methods such as archaeo-magnetic dating (used at Hartfield where tiles keyed with die 5A were produced). A vast amount of dating evidence has been collected since 1948 and whilst some dies (eg die 16) can be dated fairly closely, the same precision is not available for most.

Dating is made more difficult by the lack of information concerning the length of time individual rollers were in use. The rate of wear of dies and techniques for measuring this wear needs to be resolved by practical experimentation. Classification of the amounts of wear of the same die at different sites will, however, allow the establishment of a relative chronology.

Perhaps one of the most valuable advances, hardly used by Lowther, is the technique of fabric analysis. Scientific analysis has been used with great success by the British Museum to characterise the clay used on different production sites manufacturing relief-patterned tiles. This in turn has allowed the origin of relief-patterned tiles on certain "consumer sites" to be determined. Even where funding for scientific analysis is lacking, analysis

of the fabric using a microscope or simple hand-lens can provide vital information. Such analysis has proved particularly useful in plotting the distribution of die patterns on tiles in distinctive fabric types. However, more work is clearly required as the full potential of fabric analysis in the study of relief-patterned tiles has yet to be determined.

The information derived from the analysis of fabric, dating and distribution allows certain overall conclusions regarding relief-patterned tile to be made:

1) There seems little doubt that the technique of keying ceramic tile with roller stamps derived from the earlier practice of using similar types of rollers to key the daub walls of clay and timber buildings. In London, Colchester and St Albans rollers were used to key daub walls before the Boudiccan revolt of AD 60/61. On all these sites roller-keying of fired ceramic tile only occurs after the Boudiccan Fire. When fired ceramic tiles were first keyed by rollers is still uncertain. Certainly it is no earlier than the late 1st century. The only exception may be die 54 which is associated with pottery dated AD 65–85.

In London the keying of clay-walled buildings with rollers continued after the Hadrianic Fire of AD 120/125, but had apparently ceased by the late 2nd / early 3rd century. The keying of fired ceramic tile using rollers seems to have ceased around the same time. The shelly fabric box-flue tile manufactured at Harrold in Bedfordshire during the late 2nd century may have been among the last tiles made in Britain using a roller for keying. Relief-patterned tiles, thought to have been made at Harrold, were found associated with a late 3rd / 4th century baths at Brixworth, but these may well have been reused.

It is not clear at present why the use of rollers for keying apparently fell out of use by the late 2nd / early 3rd century. In the London area part of the explanation may lie in the changes in distribution and supply of ceramic tile which occurred around this time. By the mid / late 2nd century many tile kilns which originally supplied London seem to have fallen out of use, to be replaced in part by tile from more distant sources of supply (Betts and Foot 1994). This change coincided with an increasing tendency to reuse tile from the demolition of existing buildings. The relief-patterned box flue-tile in fabric group 1, of late 1st or early 2nd century date, still *in situ*

in Billingsgate Baths in London, is clearly reused as the baths and attached house were not constructed until the late 2nd or 3rd century. The removal of tile from older buildings for reuse is not a feature confined to London. Relief-patterned tiles keyed with die 4, for example, were found reused in a 4th century bath-house at Cobham, Surrey, whilst at Gadebridge Park villa, Hertfordshire, tiles keyed with dies 35 and 49 were reused as drains in the bath-building, probably sometime in the late 2nd century. Such reuse must have considerably reduced the demand for the manufacture of new relief-patterned tile.

2) The production of tiles with relief-patterned keying would normally have been an integral part of brick and tile manufacture. Fabric evidence indicates that at most production sites relief-patterned tiles were only one of many different tile types produced. A notable exception appears to be the tiling making tiles in fabric group 1, which may have concentrated almost exclusively on the manufacture of *voussoir* and box-flue tiles.

3) Despite their size and weight there is now firm evidence for the movement of relief-patterned tiles over quite considerable distances. Tiles in fabric group 2, for example, moved from the Hertfordshire-Buckinghamshire area to London, a distance of at least 23 km (14 miles), whilst tiles in fabric group 1 are distributed over an distance of 105 km (66 miles). The reason for this movement is very difficult to explain, since even a small quantity of tile would have been difficult to transport long distances, particularly if transport by water was not available.

The importation of box flue and *voussoir* tiles into London during the 1st / early 2nd century is particularly puzzling as there is considerable evidence that the majority of London's tile demands were being met by tileries situated closer to the city (Betts 1987). Perhaps additional supplies from further afield were required to supplement more local production. It was during this period that many of London's large public buildings, such as Huggin Hill baths and the basilica/forum, were constructed, many of which would have required considerable quantities of tile.

In the case of the box flue and *voussoir* tile in fabric group 1, which their distribution suggests were made in south-west Sussex, their movement may reflect the activities of a group of tilers/builders who specialised in the construction of bath-buildings and other buildings with heated rooms. Bath-buildings in particular would have required the services of skilled builders to ensure efficient transfer of heat and the careful regulation of temperature in the various rooms of the baths.

4) As Lowther stated in 1948, the reason wooden rollers were employed to key ceramic tile must have been to facilitate the attachment of mortar or plaster. In this respect relief-patterned keying is no different from other kinds of keying produced by a comb, knife, stick or the tips of the fingers.

However, the presence of the inscription "I Cabriabanus manufactured (this) wall tile" forming dies 31 and 59, and other dies with letters incorporated in their design, indicates that the patterns on relief-patterned tile must have served some additional purpose. Exactly what this purpose was is still unclear. The most likely explanation is that patterns may have been used to mark the work of a particular tilemaker, or alternatively the products of a particular tileworks.

5) The presence of the same die pattern (for example die 12) on tiles in very different fabrics shows that the same die was used at different tileries. In other words, there is now clear evidence that rollers were carried from one tiling to another. The presence of die 5A in two different fabrics from the same villa at Beddingham in East Sussex is further evidence of the complexity in the supply of building materials.

6) The number of sites with relief-patterned tiles has grown from 45 (plus 12 sites in London) in 1948 to the current (1993) figure of 164 (plus 128 sites in London, 25 of which are listed in the appendix). However, their overall distribution is little changed from that described by Lowther. The majority of sites with relief-patterned tiles still lie in south-east England, particularly in the counties of Essex, Hertfordshire, Kent, Surrey and Sussex. This contrasts with the very much smaller number of sites in the Midlands and the West Country. East Anglia is devoid of relief-patterned tile, apart from just two sites in Suffolk. Another area lacking such tiles is the Isle of Wight, which is surprising as there are five sites with relief-patterned tile across the Solent in Hampshire.

London still has the biggest concentration of individual examples and different die patterns, and it is the tile kilns located near London, such as Ashted, Surrey, Brockley Hill, Middlesex and Potters Bar, Hertfordshire, which probably formed the chief production centres for the manufacture of relief-patterned tile in south-east England.

It is possible that new discoveries may modify the geographical distribution of relief-patterned tile, but it is reasonable to suppose that the majority of future specimens will still come from excavations in London and from sites in southern England.

Future research

We hope that excavators, finds workers and researchers will send details of new examples of relief-patterned tile and corrections to this corpus to:

The Relief-Patterned Tile Research Group,
c/o Surrey Archaeological Society,
Castle Arch, Guildford,
Surrey GU1 3SX

This will allow a central corpus to be maintained and updated and this will be available for all to consult by contacting the Group at this address.

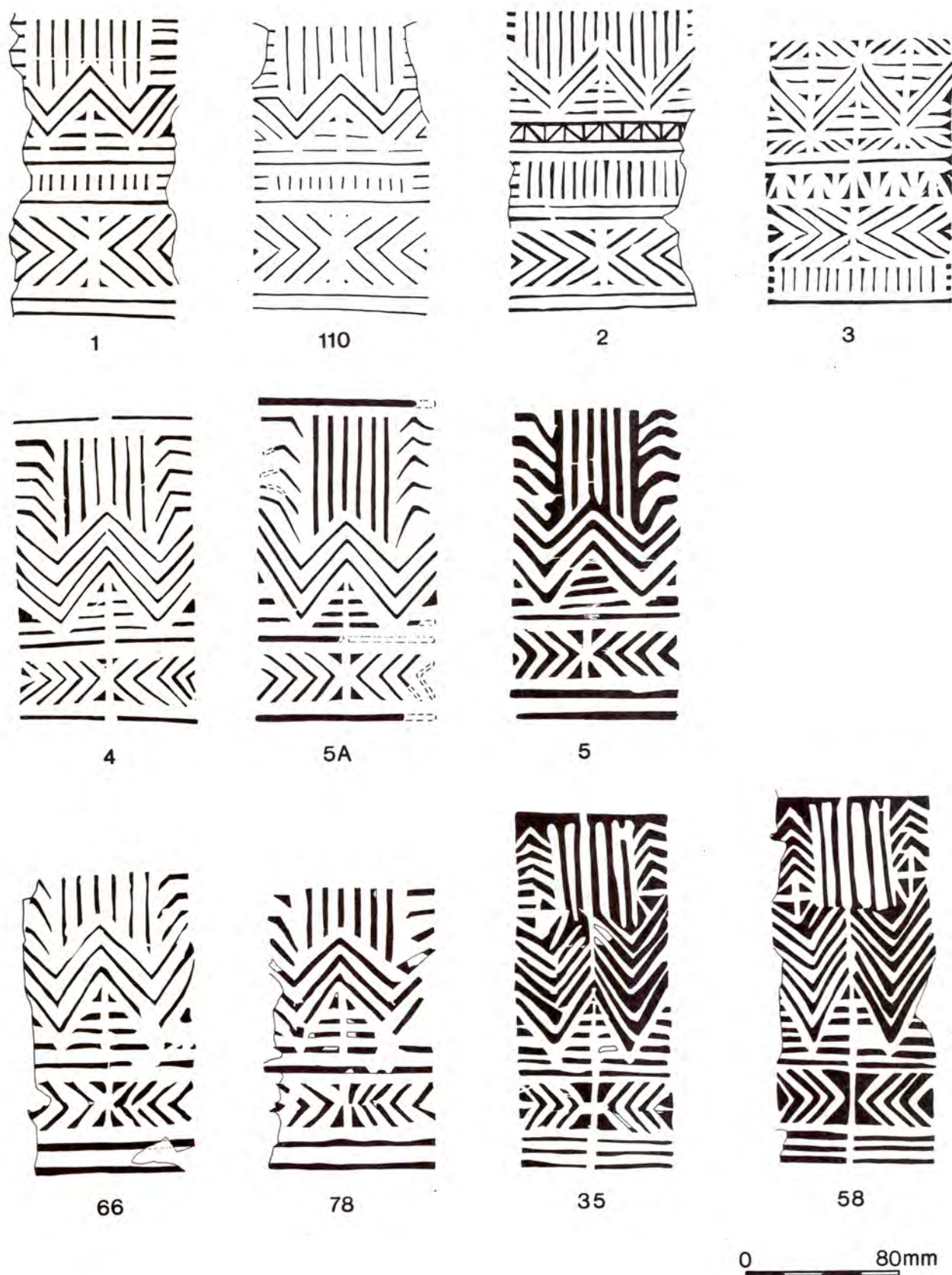


Fig. 27a. W-Chevron designs



31



59



8



9



27



54



63

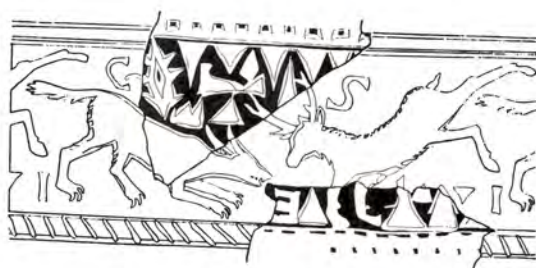


73

0 80mm



6

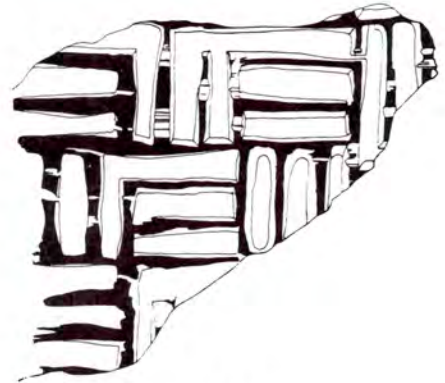


7

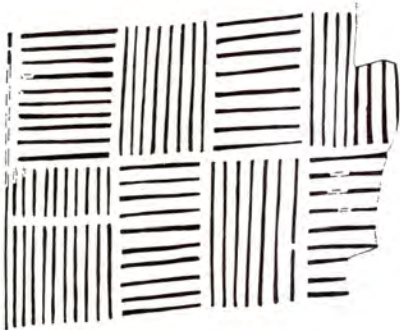
Fig. 27b. Miscellaneous designs (dies 6 and 7 are Lowther's 'dog and stag' group; 8 and 9 are Lowther's 'Florid' group)



24



113



92



25



104



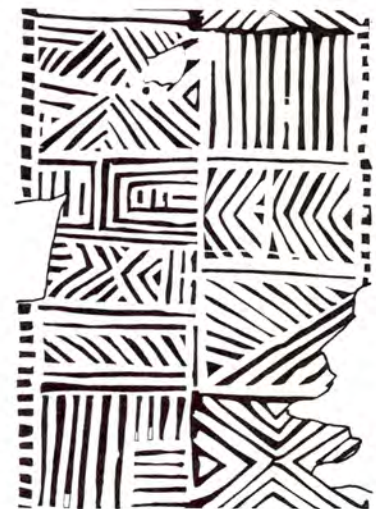
105



53



28



55

0 80mm

Fig. 27c. Miscellaneous designs (Lowther's 'billet' group)

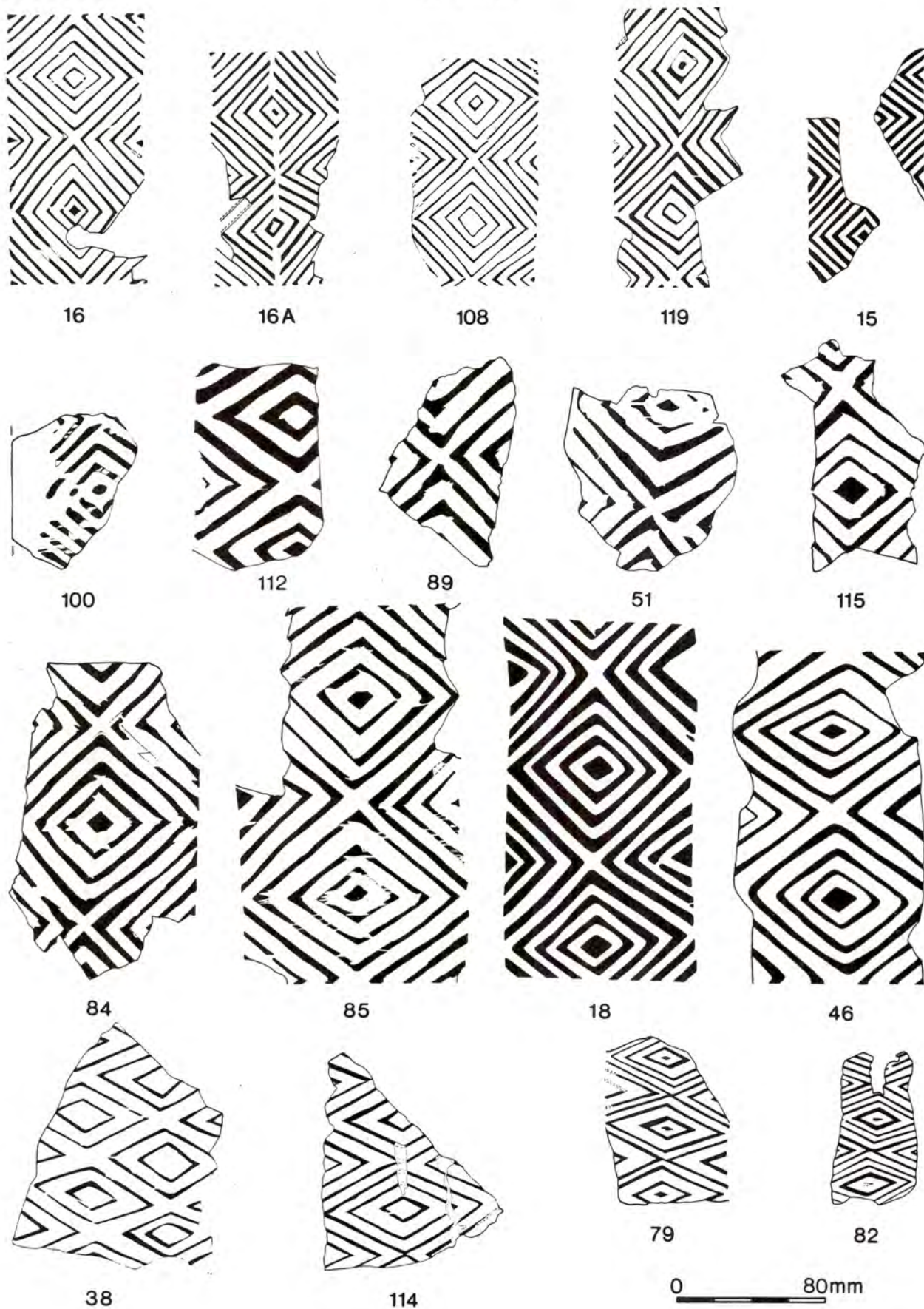


Fig. 27d. Diamond and lattice designs

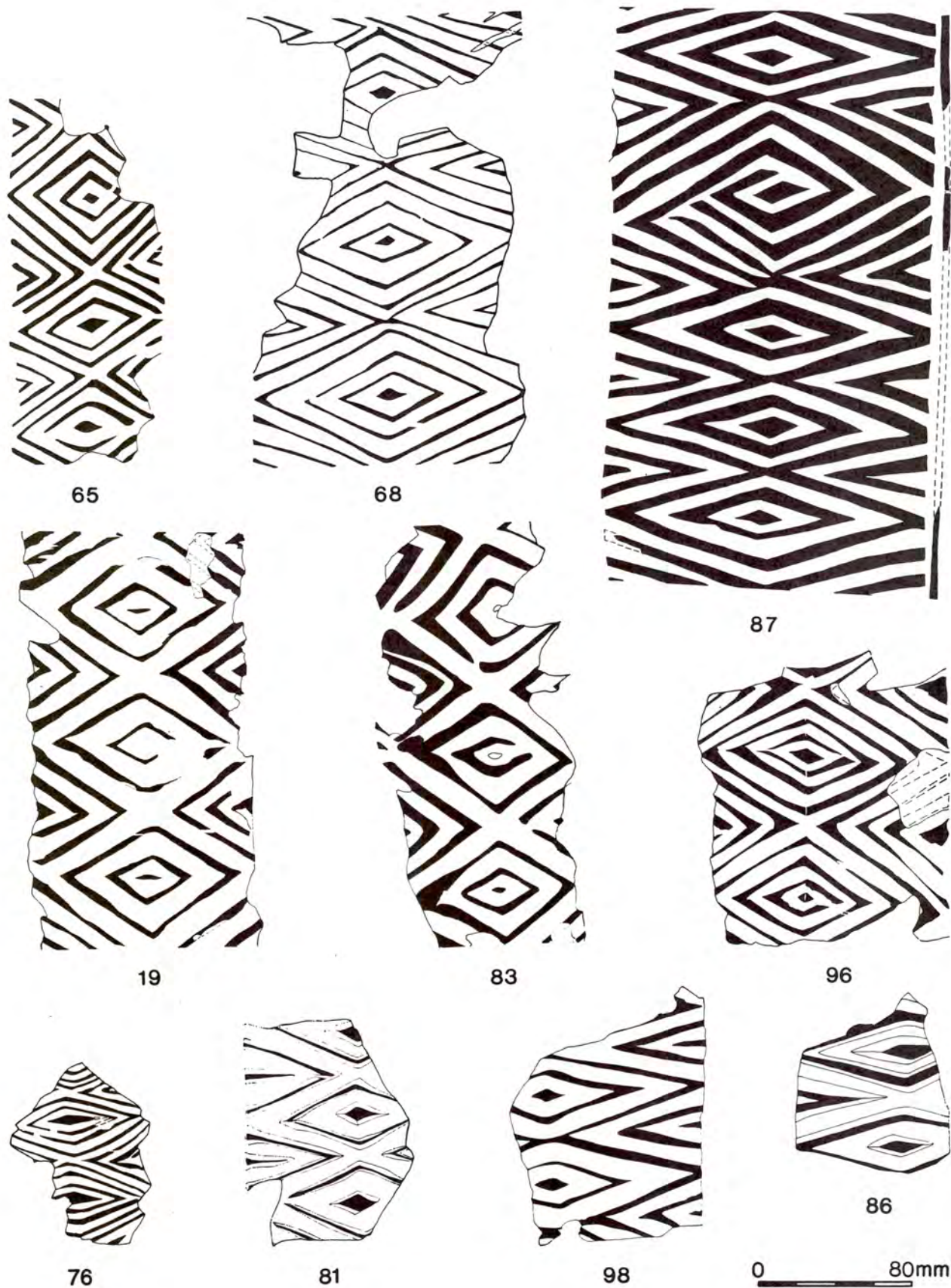


Fig. 27e. Diamond and lattice designs

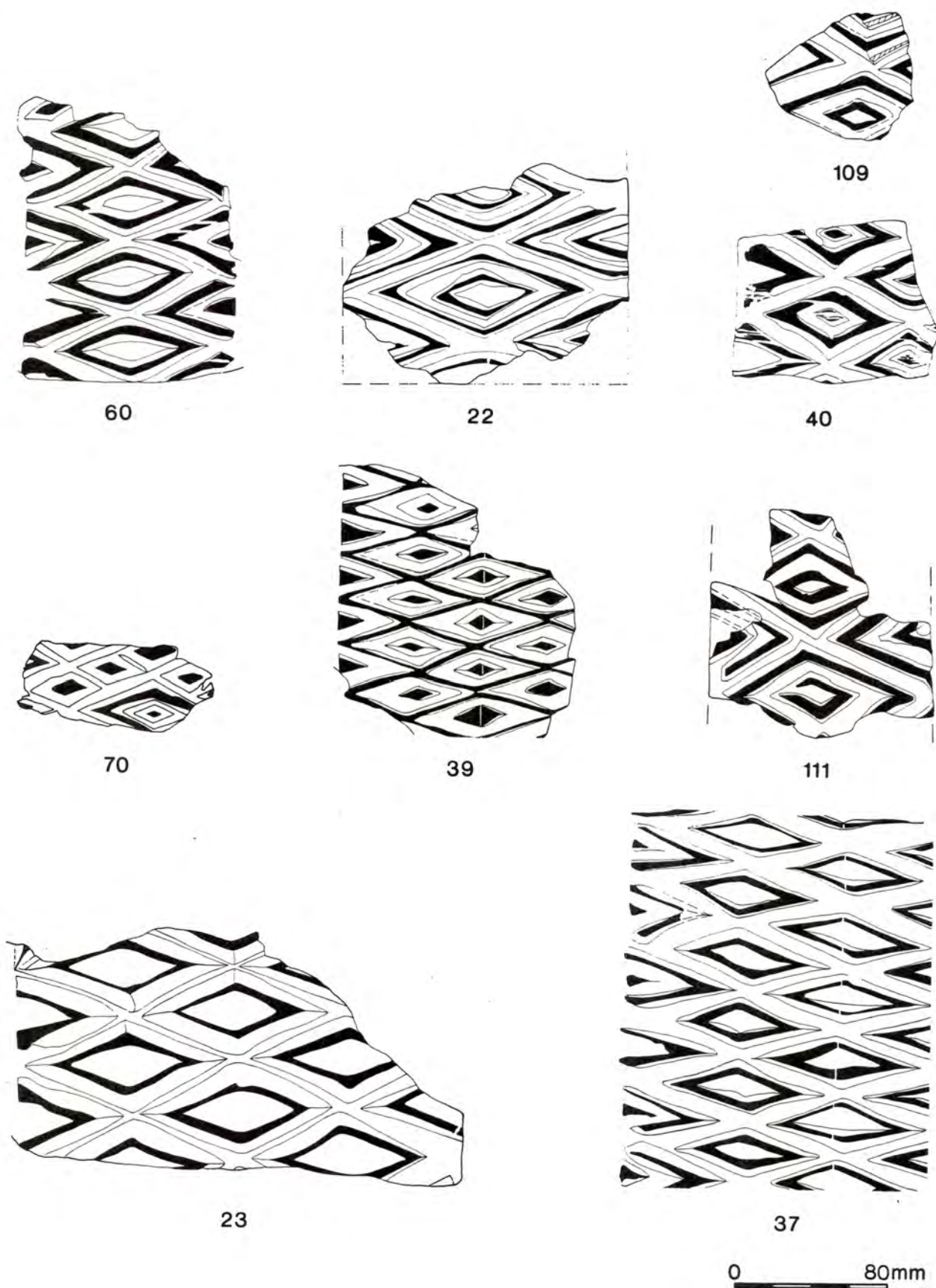


Fig. 27f. Diamond and lattice designs

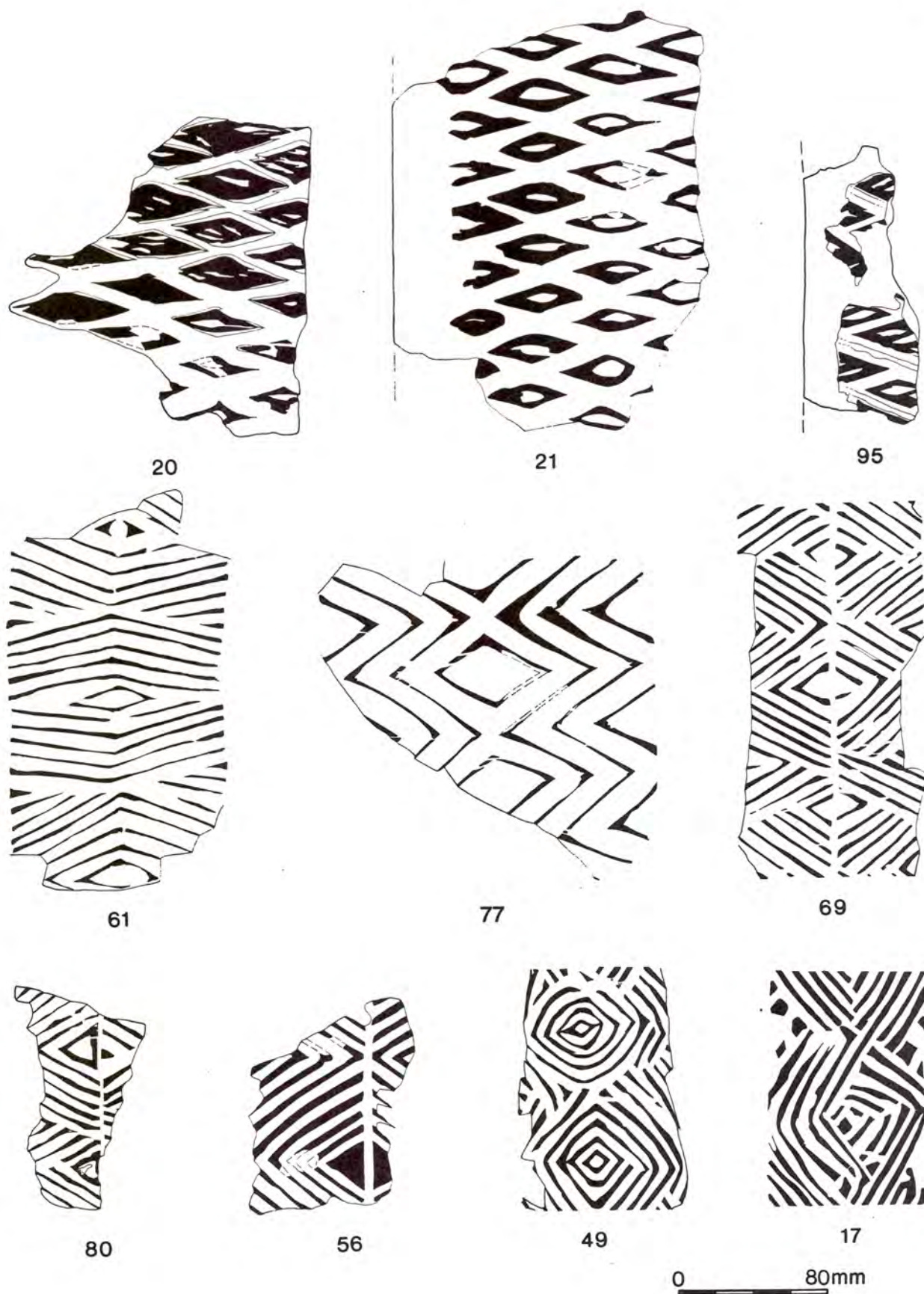


Fig. 27g. Diamond and lattice designs



Fig. 27h. Diamond and lattice and miscellaneous designs
(dies 10 and 11 are Lowther's 'compass' group; dies 32, 33 and 120 are Lowther's 'rosette' group)

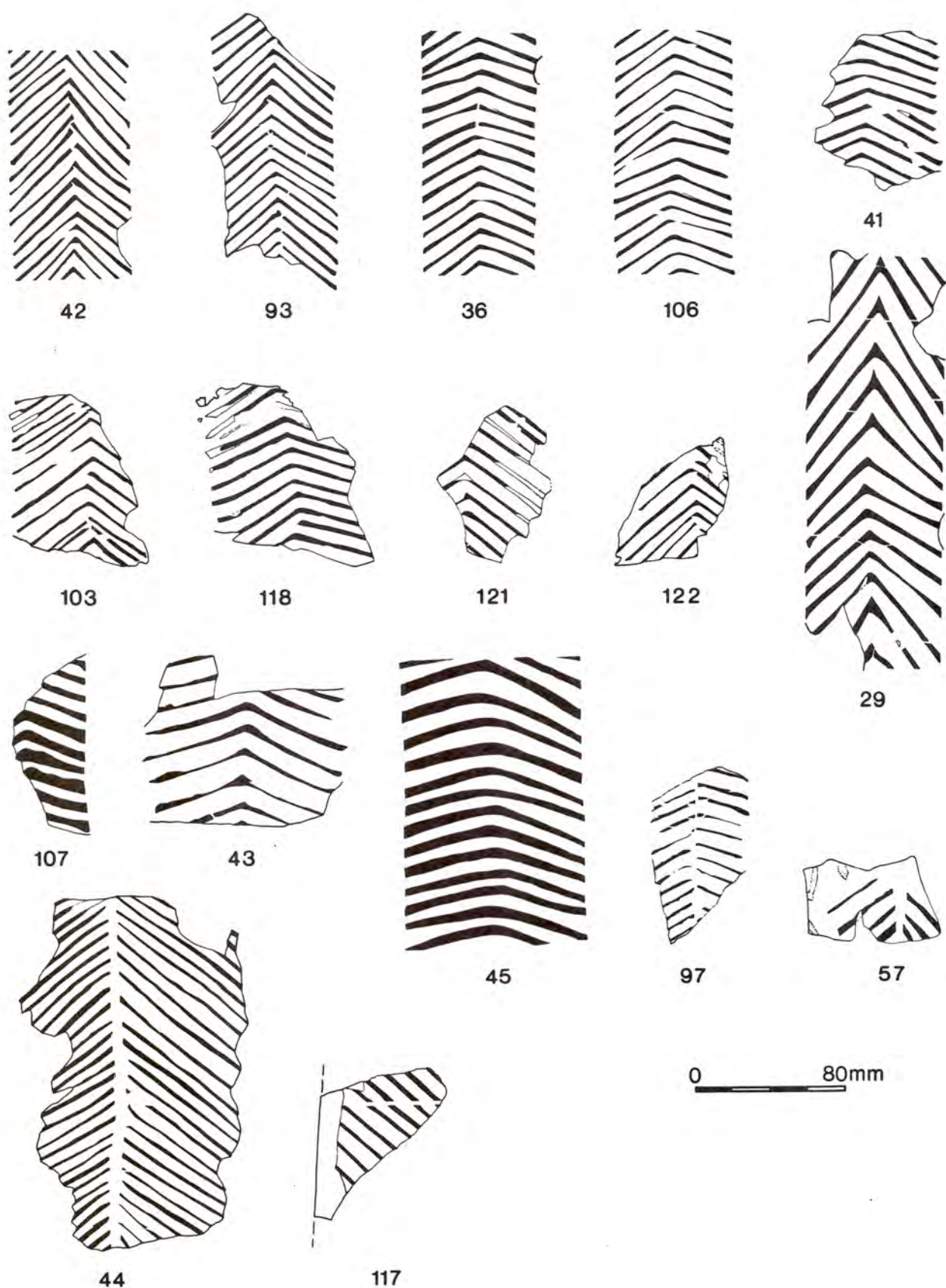
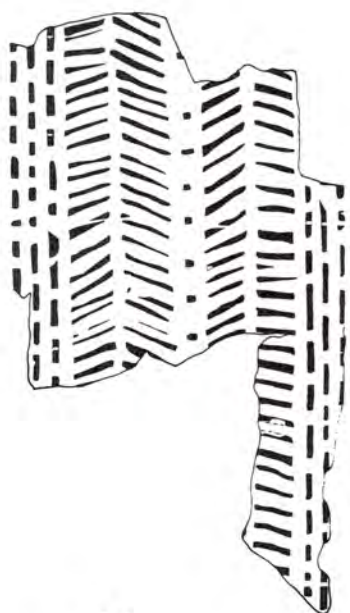
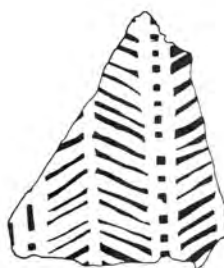


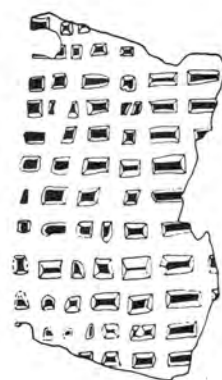
Fig. 27i. Plain chevron designs



64



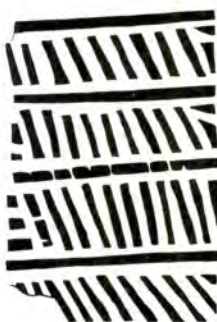
123



116



90



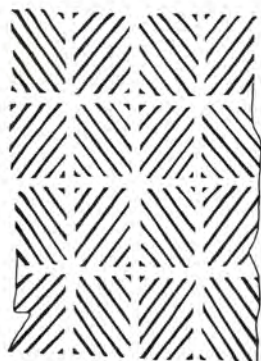
71



101



124



12



99



91



26



102



50



75

0 80mm

Fig. 27j.

Part two: Corpus catalogue

Abbreviations

<i>Un.</i>	<i>Identification uncertain</i>
<i>NPR.</i>	<i>No published reference</i>
<i>S.</i>	<i>The site has produced a single specimen</i>
<i>SS.</i>	<i>The site has produced more than one specimen</i>
<i>Exc.</i>	<i>Excavated find(s)</i>
<i>Fw.</i>	<i>Found in field-work</i>
<i>Cf.</i>	<i>Chance find</i>
<i>Ucd.</i>	<i>Circumstances of discovery not known</i>
<i>*</i>	<i>Examined by a member of RPTRG</i>
<i>Poss.</i>	<i>In possession of</i>
<i>+</i>	<i>Specimen drawn</i>

In the corpus each die found at a particular site is an *example* and has its own number. Each example may comprise a single fragment of tile (a *specimen*) or many fragments. Cities, except for London, have been treated as a single site, so that they are assigned only one example number for each die. An attempt is made to indicate the distribution of the specimens under each example. For London, the large quantity of material has made it seem worthwhile to assign separate example numbers for specimens from different sites within the city, as significant distributions may eventually emerge. Most London examples are stored with other excavated material by site code and this, where allocated, is given at the end of each London entry.

At the head of the list of examples for each die is a summary of the dating evidence. This may include specimens from dated contexts on a site (context dating); the dating of buildings with hypocausts on a site where relief-patterned tiles have been found (circumstantial dating); the presence on the same site (but not necessarily in the same context) of specimens from different dies for which context dating is available elsewhere (dating by association). Where an example comprises several specimens, generally only the earliest context dating is given. Where no context dating appears for a particular example, this signifies that none is available.

It should be noted that only the drawings of dies 5A and 16A represent *separate* die types. All other illustrations such as 40a, 40b and 96a, 96b, 96c (letters in lower case) represent different parts of what are known, or are believed to be the *same* die.

Die 1

There is no context or circumstantial dating.

Dating by association: at Ashted Common (example 1) dies 4, 5 and 6 have a Hadrianic *terminus post quem* (Black 1987, 114–15).

+1. ASHTEAD COMMON, Surrey (villa).

Exc. Lowther 1948a, 11; Hampton 1977, 32 Fig. 4.
SS.*.

Although Lowther states that die 1 was found *in situ* in one of the rooms of the villa, this cannot be confirmed from the excavation reports. Hampton's specimens came from the tile-making area adjacent to the villa.

British Museum; Guildford Museum; Colchester and Essex Museum; Sutton Central Library; Kingston-upon-Thames Museum and Heritage Centre; Poss. J.N. Hampton.

There are three unprovenanced specimens of die 1 (P 1973 4–3 57, P 1973 4–3 69 and P 1973 4–3 233) in the Lowther Collection in the British Museum that are also probably from Ashted Common.

2. Purberry Shot, EWELL, Surrey (roadside settlement).

Exc. Lowther 1948a, 11.
S.*.

Reused as foundation material in a road on the edge of a roadside settlement adjoining Stane Street.
British Museum (two joining fragments).

3. ST ALBANS, Hertfordshire (municipium).

Exc. Lowther 1948a, 11; Wilson 1984, 112–113 Fig. 50 Nos. 1–2.
SS.*

Lowther states that two specimens found in 1930 were unstratified from Insula XIII, Building 2. However, the Wheelers' report contains no reference to such a building (or insula). It is possible he meant Insula III, Building 2. Here a large town house with heated rooms was built after the Antonine Fire and baths have recently been partly excavated in the north corner of the insula. Other specimens of die 1 were also from central insulae (Insulae XXI and XXVII).

The two specimens from Frere's excavations are in Verulamium Museum along with a third specimen from a medieval context. The earlier material listed by Lowther may be among unprovenanced specimens of die 1 in the Lowther Collection in the British Museum.

4. Roake Farm, BROUGHTON, Hampshire.

Fw. NPR.
SS.*.
Poss. D.E. Johnston.

5. The Brede, CHITCOMBE, Sussex.

Ucd. NPR.
SS.

From an iron-working site (A. Rook via D.E. Johnston pers. comm.).

Poss.? A. Scott.

6. WELL COURT (44–48 Bow Lane), LONDON (provincial capital).

Un. Exc. NPR (archive report by I. Betts).
SS.*.

From a post-Roman context.
Museum of London (WEL79).

7. Old Parkbury, RADLETT, Hertfordshire (also known as Harper Lane, RADLETT).

Fw. and Exc. NPR.
SS.

Specimens found in fieldwork in 1955 are referred to in a letter of 24 June 1961 from J.E. Ayto in the Lowther Papers.

B.F. Rawlins established that tile-making took place on the site. (Watford and South-West Herts. Arch. Soc. Bulletin via B.F. Rawlins pers. comm.).

Poss. ? J.E. Ayto.

8. CAPEL HOUSE / 54–62 New Broad Street, LONDON (provincial capital).

Exc. NPR.
S.*.
From a post-Roman context.
Museum of London (CAP86).

9. DOWGATE HILL HOUSE / (Upper Thames Street / 14–16 Dowgate Hill), LONDON (provincial capital).

Exc. NPR.
S.*.
From a post-Roman context.
Museum of London (DGH86).

10. TOTTERNHOE, Bedfordshire (villa).

Exc. Matthews *et al* 1992, 47; 88–90.
S.
From the fill of a hypocausted room (Room 1) on the east side of the courtyard. Construction is undated but robbing took place after c 330/340. The example is part of a voussoir.
Manshead Archaeological Society (ultimately Luton Museum)

Die 2

The drawing of die 2 in Lowther 1948a is inaccurate.
There is no context dating.

Circumstantial dating: example 4 from Boxmoor Villa where the earliest (Period 3) hypocaust is mid 2 cent. (Neal 1976, 65), but the villa's baths have not been found.
Dating by association: at Boxmoor (example 4) dies 14 and 32 were also found.

+1. ST ALBANS, Hertfordshire (municipium).

Exc. Lowther 1948a, 11; Wilson 1984, 112–13, Fig. 50 No. 4.

SS.*.

Specimens come from Insulae II, III, XII, XXII, XXIII and XXVIII in the centre and the east of the city.

The material from Frere's and more recent excavations is in Verulamium Museum.

2. PARK STREET, Hertfordshire (villa).

Exc. Lowther in O'Neil 1946, 97–8 Fig. 23, 4b.

SS.

The specimens came from the debris of a hypocaust dated c 300, and must have been reused.

Lost.

3. SUTTON COURTENAY, Berkshire.

Exc. Leeds 1923, 179 and Pl. XXVI. 2.

S.

The specimen came from grubenhaus IV of the Saxon village. This was situated about 625 metres west-north-west of a villa.

? Ashmolean Museum.

+4. BOXMOOR, Hertfordshire (villa).

Exc. Evans J. 1853, 62; Neal 1976, 85–6 Fig. L No. 116.

SS.*.

The specimen found in the excavations by Neal had probably been reused.

Evans' specimens are in the British Museum and have been examined.

5. Newhall Farm, SARRATT, Hertfordshire.

Fw. NPR.

S.*.

A. Rook via D.E. Johnston pers. comm..

Lost.

6. 2–3 CROSS KEY COURT, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (OPT81).

7. Old Parkbury, RADLETT, Hertfordshire (also known as Harper Lane, RADLETT).

Un. Fw. NPR.

SS.?

A letter of 24 June 1961 from J.E. Ayto in the Lowther Papers refers to specimens of Group 1, possibly dies 1 and 2, found in fieldwork.

Poss. ? J.E. Ayto.

8. 6 LAURENCE POUNTNEY, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (LAU85).

9. KINGS LANGLEY, Hertfordshire (villa).

Exc. NPR.

SS.*.

One specimen came from context A27, the fill of a hypocaust.

Poss. D.E. Miles (ultimately Dacorum Council for the proposed Hemel Hempstead Museum).

10. 68 UPPER THAMES STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (VRY89).

Die 3

Context dating: example 22 from Lothbury, London was found *in situ* in a building believed to be of post-Hadrianic date. At Calverts Buildings, Southwark (example 9) the earliest specimen was found associated with the robbing of a building constructed in 150–200 and demolished by the late 3 or 4 cent.

Dating by association: die 3 is associated with dies 24 and 36 at 152 Upper Thames Street (example 3), dies 4, 11 and 12 at Calverts Buildings (example 9, see Section 10) and die 12 at Lothbury (example 22). The association with die 12 also occurs at Lower Wanborough (example 10).

1. SILCHESTER, Hampshire (civitas capital).

Exc. Fox and Hope 1890, 739 and Pl. XXVII Fig. 4.

S.

Lost (formerly Reading Museum).

2. Unprovenanced, LONDON (provincial capital).

Ucd. Lowther 1948a, 11.

S.

? British Museum.

3. 152 UPPER THAMES STREET (site of Bush Lane), LONDON (provincial capital).

Exc. Marsden 1975, 94 Fig. 42 No. 289 and 96.

S.

From a 4 cent. infilling in Room 15 from the site of what is assumed to be the Governor's Palace.

Museum of London (GM25).

+4. 10 MILK STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

From a post-Roman context.

Museum of London (MIL72).

+5. PUDDING LANE (118–127 Lower Thames Street), LONDON (provincial capital).

Exc. NPR (archive report by F. Pritchard).

S.*.

From a post-Roman context.

Museum of London (PDN81).

+6. PETER'S HILL (Castle Baynard Street / Lower Thames Street), LONDON (provincial capital).

Exc. Betts 1993, 99–100.

SS.*.

From a late 3 cent. dump containing a large quantity of early 2 cent. pottery.

Museum of London (PET81).

7. Unprovenanced, LONDON (provincial capital).

Fw. NPR.

S.*.

The specimen was found on a fly-tip and could derive from the Walbrook, Miles Lane or Peninsular House.

Museum of London (Tile No. 84. 81/2).

8. WINCHESTER PALACE, SOUTHWARK, London (provincial capital).

Exc. NPR.

S.*.

The specimen was unstratified.

Museum of London (WP83).

9. CALVERTS BUILDINGS (15–23 Southwark Street), SOUTHWARK, London (provincial capital).

Exc. NPR (archive report by N. Crowley).

SS.*.

The earliest specimens were found in late Roman robber trenches associated with Building 7. This building was constructed in 150–200 and was probably demolished in the late 3 or 4 cent.

Museum of London (CB80).

10. LOWER WANBOROUGH, Swindon, Wiltshire (roadside settlement with probable mansio).

Fw. NPR.

S.*.

Swindon Museum.

11. RANGOON STREET / 61–65 Crutched Friars, LONDON (provincial capital).

Exc. NPR.

S.*.

From dark earth deposit dated c 350–400.

Museum of London (RAG82).

+12. LAURENCE POUNTNEY, LONDON (provincial capital).

Exc. NPR.

S.*.

From a post-Roman context.

Museum of London (LPL73).

13. WATLING COURT (41–53 Cannon Street), LONDON (provincial capital).

Exc. NPR (archive report by I. Betts).

S.*.

From a post-Roman context.

Museum of London (WAT78).

14. 1–6 MILK STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

From a post-Roman context.

Museum of London (MLK76).

15. GUILDHALL HOUSE/ 81–87 Gresham Street, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (GDH85).

16. FINSBURY CIRCUS, LONDON (provincial capital).

Ucd. NPR.

S.*.

Museum of London (Tile No. A22957).

+17. ST ALBANS HOUSE, Wood Street, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (ABS86).

18. Billingsgate Bath House / 100 Lower Thames Street, LONDON (provincial capital).

Un. Exc. NPR.

S.*.

Museum of London (GM111).

+19. 62 CORNHILL, LONDON (provincial capital).

Exc. NPR.

S.*.

From a post-Roman context.

Museum of London (CIL86).

+20. DOWGATE HILL HOUSE / Upper Thames Street / 14–16 Dowgate Hill, LONDON (provincial capital).

Exc. NPR (archive report by M. Shea).

S.*.

From the infill of a large linear cut, associated with pottery dated 270–400.

Museum of London (DGH86).

21. 58–63 ALDERMANBURY, LONDON (provincial capital).

Exc. NPR.

S.*.

From a post-Roman context.
Museum of London (AMB87).

22. DLR SHAFT / LOTHBURY, LONDON (provincial capital).

Exc. NPR (archive report by D. Malt).

S.*.

Found *in situ* in the west return wall of a masonry building. The tile was installed in the first phase of the building believed to be of post-Hadrianic date.

Museum of London (LHY88).

23. THAMES EXCHANGE BUILDINGS, LONDON (provincial capital).

Exc. NPR.

SS.*.

Museum of London (TEX88).

24. 27–30 LIME STREET, LONDON (provincial capital).

Exc. NPR (archive report by I. Betts).

S.*.

From a post-Roman context.

Museum of London (IME83).

25. 1–7 WHITTINGTON AVENUE, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (WIV88).

26. GUILDHALL ART GALLERY / GUILDHALL YARD, LONDON (provincial capital).

Exc. NPR.

SS.*.

Museum of London (GYE92).

27. 68 UPPER THAMES STREET, LONDON (provincial capital).

Un. Exc. NPR.

S.*.

Museum of London (VRY89).

Die 4

Context dating: example 1 from Ashtead Common has a Hadrianic *terminus post quem* (Black 1987, 114–15), and so has example 13 from Fishbourne where the tiles were used in the east wing baths (Cunliffe 1971a, 179). Example 20 from Winchester Palace, Southwark came from a building constructed after c. 120 and demolished c. 250 or later (B. Yule pers. comm.). The example from nearby Calverts Buildings (example 30) was associated with a building constructed in 150–200 and probably demolished in the late 3 or 4 cent. At Chelmsford example 11 is represented in a context dated c. 120/30–160/75.

Example 15 from Chichester is represented from a slot (B10) at the site of the public baths sealed by a layer of clay containing Hadrianic samian (Down 1978, 140). It has been argued by one of us (EWB) that the slot may have been filled and the clay deposited at the same time so that the pottery would give a *terminus post quem* for the fill of B10 (Black 1985, 374).

Circumstantial dating: example 10 from Beddington Villa where the earliest phase of the baths is provisionally dated c. 180 (Adkins and Adkins 1986, 77).

1. ASHTEAD COMMON, Surrey (villa).

Exc. Lowther 1928, 151–52 and Pl. III.

SS.*.

Many specimens were found *in situ* in Room 6 of the villa. This has a Hadrianic *terminus post quem* and the tiles seem to have been installed in a later building phase. British Museum; Guildford Museum; Kingston-upon-Thames Museum and Heritage Centre.

A specimen of die 4 and a clay holdfast (both marked P 1973 4–3 4), together with twenty specimens (each marked P 1973 4–3 with one of the following numbers: 9, 11, 21, 42, 43, 45, 61, 62, 63, 65, 66, 67, 68, 73, 74, 75, 77, 78, 79 and 144) and three uncertain examples (marked P 1973 4–3 27/47/60) in the Lowther Collection in the British Museum, all unprovenanced, are also probably from Ashtead Common.

2. Ashtead Parish Church, ASHTEAD, Surrey.

Exc. Lowther 1934, 83.

SS.*.

Reused, probably from the villa on Ashtead Common, in foundations of a late Roman building.

British Museum.

3. Windmill Bank, WALTON ON THE HILL, Surrey (villa).

Exc. Lowther 1948a, 11.

S.

The specimen was unstratified. It is not mentioned in the excavation report (Lowther 1950).

Lost.

4. Chatley Farm, COBHAM, Surrey.

Exc. Lowther 1949, 94.

SS.*.

Re-used in 4 cent. bath-house.

British Museum.

+5. STAFFORD HOUSE (corner of Cannon Street and King William Street), LONDON (provincial capital).

Exc. Lambert 1921, 59 Fig. 5.

SS.*.

A complete tile and fragments of another were found, apparently not in a hypocaust.

Museum of London (Tile No. 10746).

6. Farley Heath, ALBURY, Surrey (temple).

Ucd. Lowther 1948a, 11.

SS.*.

The specimen, in the Lowther Collection in the British Museum, is marked "alleged from Farley Heath". Lowther's doubt presumably arose because there is no trace of baths or any other building with a hypocaust in the vicinity of the temple. However, the tile could have been brought in as hardcore or foundation rubble and need not be discounted. It may indicate a nearby site with 2 cent. hypocaust(s).

British Museum.

7. ST ALBANS, Hertfordshire (municipium).

Fw. and Exc. Lowther 1935, 117–18 and Pl. XIV; 1948a,

11. Wilson 1984, 112–13 Fig. 50, No. 5.

SS.*.

From the theatre insula (Insula XV), from Insula XVII, and from the street between Insulae XXVII and XXVIII.

British Museum; Verulamium Museum.

8. Netherwild Farm, COLNEY STREET, Hertfordshire (villa).

Exc. and Fw. Lowther 1948a, 11.

SS.*.

The specimens known to Lowther came from excavations on the site of a supposed tile kiln. Others were collected in fieldwork by M. Biddle (rubblings among the Lowther Papers). More recent excavations by B.F. Rawlins have shown that the supposed tile-kiln was in fact part of a bath-building dating to the 4 cent. Many more fragments of dies 4 and 5 were found reused in this, though the majority of flue-tile fragments were combed.

British Museum; Poss. ? M. Biddle and B.F. Rawlins.

9. RIDGEWELL, Essex (villa).

Exc. Walford 1803, Pl. XIII. 6 (facing pg. 64).

S.

Lowther's identification is based on the drawing in the excavation report, and seems fairly secure.

Lost.

10. Beddington Sewage Farm, BEDDINGTON, Surrey (villa).

Exc. E.W. Black in Adkins and Adkins forthcoming.

SS.*.

The specimen listed by Lowther (1948a, 11) has proved to be die 66, not die 4. However, the recent excavations have produced two small fragments of die 4. The villa baths date to the second half 2 cent.

Poss. Thames Water Authority.

11. CHELMSFORD, Essex (roadside settlement with mansio).

Exc. Lowther 1948a, 11; Drury 1988, 80–84.

SS.*.

From mansio baths. The earliest context (S149) is c 120/30–160/75.

Chelmsford Museum.

12. BECKLEY, Oxfordshire (villa).

Exc. Parker 1862, 188 and Fig. between 186 and 187.

SS.

The identification is based on drawings of two fragments and seems secure.

Lost.

13. FISHBOURNE, Sussex (villa).

Exc. Cunliffe 1971b, 47–9 No. 31 and Fig. 25D.

SS.*.

The tiles came from the East Wing baths which have a Hadrianic *terminus post quem*.

Fishbourne Roman Palace Museum.

14. CANTERBURY, Kent (civitas capital).

Exc. Frere and Stow 1983, 189 Fig. 75.1.

S.*.

Said to be from a rubbish deposit of mid-late 2 cent. but the context C XXII FV 2A was in fact a layer in a 9 cent. pit (Frere *et al* 1987, 125).

Canterbury Museum.

15. CHICHESTER, Sussex (civitas capital).

Exc. NPR (archive report by J. Pilmer).

SS.*.

The tiles come from the public baths and adjoining area between Tower Street and Chapel Street. One specimen came from context B 10. This was a slot which was sealed by a clay layer containing Hadrianic samian (Down 1978, 140).

Chichester Museum.

16. EWELL, Surrey (roadside settlement).

Exc. Likeman 1960.

SS.*.

One tile which was virtually complete and other fragments were recovered from the Graveyard Extension. Two joining fragments are in the British Museum. The whereabouts of the complete tile is not known.

British Museum

17. Pachescham, LEATHERHEAD, Surrey.

Exc. Lowther 1983, 17.

SS.*.

Roman tile was reused in this medieval moated manor about two kilometres from the Ashted villa where robbing took place in early medieval times.

British Museum.

18. Woodlands Park, LEATHERHEAD, Surrey.

Fw. Aldsworth 1966.

SS.*.

Two certain and one possible specimens come from this

late Roman site. The tile may have been brought from the Ashtead villa.

Guildford Museum.

19. Hamper Mills, WATFORD, Hertfordshire.

Un. Exc. Biddle 1961, 81.

S.

The specimen may have been cut as a tessera.

Poss. ? M. Biddle.

20. WINCHESTER PALACE, SOUTHWARK, London (provincial capital).

Exc. NPR.

SS.*.

One specimen was found associated with the robbing of a hypocausted masonry building (Building 13, Room C) constructed after c 120 and demolished c 250 or later. The other specimens came from dark earth and a post-Roman context. (N. Crowley and B. Yule pers. comm.). Museum of London (WP83).

21. 11–19 ST. THOMAS STREET, SOUTHWARK, London (provincial capital).

Exc. NPR.

SS.*.

Museum of London (11STS77).

22. WALTON HEATH, Surrey (villa).

Exc. and Cf. Lowther 1948a, 17; Mann and Williams 1995.

SS.*.

A letter of 17 August 1940 from M.J. Berry in the Lowther Papers refers to the discovery. After Berry's death in the war Lowther corresponded with his parents in an attempt to trace the specimen, but apparently without success. Two further specimens were found in 1994 during minor drainage works on the golf course which overlies the villa. Holmsdale Natural History Club Museum.

23. STOKE d'ABERNON, Surrey.

Ucd. NPR.

S.*.

One specimen is exhibited inside Stoke d'Abernon Church. It is labelled as coming from a Roman villa below the adjacent Manor House. The existence of this villa remains to be proved.

Stoke d'Abernon Church.

24. ALFOLDEAN, Sussex (roadside settlement with probable mansio).

Fw. NPR.

S.*.

Poss. J. Gower (ultimately Horsham Museum).

25. LEADENHALL COURT / Gracechurch Street, LONDON (provincial capital).

Un. Exc. NPR.

S.*.

From Phase 55, north, dated 250–300.

Museum of London (LCT84).

26. Bedens Field, NORTH CRAY, Kent.

Exc. NPR.

SS.

Simple timber buildings stood within individual enclosures. A bath-building was found in one enclosure. A sketch of the specimens by A.J.J. Parsons is among the Lowther Papers.

Lost.

27. UPPER THAMES STREET / Dowgate / Walbrook Wharf (Public Cleansing Department), LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (GM156).

28. THAMES EXCHANGE BUILDINGS, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (TEX88).

29. POST OFFICE / NEWGATE STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (GPO75).

30. CALVERTS BUILDINGS (15–23 Southwark Street), SOUTHWARK, London (provincial capital).

Exc. NPR (archive report by N. Crowley).

S.*.

Found in a late Roman robber trench associated with Building 7. This building was constructed in 150–200 and was probably demolished in the late 3 or 4 cent.

Museum of London (CB80).

Die 5

The drawing of die 5 in Lowther 1948a is inaccurate in some details. Die 5 is a recut of die 5A.

Context dating: example 1 from Ashtead Common has a Hadrianic *terminus post quem* (Black 1987, 113–15), and example 12 from the Tower of London has a *terminus ante quem* of c 190/225 (M. Stone in Parnell 1982, 130; F. Cameron *Ibid.*, 130–31).

Circumstantial dating: example 7 from Latimer villa where the earliest bath-suite is dated c 150/60 (Branigan 1971, 66 and 169); example 9 from Beddington villa where the earliest phase of the baths is provisionally dated c 180 (Adkins and Adkins 1986, 77).

+1. ASHTEAD COMMON, Surrey (villa).

Exc. Lowther 1929, Pl. IV.

SS.*.

Keying on box-tiles 287 mm wide used to support the partition between Rooms A and B of the bath-suite added to the villa which has a Hadrianic *terminus post quem*. British Museum; Guildford Museum; Sutton Central Library; Kingston-upon-Thames Museum and Heritage Centre.

A specimen of die 5 (P 1973 4-3 8) and an uncertain specimen (P 1973 4-3 48), both in the Lowther Collection in the British Museum, are also probably from Ashtead Common.

2. Ashtead Parish Church, ASHTEAD, Surrey.

Un. Exc. Lowther 1934, 83.

S.*.

Reused, presumably from the villa on Ashtead Common. British Museum.

3. Purberry Shot, EWELL, Surrey (roadside settlement)

Exc. Lowther 1948a, 11.

S.

Re-used as foundation material in a road on the edge of a roadside settlement adjoining Stane Street.

Lost.

4. Dood's Farm, REIGATE, Surrey.

Exc. Anon. (1849), 288.

SS.*.

Several complete tiles were found forming a drain. Ordnance Survey records suggest a tile-making site. A small trial excavation near the corner of Doods Way and Wray Common Road in 1989 produced further evidence of tile-making, although no relief-patterned examples were recovered (R. Masefield pers. comm.).

British Museum; Guildford Museum; Holmesdale Society Collection, Reigate; Cambridge University Museum (formerly Braybrooke Collection, Audley End).

5. Titsey Park, TITSEY, Surrey (villa).

Exc. Lowther 1948a, 11.

S.*.

British Museum.

6. ALFOLDEAN, Sussex (roadside settlement with probable mansio).

Fw. and Exc. Lowther 1948a, 11.

SS.*.

Poss. J. Gower (ultimately Horsham Museum); others lost.

7. Dell Farm, LATIMER, Buckinghamshire (villa).

Exc. Burgess 1870, 185 and Fig. between 182 and 183; Branigan 1971, 108-9.

SS.*.

The earliest phase of the villa is mid 2 cent.

Aylesbury Museum and Poss. P.F. Cansdale.

8. Netherwild Farm, COLNEY STREET, Hertfordshire (villa).

Exc. Lowther 1948a, 11.

SS.*.

The specimen(s) known to Lowther came from excavations on the site of a supposed tile-kiln. More recent excavations on the site by B.F. Rawlins have shown that the supposed kiln was in fact part of a bath-building dating to the 4 cent. Many more fragments of dies 4 and 5 were found reused in this, though the majority of flue-tile fragments were combed.

Poss. B.F. Rawlins.

9. Beddington Sewage Farm, BEDDINGTON, Surrey (villa).

Ucd. and Exc. Lowther 1948a, 11; E.W. Black in Adkins and Adkins forthcoming.

SS.*.

The reference in Lowther is to tile associated with two heated rooms situated about one kilometre north of the recently excavated villa on the sewage farm. Many specimens were found at the latter where the bath-building is provisionally dated to c 180 in its earliest phase (Adkins and Adkins 1986, 77).

Poss. Thames Water Authority.

10. COLCHESTER, Essex (colonia).

Exc. NPR.

S.

A letter dated 6 October 1953 from the headmaster of the Colchester Royal Grammar School, J.F. Elam, is in the Lowther Papers. It contains a rubbing of a specimen of die 5. This and two specimens of die 13 were found in 1953 when part of a Roman roadway was located in the garden of 12 Lexden Road (Hull 1958, 5(Fig.1); 8 and footnote 3). They were unstratified. Since neither die 5 nor die 13 is represented from an intramural site it is probable that these tiles derived from a building outside the town walls.

Lost.

11. North Bank of Thames, East of Southwark Bridge, LONDON (provincial capital).

Fw. NPR.

S.*.

Museum of London.

12. TRINITY PLACE, LONDON (provincial capital).

Exc. M. Stone in Parnell 1982, 130 and Fig. 22 No. 25. S.*.

From the surface of the construction level of the Roman city wall dated to c 190/225.

Museum of London.

13. 6-7 THE CRESCENT, LONDON (provincial capital).

Exc. NPR (archive report by A. Westman).

S.*.

From waterlain deposits within Ditch 3, associated with pottery dated 140-200.

Museum of London (CST85).

14. UNPROVENANCED, Suffolk.

Ucd. NPR.

S.*.

A complete tile stamped with die 5 and another complete combed tile were given to Ipswich Museum by F. Wakefield and accessioned in 1920. The provenance is recorded as the Rougham locality. However, there is a drawing of this relief-patterned tile in the library of the Society of Antiquaries of London (Fox Collection Box 3 No. 34) which is titled "Ipswich Museum. Flue Tile said to be from Felixstow", and the same tile may be referred to in the entry for Felixstowe in the Victoria County History of Suffolk (Vol. 1, 306) in 1911: "In the Ipswich Museum there are three flue tiles, perfect, one of large size with reeded ornamentation". There is no further information in Ipswich Museum Records but Mrs H. Feldman states (in correspondence): "the tiles from Rougham belonged to an old collection (Nina Francis Layard) which was housed in Christchurch Mansion some time before it was catalogued in 1920. It could well be that there was some mix up at this date." Because of these uncertainties the tile cannot be securely provenanced.

Ipswich Museum.

15. ST ALBANS, Hertfordshire (municipium).

Exc. Wilson 1984, 112-13 Fig. 50 Nos. 6-7.

SS.*.

From the forum and the adjacent Insulae XIV and XXVIII. Verulamium Museum.

16. WATLING COURT / 41-53 Cannon Street, LONDON (provincial capital).

Exc. NPR (archive report by I. Betts).

S.*.

From a post-Roman context.

Museum of London (WAT78).

17. Hamper Mills, WATFORD, Hertfordshire.

Exc. Biddle 1961, 81.

S.

Poss. ? M. Biddle.

18. Unprovenanced, ?LONDON.

Ucd. NPR.

S.*.

Museum of London (Tile No. 86 123/27).

19. TARRANT HINTON, Dorset (villa)

Exc. NPR.

S.

Wimborne Museum

Die 5A

This die was re-cut to form die 5 and must therefore pre-date the latter. Context dating: example 2 (Hartfield) comes from the site of a tile-kiln which has an archaeo-magnetic date of c 100/30, with a 68 percent confidence of accuracy (Rudling 1986, 198).

Dating by association: example 8 (Rayne) was associated with dies 9, 13 and 16.

1. BRADWELL, Essex.

Ucd. Lowther 1948a, 11.

S.*.

From the area of the Saxon Shore fort.

Colchester and Essex Museum.

2. Great Cansiron, HARTFIELD, Sussex.

Exc. Foster 1986.

SS.*.

The specimens were associated with a tile-kiln the structure of which gave an archaeo-magnetic date c 100-130.

Lewes Museum.

3. Ivy Chimneys, WITHAM, Essex.

Exc. NPR.

S.*.

The site seems to have been a pagan religious centre, christianised in the 4 cent. The tile was from a late context and there is no indication of where it was originally used (R. Turner pers. comm.).

Poss. Essex County Council Planning Department.

4. ST ALBANS, Hertfordshire (municipium).

Exc. Wilson 1984, 112-13 Fig. 50 No. 8.

SS.*.

Both specimens are from Insula XII (the forum).

British Museum; Verulamium Museum.

5. WATLING COURT / 41-53 Cannon Street, LONDON (provincial capital).

Exc. NPR. (archive report by I. Betts).

S.*.

From a post-Roman context.

Museum of London (WAT78).

6. SEAL HOUSE / 106-8 Upper Thames Street, LONDON (provincial capital).

Exc. NPR. (archive report by A. Leddy and I. Betts).

S.*.

From a post-Roman context.

Museum of London (SH74).

7. Preston Court, BEDDINGHAM, Sussex (villa).

Fw. and Exc. Frere 1987, 353.

SS.*.

The earliest contexts are dated early-mid 3 cent. and are associated with the demolition and infilling of a bath-suite which preceded the north range of the villa.

Poss. D.R. Rudling.

+8. Broadfields Farm, RAYNE, Essex.

Exc. Smoothery 1989, 20–21.

SS.*.

The specimens came from make-up layers deposited in late 3 / 4 cent.

Poss. Braintree District Council Archaeology Unit.

9. Boxted, STEBBING, Essex.

Cf. Johnston and Williams 1979, 386–87 Fig. 21.2.

S.*.

Johnston and Williams identified the specimen as a new die and attributed it to Roake Farm, Broughton (Hampshire).

Poss. D.E. Johnston.

10. DOMINANT HOUSE (85 Queen Victoria Street), LONDON. (provincial capital).

Exc. NPR.

S.*.

Specimen from part of the baths complex at Huggin Hill. The baths are believed to have been constructed in the Flavian period and underwent substantial modifications before demolition in the mid-late 2 cent.

Museum of London (DMT88).

11. GUILDHALL ART GALLERY / GUILDHALL YARD, LONDON (provincial capital).

Un. Exc. NPR.

S.*.

Museum of London (GAG87).

12. Southern Relief-Road, MALDON, Essex.

Exc. NPR.

S.*.

The specimen was unstratified.

Poss. P. Brown (Maldon Archaeological Group).

13. THAMES EXCHANGE BUILDINGS, LONDON (provincial capital).

Un. Exc. NPR.

S.*.

Museum of London (TEX88).

14. Pitlands Farm, UPMARDEN, Sussex (villa).

Exc. NPR.

SS.

Unstratified.

Chichester Museum?

Die 6

This die was re-cut to form die 7 and must therefore pre-date the latter. The lettering on this die is discussed in Section 13.

Context dating: example 1 from Ashtead Common has a Hadrianic *terminus post quem* (Black 1987, 114–15).

+1. ASHTEAD COMMON, Surrey (villa).

Exc. Lowther 1928, 152 and Pl. V; 1929, 4; RIB II 1993, 86.

SS.*.

The tiles were installed in hypocausts added to the house after its construction in the Hadrianic period.

British Museum; Chelmsford Museum; Museum of London (Tile No. 86 123/31); Guildford Museum; London Institute of Archaeology (Teaching Collection). Two specimens (P 1973 4–3 72 & 76), unprovenanced in the Lowther Collection in the British Museum are also probably from Ashtead Common.

2. Ashtead Parish Church, ASHTEAD, Surrey.

Cf. Lowther 1948a, 12; RIB II 1993, 86.

S.

Found in 19 cent. alterations to the Church.

Lost.

3. Midland Bank, 33–34 POULTRY, LONDON (provincial capital).

Fw. Lowther 1948a, 12; RIB II 1993, 86.

S.*.

Museum of London (Tile No. 14206).

4. CHELMSFORD, Essex (roadside settlement with mansio).

Exc. Lowther 1948a, 12; Drury 1988, 80–84; RIB II 1993, 86.

SS.*.

From mansio baths. The tiles are represented in contexts later than c 200. (In Drury 1988, 84 Table 2, die 5 is a printing error for die 6).

Chelmsford Museum.

5. PUDDING LANE / 118–127 Lower Thames Street, LONDON (provincial capital).

Exc. RIB II 1993, 86.

S.*.

From a post-Roman context.

Museum of London (PDN81).

6. WALTON HEATH, Surrey (villa).

Un. Cf. Manning and Bray 1809, 644.

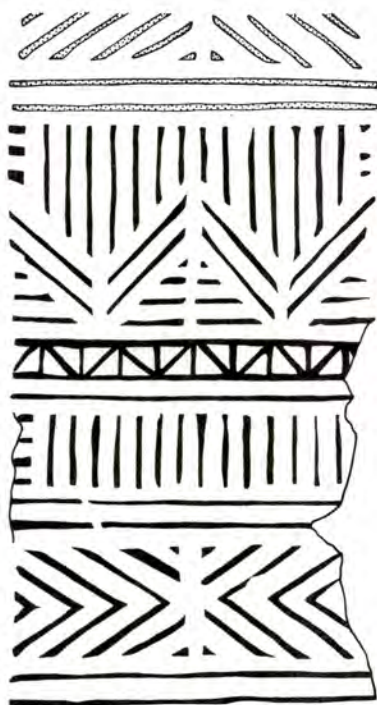
S.

The reference mentions a piece of Roman tile with the figure of a dog in relief from the vicinity of the villa. The specimen may have been die 7 rather than die 6.

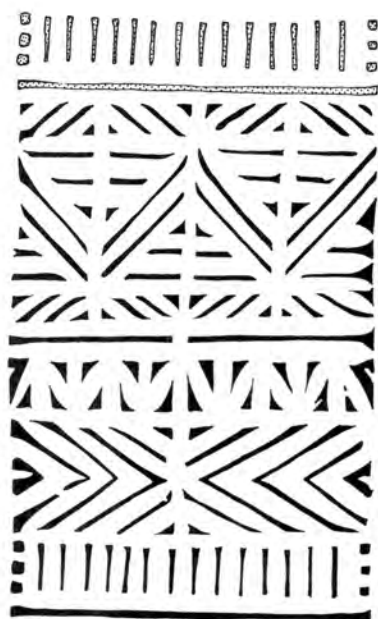
Lost.



1



2



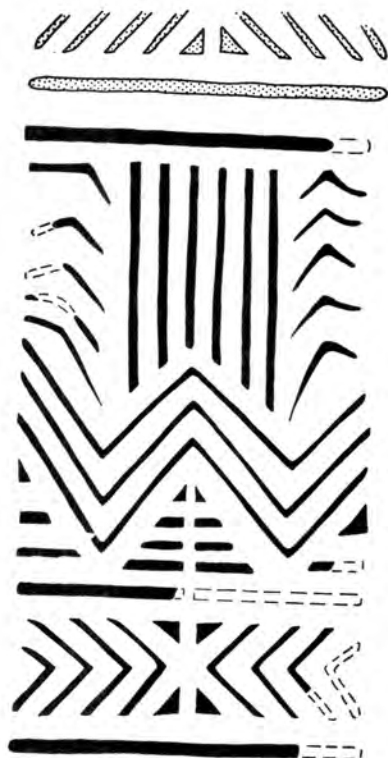
3



4



5



5A

Dies 1-5A. Scale 1:2



6



7



8

Dies 6-9. Scale 1:2



9

Die 7

The die was cut from die 6 and must therefore post-date the latter.

There is no Context dating.

Circumstantial dating: example 2 from the Jewry Wall Leicester where the public baths were completed c 155–60 (Wacher 1974, 342). Dating by association: at Leicester (example 2) die 7 is associated with dies 9, 13 and 30, and at Cobham (example 1) with dies 4, 9, 13, 19, 23, and 24.

+1. Chatley Farm, COBHAM, Surrey.

Exc. Lowther 1949, 95–6; RIB II 1993, 87.

S.*.

Reused in 4 cent. bath-building.

British Museum.

+2. Jewry Wall, LEICESTER, Leicestershire (civitas capital).

Exc. Lowther 1948b, 275–76; RIB II 1993, 87.

S.

From the site of the public baths, constructed c 155–60. Jewry Wall Museum, Leicester.

Die 8

Context dating: example 4 from Chelmsford occurred in a context dated 130/50 and the specimen showed internal sooting marks so that the upper limit of 150 provides a *terminus ante quem* (Drury 1988, 84 Table 2). Example 7 from Peter's Hill London was from a late 3 cent. dump containing much early 2 cent. pottery.

+1. MARK LANE, LONDON (provincial capital).

Cf. Price 1870, 216 and Pl. VIII.

S.*.

Museum of London (Tile No. 2186).

2. ALRESFORD, Essex (villa).

Cf. and Exc. Laver 1889, 138; Lowther 1948a, 12.

SS.*.

From excavation of a villa and a chance find from adjoining gravel pit. Mortar covering all the surfaces of one specimen indicates reuse.

Colchester and Essex Museum.

3. KENCHESTER, Herefordshire (roadside settlement).

Exc. Jack and Hayter 1916, 27 and Pl. 17.

SS.

The two specimens came from near the drain leading from the cold douche in a bath-building that was only partially explored and is undated (plan in Jack and Hayter 1916, Pl. 56).

Hereford Museum.

4. CHELMSFORD, Essex (roadside settlement with mansio).

Exc. Lowther 1948a, 12; Drury 1988, 80–84.

SS.*.

From mansio baths. One fragment is from a context (AR 176) dated 130–50. Traces of sooting showed that this had been broken after use.

Chelmsford Museum.

+5. GOSBECKS FARM, Colchester, Essex (sanctuary complex).

Exc. Lowther 1948a, 15.

SS.*.

Found in the rubble of the east-west stretch of the *temenos* wall around the sanctuary.

Colchester and Essex Museum (Acc. No. 119.48).

6. COLCHESTER, Essex (colonia).

Exc. Richardson 1968, 15.

SS.

Found in the debris of a room with hypocaust in House V in Insula 39, along with fragments keyed with die 46 and a majority with combed or scored keying. The house was dated to the late 2 cent. or later and the tiles were therefore reused. The tiles could not be identified in the Colchester and Essex Museum in March 1988, though there is a tray in the Museum store with two unmarked fragments keyed with die 8. A third unmarked specimen was found in a tray labelled "Colchester Excavations 1933".

? Colchester and Essex Museum.

7. PETER'S HILL / Castle Baynard Street/Upper Thames Street, LONDON (provincial capital).

Exc. Betts 1993, 99–100.

S.*.

From a late 3 cent. dump deposit associated with a large amount of early 2 cent. pottery.

Museum of London (PET81).

8. Unprovenanced, perhaps LONDON.

Ucd. NPR.

S.*.

Museum of London (Tile No. 86 123/38).

9. ABACUS HOUSE / 33–39 GUTTER LANE, LONDON (provincial capital).

Exc. NPR.

S.*.

Associated with pottery dated 70–180.

Museum of London (ABC87).

Die 9

Context dating: at Winchester Palace, Southwark numerous examples of die 9 (example 14) were associated with Building 13 constructed after c 120 and demolished by c 250 or later (B. Yule pers. comm.).

Circumstantial dating: example 4 from Jewry Wall Leicester where the public baths were completed *c* 155–60 (Wacher 1974, 342). At the Lullingstone villa (example 13) the earliest phase of the baths was originally dated *c* 180 (Meates 1979, 92), but has more recently been dated “pre-late second century” (R.J. Pollard in Meates 1987, 286: pottery groups IV and V).

Dating by association: die 9 is found with die 3 (examples 12 and 14); die 4 (examples 3 and 14); die 7 (examples 3 and 4) and its predecessor die 6 (example 12); die 13 (example 3, 4, 12, 13, 14 and 19). It is found once with die 5A (example 19) and die 58 (example 12), and once with die 35 which may have been cut from die 58 (example 13).

+1. BALTIC HOUSE (Leadenhall Street), LONDON (provincial capital).

Ucd. Lowther 1948a, 12.

S.*.

Museum of London (Tile No. 24598).

2. Unprovenanced, LONDON (provincial capital).

Ucd. Lowther 1948a, 12.

SS.*.

Three specimens were accessioned by the British Museum in 1856 and one in 1864. It is not clear how many sites are represented. A further specimen purchased in London was notified to the British Museum in 1986. It may have come from the Thames Foreshore near Southwark.

British Museum and poss. Mrs C. Wraight.

3. Chatley Farm, COBHAM, Surrey.

Exc. Lowther 1949, 96.

SS.*.

Reused in 4 cent. bath-house.

British Museum.

4. Jewry Wall, LEICESTER, Leicestershire (civitas capital).

Exc. Lowther 1948b, 275–78.

SS.

From the site of the public baths, constructed *c* 155–60. Jewry Wall Museum, Leicester.

5. RICHBOROUGH, Kent (port with mansio).

Exc. Lowther 1948a, 12.

S.

Richborough Castle Site Museum.

+6. Unprovenanced, LONDON (provincial capital).

Ucd. C. Green in Boddington 1979, 23–4 Fig 13 No. 65a.

S.*.

Museum of London (Tile No. 24597).

7. SCAMPTON, Lincolnshire (villa).

Exc. and Fw. Illingworth 1810, 6 and Pl. IV, No. 9; Wilson C.M. 1971, 10.

SS.

Lost.

8. KETTERING, Northamptonshire.

Ucd. NPR.

S.

A tile fragment keyed with die 9 was noted by B.R. Hartley in the store of Kettering Museum in 1958 (letter dated 20 September 1958 in the Lowther Papers). It had no provenance but was almost certainly a local find.

Lost.

+9. WALBROOK, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (Tile No. 24019).

10. 48–50 CANNON STREET, LONDON (provincial capital).

Exc. C. Green in Boddington 1979, 23–4 Fig. 13 No. 65.

S.*.

Unstratified.

Museum of London (CS75).

11. 9 CROSSWALL, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (XWL79).

12. PUDDING LANE / 118–127 Lower Thames Street, LONDON (provincial capital).

Exc. NPR (archive report by F. Pritchard).

SS.*.

Museum of London (PDN81).

13. LULLINGSTONE, Kent (villa).

Exc. Meates 1987, 303–304 Fig. 90 Nos. 440–42 and Fig. 91 Nos. 443–44.

SS.*.

The earliest phase of the baths at the villa is dated “pre-late second century”. Since the contexts of the tiles have not been published it is not clear whether they were used in this phase or were brought from elsewhere and reused at a later date.

British Museum and Dartford Museum.

14. WINCHESTER PALACE, SOUTHWARK, London (provincial capital).

Exc. NPR.

SS.*.

Numerous examples from Building 13: found in the floor duct between Rooms A and B (15 specimens), the robbing of Room A (1 specimen), wall repair of Room B (2 specimens), the robbing of Room C (86 specimens) and robbing

of Room A or B (4 specimens). A further specimen of what may be die 9 came from the robbing of Room D. One specimen was found in the demolition debris of Building 14, Room A. Building 13 was constructed after c 120 and demolished by c 250 or later, whilst Building 14 has a *terminus post quem* of 150–250 and was demolished c 287 or later (B. Yule pers. comm.). Both are hypocausted masonry buildings.

Other specimens of die 9 came from a levelling dump (1 specimen, associated with pottery dated 90–160), an external gully (1 specimen, with pottery dated 130 or later), a robber pit (1 specimen), dark earth (3 specimens) and post-Roman contexts (11 specimens) (N. Crowley pers. comm.).

Museum of London (WP83).

15. ST ALBANS, Hertfordshire (municipium).

Exc. NPR.

S.*.

The specimen was unstratified and came from excavations on the site of the forum by M.A. Cotton in 1949.

British Museum.

16. BLACKFRIARS UNDERPASS, LONDON (provincial capital).

Exc. Marsden n.d., 53 (Fig. 21 No. 6) and 55; Grooves 1994, 181–2.

S.*.

From a sand and gravel infill layer (ER854) in the Blackfriars ship. The pottery associated with the specimen is mainly mid 2 cent., which is thought to be the date the ship sank.

Museum of London (GM181).

17. Wood Lane End, HEMEL HEMPSTEAD, Hertfordshire.

Exc. Neal 1984, 210–11 Fig. 11 No. 9.

SS.

Used in a bath-building within a *temenos* containing a temple-mausoleum.

English Heritage (ultimately Verulamium Museum).

18. Baylham Mill, CODDENHAM, Suffolk (roadside settlement).

Exc. NPR.

S.

A squeeze of the specimen is in the Lowther Papers. Ipswich Museum.

19. Broadfields Farm, RAYNE, Essex.

Exc. Smoothy 1989, 20–21.

SS.*.

The specimens came from extensive make-up layers deposited on site in later 3 or 4 cent.

Poss. Braintree District Council Archaeology Unit.

20. UNPROVENANCED.

Ucd. NPR.

S.*.

British Museum (Lowther Collection P 1973 4–3 250).

21. UNPROVENANCED.

Ucd. NPR.

S.*.

British Museum (Lowther Collection P 1973 4–3 261).

22. POST OFFICE / NEWGATE STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (GPO75).

23. COLCHESTER, Essex (colonia).

Exc. NPR.

S.*.

From St Mary Magdalen, Magdalen Street. The specimen was found in a recent context (L 112 ? floor surface of Phase B: dated 1610–1852) at a medieval Leper Hospital. This is an extra-mural site without Roman features though other Roman tile, including box-tile fragments, was present.

Colchester Archaeological Trust (ultimately Colchester and Essex Museum).

Die 10

There is no context dating or circumstantial dating.

Dating by association: die 10 is found with dies 28 and 69 at Farningham Villa (examples 5 and 6); with die 69 and an uncertain example of die 28 at Newgate Street London (example 7); with die 31 at Darenth (example 4).

1. ST. BARTHOLOMEW'S HOSPITAL, LONDON (provincial capital).

Cf. Lowther 1948a, 12.

S.*.

Museum of London (Tile No. 12432).

+2. LEADENHALL MARKET, LONDON (provincial capital).

Ucd. Lowther 1948a, 12.

S.*.

British Museum.

3. Unprovenanced, LONDON (provincial capital).

Ucd. Lowther 1948a, 12.

S.

Lost.

4. DARENTH, Kent (villa).

Exc. Philp 1973, 153–4 Fig. 452.

S.

The specimen is said to be part of a *voussoir*.
Poss. Kent Archaeological Rescue Unit.

5. Farningham Manor House, FARNINGHAM, Kent (The Farningham 2 villa).

Exc. NPR.

S.*.

Dartford Museum.

6. Oliver Crescent, FARNINGHAM, Kent.

Exc. Priest and Cumberland 1931, 69.

SS.*.

From a bath-building demolished in late 3 cent. or later. The second specimen from later excavations is unpublished. The site is likely to be an appendage of the Farningham 2 villa.

British Museum and Dartford Museum.

7. POST OFFICE / NEWGATE STREET, LONDON (provincial capital).

Exc. NPR.

SS.*.

From post-Roman contexts.

Museum of London (GPO75).

8. SWAN LANE CAR PARK / 95–103 Upper Thames Street, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (SWA81).

9. GPO Middle Area, NEWGATE STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

From a post-Roman context.

Museum of London (POM79).

10. ANGEL COURT / 30–35 Throgmorton Street, LONDON (provincial capital).

Exc. NPR.

S.*.

From a late 4/early 5 cent. river silt deposit.

Museum of London (ACW74).

11. 9 CLOAK LANE, LONDON (provincial capital).

Exc. NPR.

S.*.

From a post-Roman context.

Museum of London (CKL88).

12. THAMES EXCHANGE BUILDINGS, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (TEX88).

Die 11

Context dating: example 5 from Calverts Buildings, Southwark is associated with a masonry building constructed in 150–200 and probably demolished by the late 3 or 4 cent.

Circumstantial dating: example 1 from Latimer Villa where the earliest baths are dated *c* 150/60 (Branigan 1971, 66 and 169).

Dating by association: die 11 is found three times with die 12 (examples 4, 5 and 7) and with die 3 twice (examples 5 and 7). It is found once with die 58 (example 5) and once with die 35 which may be a re-cut of die 58 (example 4). At Latimer Villa (example 1) it is found with die 5, and at Kings Langley (example 11) with die 2.

+1. Dell Farm, LATIMER, Buckinghamshire (villa).

Exc. Branigan 1971, 108–9.

SS.*.

The earliest Romanised house with its bath-suite is dated mid 2 cent.

British Museum; Aylesbury Museum; Poss. P.F. Cansdale.

+2. CHEDDINGTON, Buckinghamshire.

Cf. Lowther 1948a, 12.

SS.*.

British Museum.

+3. Unprovenanced, LONDON (provincial capital).

Ucd. Lowther 1948a, 12.

S.*.

British Museum.

4. SEAL HOUSE / 106–108 Upper Thames Street, LONDON (provincial capital).

Exc. NPR (archive report by A. Leddy and I. Betts).

S.*.

From a post-Roman context.

Museum of London (SH74).

5. CALVERTS BUILDINGS (15–23 Southwark Street), SOUTHWARK, London (provincial capital).

Exc. NPR. (archive report by N. Crowley).

SS.*.

The earliest example was found in a late Roman robber trench associated with Building 7. This building was constructed in 150–200 and was probably demolished in the late 3 or 4 cent.

Museum of London (CB80).

6. ST ALBANS, Hertfordshire (municipium).

Exc. Wilson 1984, 112–13 Fig. 50 No. 9.

S.*.

Residual in late Roman context in *Insula XXVII*. Verulamium Museum.

7. ST ALBANS HOUSE, Wood Street, LONDON (provincial capital).

Exc. NPR.

S.*.

From a post-Roman context.

Museum of London (ABS86).

8. 9 CLOAK LANE, LONDON (provincial capital).

Exc. NPR.

S.*.

From a post-Roman context.

Museum of London (CKL88).

9. 28–34 BISHOPSGATE, LONDON (provincial capital).

Exc. (archive report by N. Crowley).

S.*.

From a post-Roman context.

Museum of London (BOP82).

10. GORHAMBURY, Hertfordshire (villa).

Exc. Neal *et al* 1990, 166 (Fig. 147 no. 1063) and 167–69.

S.*.

Unstratified.

Poss. D.S. Neal (ultimately Verulamium Museum).

11. KINGS LANGLEY, Hertfordshire (villa).

Exc. NPR.

SS.*.

The two specimens were unstratified.

Poss. D.E. Miles (ultimately Dacorum District Council for the proposed Hemel Hempstead Museum).

12. UNPROVENANCED.

Ucd. NPR.

S.*.

British Museum (Lowther Collection P 1973 4–3 23).

13. UNPROVENANCED.

Ucd. NPR.

S.*.

British Museum (Lowther Collection P 1973 4–3 221).

Die 12

Context dating: example 6 from High Wycombe Villa was used in Room XIA which was created after the villa's construction in c 150/70. Fragments of the tiles were sealed by a new floor in alterations in the late 2 or early 3 cent. (Hartley 1959, 231; 241; 254 (note 11)). Example 20 from Calverts Buildings, Southwark was found associated with Building 7 constructed in 150–200 and probably demolished in the late 3rd or 4th cent. Example 23 from Lothbury, London was found *in situ* in the first phase of a building believed to be post-Hadrianic in date.

Circumstantial dating: example 4 from Gestingthorpe was conjecturally dated to the late 1 cent. (Draper 1985, 8), but the earliest of the excavated hypocausts (in Building 1) have a *terminus post quem* in or shortly after the last quarter of 2 cent. (*Ibid.*, 6–8). The earliest phase of the baths at Lullingstone Villa (example 10) is dated “pre-late second century” (see die 9).

1. Unprovenanced, LONDON (provincial capital).

Ucd. Lowther 1948a, 13.

S.*.

Museum of London (Tile No. 2200).

2. EAST INDIA HOUSE, Leadenhall Street, LONDON (provincial capital).

Cf. Lowther 1948a, 13.

S.

British Museum.

3. KING WILLIAM STREET, LONDON (provincial capital).

Ucd. Lowther 1948a, 13.

S.

Lowther located this at King William Street House; its present whereabouts is not known.

4. GESTINGTHORPE, Essex.

Exc. D.E. Johnston and D.F. Williams in Draper 1985, 79–80 Fig. 39 No. 441.

SS.

The character of the site is uncertain. The early phase of Building 1 was destroyed by fire in or shortly after the last quarter of the 2 cent. The building which succeeded it had rooms with hypocausts at its south-west end. The relief-patterned tiles may have been used in these. The contexts (unstratified or reused) are uninformative.

Poss. ? H.P. Cooper; British Museum.

5. Unprovenanced.

Exc. NPR.

S.*.

The specimen is marked “0.1.7. Pit”.

British Museum (Lowther Collection P 1973 4–3 240).

6. HIGH WYCOMBE, Buckinghamshire (villa).

Exc. Hartley 1959, 231 and 243 (note 11).

SS.*.

The villa was constructed c 150–70 and the tiles were used in a heated room which was inserted subsequently. The hypocaust was altered in the late 2 or early 3 cent. giving a *terminus ante quem* for the tiles.

Two specimens are in the British Museum; others missing.

7. Spring Wood, KEMSING, Kent.

Exc. NPR.

SS.*.

Clarke and Stoyel (1975, 19) note the excavation of heated rooms and occupation of 1–4 cent.
British Museum.

8. 10 MILK STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

From a post-Roman context.

Museum of London (MIL72).

9. PETER'S HILL / Castle Baynard Street / Upper Thames Street, LONDON (provincial capital).

Exc. Betts 1993, 99–100.

SS.*.

From a late 3 cent. dump containing a large quantity of early 2 cent. pottery.

Museum of London (PET81).

10. LULLINGSTONE, Kent (villa).

Exc. Meates 1987, 305.

SS.*.

The baths are dated "pre-late second century". It is not clear whether the tiles were associated with this construction or were brought from elsewhere to be reused later.

British Museum; Dartford Museum.

11. CHAUCER HOUSE, Tabard Street, SOUTHWARK, London (provincial capital).

Exc. NPR.

SS.*.

Museum of London (CH75).

12. LOWER WANBOROUGH, Swindon, Wiltshire (roadside settlement with probable mansio).

Fw. NPR.

S.*.

Swindon Museum.

13. BILLINGSGATE MARKET (Lorry Park / Lower Thames Street), LONDON (provincial capital).

Exc. and Fw. NPR (archive report by I. Betts).

SS.*.

The excavated specimens were from the infill of a quay provisionally dated 201–224/244. Another specimen was retrieved by C. St. J. Breen from spoil dumped on a fly-tip.

Museum of London (BIG82); Poss. Dartford and District Archaeological Group (Ceramic Study Project), Research Centre, Dartford.

14. 71–77 LEADENHALL STREET / 32–40 MITRE STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

From a rubbish pit in the latest surviving Roman deposits,

associated with pottery dated c. 120–40.

Museum of London (LEA84).

15. WATLING COURT / 41–53 Cannon Street, LONDON (provincial capital).

Exc. NPR (archive report by I. Betts).

S.*.

From a post-Roman context.

Museum of London (WAT78).

16. SWAN LANE CAR PARK / 95–103 Upper Thames Street, LONDON (provincial capital).

Exc. NPR.

S.*.

Associated with pottery dated c. 270–330.

Museum of London (SWA81).

17. SEAL HOUSE / 106–108 Upper Thames Street, LONDON (provincial capital).

Exc. NPR (archive report by A. Leddy and I. Betts).

S.*.

From a post-Roman context.

Museum of London (SH74).

18. Orpington Station (Crofton Road), ORPINGTON, Kent (villa).

Exc. NPR.

S.

A drawing of the specimen by A.J.J. Parsons is in the Lowther Papers.

Lost.

19. ST ALBANS HOUSE, Wood Street, LONDON (provincial capital).

Exc. NPR.

SS.*.

Museum of London (ABS86).

20. CALVERTS BUILDINGS (15–23 Southwark Street), SOUTHWARK, London (provincial capital).

Exc. NPR. (archive report by N. Crowley).

SS.*.

The earliest examples were found in late Roman robber trenches associated with Building 7. This building was constructed in 150–200 and was probably demolished in the late 3 or 4 cent.

Museum of London (CB80).

21. 62 CORNHILL, LONDON (provincial capital).

Exc. NPR.

SS.*.

From a post-Roman context.

Museum of London (CIL86).

+22. ECCLES, Aylesford, Kent (villa).

Exc. NPR.

SS.*.

The six specimens are fragments of voussoirs, and like the die 16 tiles from the site (but not those keyed with die 16A) were manufactured from local clay.

Poss. A.P. Detsicas

+23. DLR SHAFT / LOTHBURY, LONDON (provincial capital).

Exc. NPR (archive report by D. Malt).

SS.*.

One example was found *in situ* in a north-south dividing wall of a masonry building. The tile was installed in the first phase of the building believed to be of post-Hadrianic date.

Museum of London (LHY88).

24. THAMES EXCHANGE BUILDINGS, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (TEX88).

25. Unprovenanced, probably Buckinghamshire.

Ucd. NPR.

S.*.

The specimen is in the teaching collection of Aylesbury Museum.

Aylesbury Museum.

26. GREAT BARRINGTON, Gloucestershire (villa).

Fw. NPR.

S.

Poss. G. de la Bedoyère.

27. LLOYDS BUILDINGS, CANNON STREET STATION (North Side), LONDON (provincial capital).

Exc. NPR.

S.*.

Associated with pottery dated 180–250.

Museum of London (LYD88).

28. POST OFFICE / NEWGATE STREET, LONDON (provincial capital).

Exc. NPR.

SS.*.

Museum of London (GPO75).

29. 1–7 WHITTINGTON AVENUE, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (WIV88).

30. 68 UPPER THAMES STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (VRY89).

31. WINCHESTER PALACE, SOUTHWARK, London (provincial capital).

Exc. NPR. (archive report N. Crowley)

S.

From a waterfront dump.

Museum of London (WP83)

Die 13

Context dating: there is a Hadrianic *terminus post quem* for example 7 from Fishbourne where the tiles came from the east wing baths (Cunliffe 1971a, 179). At Winchester Palace example 13 was found associated with the robbing of Building 13 constructed after c 120 and demolished c 250 or later (B. Yule pers. comm.).

Circumstantial dating: example 5 from Jewry Wall Leicester where the public baths were completed c 155–60 (Wacher 1974, 342).

Impressions of die 13 on tiles from some sites show that the roller had become cracked. Mention of the presence or absence of evidence for a cracked roller is given in the text for each example. If the relevant part of the design is not represented or it has not been possible to check this, the site is prefixed by (U).

The drawing illustrates the pattern produced before and after the roller split.

1.(U)Unprovenanced, LONDON (provincial capital).

Ucd. Lowther 1948a, 13; RIB II 1993, 89.

S.*.

Museum of London (probably Tile No. 14693).

2.(U)Unprovenanced, LONDON (provincial capital).

Ucd. Lowther 1948a, 13; RIB II 1993, 89.

S.

? British Museum.

3.(U)Chatley Farm, COBHAM, Surrey.

Exc. Lowther 1949, 96; RIB II 1993, 88.

SS.*.

Reused in 4 cent. bath-house.

One specimen is in the British Museum.

4.(U)BECKLEY, Oxfordshire (villa).

Ucd. Lowther 1948a, 13; RIB II 1993, 88.

S.*.

British Museum.

5.(U)LEICESTER, Leicestershire (civitas capital).

Exc. Lowther 1948b, 277; RIB II 1993, 88.

SS.*.

Specimens of die 13 in both split and unsplit forms have come from the site of the public baths, constructed c 155–

60, and a specimen of die 13 from the site of the Great Central Station (R.A. Rutland pers. comm.). One specimen (unchecked) comes from the site of a town-house at Blue Boar Lane. It was from Pit 1, a possible robber trench, of medieval date. Single small fragments (unchecked) were found in excavations at Little Lane and St Peter's Lane in 1988. (S. Martin and J. Lucas pers. comm.).

British Museum and Jewry Wall Museum, Leicester.

6.(U)Lower Bayntun Farm, EDINGTON, Wiltshire (villa).

Fw. RIB II 1993, 88.

S.*.

Devizes Museum.

7. FISHBOURNE, Sussex (villa).

Exc. Cunliffe 1971b, 48–9 Fig. 25 and Pl. XIII; RIB II 1993, 88.

SS.*.

From the east wing baths, constructed c 130/60. There is no evidence for a split roller.

Fishbourne Roman Palace Museum.

8. COLCHESTER, Essex (colonia).

Exc. RIB II 1993, 88.

SS.*.

The specimens from the Royal Grammar School are mentioned in correspondence between A.W.G. Lowther and J.F. Elam, and came from excavations in 1953 in the garden of 12 Lexden Road. This is an extra-mural site and the die is not represented within the Colonia. Unstratified. Evidence for a split roller.

British Museum; Colchester and Essex Museum.

9. (U)MILES LANE / 132–137 Upper Thames Street, LONDON (provincial capital).

Un. Exc. RIB II 1993, 88.

S.*.

Associated with pottery dated c 100–200.

Museum of London (ILA79).

10.(U)PUDDING LANE / 118–127 Lower Thames Street, LONDON (provincial capital).

Exc. RIB II 1993, 89.

S.*.

Museum of London (PDN81).

+11. BUCKLESBURY HOUSE (11–20 Walbrook), LONDON (provincial capital).

Exc. RIB II 1993, 89.

SS.*.

One specimen came from a deposit containing late 2 cent. pottery.

Museum of London (Tiles Nos. 86 123/29 and 19773).

The roller pattern on tile no. 19773 shows a split.

12.(U)LULLINGSTONE, Kent (villa).

Exc. Meates 1987, 304 Fig. 91 Nos. 445–49; RIB II 1993, 89.

SS.*.

The earliest phase of the baths was originally dated c 180 (Meates 1979, 92), but has more recently been dated "pre-late second century" (R.J. Pollard in Meates 1987, 286: pottery groups IV and V).

British Museum; Dartford Museum.

+13. WINCHESTER PALACE, SOUTHWARK, London (provincial capital).

Exc. RIB II 1993, 89.

SS.*.

Six specimens of die 13 were found associated with the robbing of Room C in Building 13. This hypocausted masonry building was constructed after c 120 and demolished c 250 or later. One other specimen came from a post-Roman context (N. Crowley and B. Yule pers. comm.). The roller is not split.

Museum of London (WP83).

14. ST ALBANS, Hertfordshire (municipium).

Exc. Wilson 1984, 112–13, Fig. 50 Nos. 10 and 11; RIB II 1993, 89.

SS.*.

From Insula XIV, unstratified. The roller is clearly split.

Verulamium Museum.

15.(U)Bedens Field, NORTH CRAY, Kent.

Fw. RIB II 1993, 89.

S.

Simple timber buildings stood within individual enclosures. A bath-building was found in one enclosure. A drawing of the specimen by A.J.J. Parsons is among the Lowther Papers.

Lost.

16. (U)Broadfields Farm, RAYNE, Essex.

Exc. Smoothy 1989, 20–21.

SS.*.

The specimens came from make-up layers deposited in late 3/4 cent.

Poss. Braintree District Council Archaeological Unit.

17. (U)16 CROSSWALL / America Square, LONDON (provincial capital).

Exc. RIB II 1993, 89.

S.*.

From a post-Roman context.

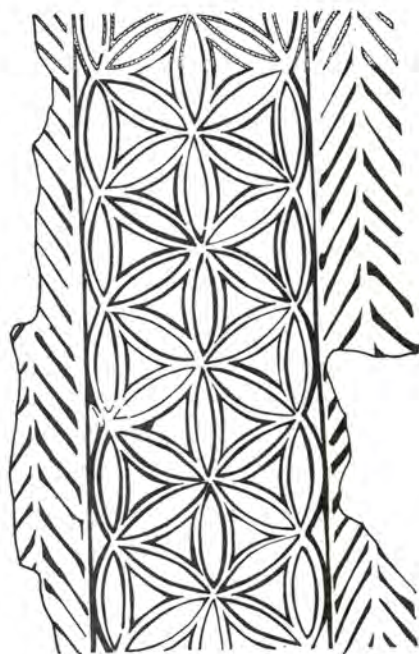
Museum of London (ASQ87).

18. (U)68 UPPER THAMES STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

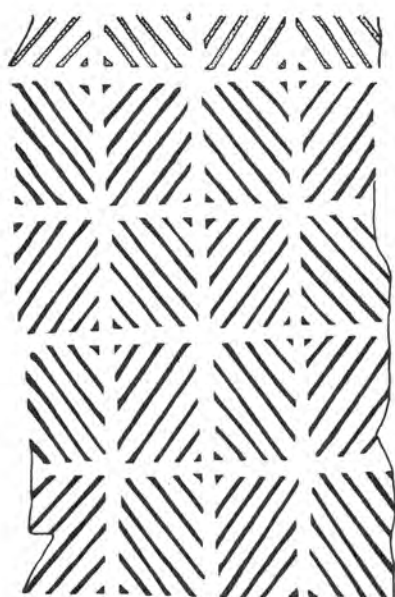
Museum of London (VRY89).



10



11



12



13

13: Damaged
Roller



14



15



16



16A



17



18

Dies 14–18. Scale 1:2

19.(U)UNPROVENANCED.

Ucd. RIB II 1993, 89.

S.*.

British Museum (Lowther Collection P 1973 4-3 238).

20.(U)UNPROVENANCED.

Ucd. RIB II 1993, 89.

S.*.

British Museum (Lowther Collection P 1973 4-3 242).

21.(U)GUILDHALL ART GALLERY / GUILDHALL YARD, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (GYE92)

22.(U)CALVERTS BUILDINGS (15-23 Southwark Street), SOUTHWARK, London (provincial capital).

Exc. NPR (archive report by N. Crowley).

SS.*.

Museum of London (CB80).

Die 14

There is no context dating.

Circumstantial dating: example 4 from Boxmoor Villa where the earliest hypocaust is mid 2 cent. (Neal 1976, 65), but the baths have not been found. Example 6 from Beddington Villa where the earliest phase of the baths is provisionally dated c 180 (Adkins and Adkins 1986, 77). Dating by association: die 14 is associated with dies 4, 5 and 66 at Beddington (example 6), and with dies 1, 4, 5, 6 and 66 at Ashted Common (example 1), where dies 4, 5 and 6 have a Hadrianic *terminus post quem* (Black 1987, 114-15).

+1. ASHTEAD COMMON, Surrey (villa).

Exc. Lowther 1948a, 13.

SS.*.

At least five complete tiles were re-used in a drain.

British Museum; Guildford Museum.

There are two unprovenanced specimens of die 14 (P 1973 4-3 44 and P 1973 4-3 140) in the Lowther Collection in the British Museum that are probably from Ashted Common. P 1973 4-3 140 is a complete tile.

2. Ashted Parish Church, ASHTEAD, Surrey.

Exc. Lowther 1934, 83; 1948a, 13.

SS.*.

Reused in a late Roman building.

British Museum.

3. Purberry Shot, EWELL, Surrey (roadside settlement).

Exc. Lowther 1948a, 13.

S.*.

From a site on the edge of a roadside settlement adjoining Stane Street.

British Museum.

4. BOXMOOR, Hertfordshire (villa).

Exc. Evans J. 1853, 62; Lowther 1948a, 13; Neal 1976, 85-6 Fig. L Nos. 113 and 115.

SS.*.

The earliest hypocaust in the villa is dated mid 2 cent. The baths have not been located. Neal's Fig. L No. 115 shows the diamond elements of the design lacking a recessed centre.

British Museum (Evans' finds).

5. ALCHESTER, Oxfordshire (roadside settlement).

Exc. NPR.

S.*.

Ashmolean Museum.

6. Beddington Sewage Farm, BEDDINGTON, Surrey (villa).

Exc. E.W. Black in Adkins and Adkins forthcoming.

SS.*.

The specimens were in late Roman contexts or unstratified. The baths were constructed in the second half of the 2 cent.

Poss. Thames Water Authority.

7. CHALK, Kent.

Exc. NPR.

SS.*.

The specimens came from excavations in 1974 close to the building excavated in 1961 (Johnston 1972).

Poss. J. Shepherd.

8. Woodlands Park, LEATHERHEAD, Surrey.

Fw. Aldsworth 1966.

S.*.

From a late Roman site; possibly brought from the Ashted villa.

Guildford Museum.

9. PETER'S HILL / Castle Baynard Street / Upper Thames Street, LONDON (provincial capital).

Exc. NPR.

S.*.

From a post-Roman context.

Museum of London (PET81).

10. ST ALBANS, Hertfordshire (municipium).

Exc. Wilson 1984, 112-13 Fig. 50 No. 12.

SS.*.

One specimen (from Insula XVII) was residual in a 4 cent. deposit.

British Museum; Verulamium Museum.

11. COLCHESTER, Essex (colonia).

Exc. E.W. Black in Crummy 1992, 262–3.

SS.*.

One specimen was from an early medieval robber trench on site D and the second was unstratified on Site B at Culver Street.

Colchester and Essex Museum.

12. KINGSTON-UPON-THAMES, Surrey.

Exc. NPR (archive report by P. Emery).

S.*.

Found at 82 Eden Street / 7–17 Lady Booth Road. From infill of river channel associated with roofing tile, brick and combed flue tile. Thought to derive from a Roman building in the near vicinity.

Museum of London (EDE89).

Die 15

Lowther's identifications of examples of this die were tentative and he re-assigned one of them to die 16 (example 3). Another tile identified as "perhaps die 15" in the excavation report, can now be assigned to die 16A (example 2). Lowther's original drawing for the illustration published in his corpus is annotated "Cobham=Alfoldean". It seems likely that "Alfoldean" was a reference to the specimens of die 16A (example 5) from the Folkestone villa which Lowther wrongly believed to have been excavated at Alfoldean. These were published in his corpus as die 16 (see die 16 example 3), but at one stage he considered them to be die 15 (Lowther 1949, 96). However, neither of the Folkestone tiles, which Lowther knew only from a poor photograph, is shown in his drawing of die 15 so that the annotation on the original of this refers to an identification and is not a caption to the drawing. If this drawing, as it seems to, shows two separate pieces of tile, one of these was presumably the specimen from Cobham and the other is otherwise unknown. (It is not the re-assigned piece from Park Street: die 16, example 16). Another possibility is that the areas of pattern seen in the drawing were both present on the tile from Cobham. Until this tile is re-located no further progress can be made.

The drawing shows the two fragments of die 15 published by Lowther and now lost. Lowther's published illustration also shows a reconstruction of the remaining pattern based on the two surviving fragments. Regrettably, this reconstruction is inaccurate and has been omitted from the drawing of die 15.

+1. Chatley Farm, COBHAM, Surrey.

Exc. Lowther 1949, 96.

S.

Reused in 4 cent. bath-house.

Lost.

Die 16

Context dating: example 4 from Canterbury is represented in contexts dated 90/120 and late 1/early 2 cent. (Frere and Stow 1983, 189); example 5 from Chelmsford from contexts of c 120/125–30 (Drury 1988, 84 Table 2).

Circumstantial dating: example 6 from Godmanchester where the site of the mansio baths was cleared for building c 120 but the construction of the baths did not follow immediately (Green 1975, 196). The occurrence of die 16 at mansio sites in widely separated parts of the province (examples 2, 3, 5 and 6), and perhaps from other places where a mansio probably existed (examples 4, 8 and 10), and the context and circumstantial dating available for die 16, have led to the suggestion that there was a co-ordinated programme of building at mansiones, and the identification of this with the governmental assumption of responsibility for mansiones early in the reign of Hadrian (Black 1985, 359–60).

+1. ECCLES, Aylesford, Kent (villa).

Exc. NPR.

SS.*.

Two of the six specimens have mortar over breaks indicating reuse. They are in a fabric local to the Eccles area.

Poss. A.P. Detsicas.

2. WALL, Staffordshire (roadside settlement with mansio).

Exc. Lowther 1948a, 13 and Endplate; Round 1992, 71 No.3.

SS.

A worn coin of Vespasian (dated 69–79) came from the construction trench of a Period 1 wall in the baths.

Present whereabouts unknown.

3. ALFOLDEAN, Sussex (roadside settlement with mansio).

Un. Ucd. NPR.

S.

Lowther (1948a, 13) listed two specimens of die 16 from Alfoldean which he had tentatively identified from a photograph. Elsewhere he refers to these as die 15 (Lowther 1949, 96). The photograph in fact shows tiles from the Folkestone villa (Die 16A, example 5). However, the Lowther Papers contain a rubbing of another specimen said to be from Alfoldean which does seem to be die 16.

Lost.

+4. CANTERBURY, Kent (civitas capital).

Exc. Frere and Stow 1983, 188–89 Fig. 75 Nos. 3–4; Black forthcoming.

SS.*.

The earliest contexts are an occupation deposit near Rose Lane dated 90–120 and a rubbish pit on the north-west side of Rose Lane dated late 1/early 2 cent.

Canterbury Museum.

5. CHELMSFORD, Essex (roadside settlement with mansio).

Exc. Drury 1988, 80–84.

SS.*.

From mansio baths. The earliest context (Z28) is *c* 120/125–30.

Chelmsford Museum.

6. GODMANCHESTER, Huntingdonshire (roadside settlement with mansio).

Exc. Green 1960, 252.

SS.

From mansio baths. The site was cleared for building *c* 120 but construction was delayed for an uncertain period. Current whereabouts unknown.

7. Warren's Farm, GREAT TEY, Essex (villa).

Exc. NPR.

? SS.

The specimens were dug up by a Mr Blythe and were seen by J.G.S. Brinson in 1966 (W. Rodwell pers. comm.). Lost.

8. BRAUGHING, Hertfordshire (roadside settlement).

Exc. Lowther 1955, 126.

S.

Lost.

9. ELSTREE, Hertfordshire.

Exc. O'Neil 1950, 231.

S.*.

The reference records an example of die 36, but the tile from O'Neil's 1948 excavation which is in Verulamium Museum is keyed with die 16. An error in the published die number seems likely, but it is not provable since most of the finds were stolen from a store in Brockley Hill (S.A. Castle pers. comm.). Verulamium Museum.

10. ST ALBANS, Hertfordshire (municipium).

Un. Exc. Wilson 1984, 112–13 Fig. 50 Nos. 13, 15.

SS.*.

Three of the published specimens were from Insula XIV (two in a context dated 135–45) and one (unstratified) from Insula XXI. These were seen on a visit to Verulamium Museum in 1983 along with three unpublished specimens also from Insula XIV (contexts 57V VIII 16 (2 specimens) and 58A V I). It subsequently became clear that the specimen from Insula XIV 59 B 19 was a new die (Die 119, example 1) rather than die 16. It has not been possible to re-locate the other specimens at Verulamium Museum in order to check their identification so that the occurrence of die 16 at St Albans must now be uncertain. Verulamium Museum (missing).

11. ? HEYBRIDGE, Essex (port).

Ucd. NPR.

S.

A letter of 13 March 1953 from M.R. Hull in the Lowther Papers refers to the specimen acquired by Colchester Museum from E.A. Fitch, the bulk of whose collection came from Heybridge. Fragments of combed flue-tile and other building-materials from Heybridge indicate a substantial building (Wickenden 1986, 21).

The tile could not be found in the Colchester and Essex Museum in 1988.

12. Broadfields Farm, RAYNE, Essex.

Exc. Smoothy 1989, 20–21.

S.*.

A single small fragment was associated with 89 specimens of dies 5A (example 8), 9 (example 19) and 13 (example 16) in make-up layers deposited in the 3/4 cent.

Poss. Braintree District Council Archaeology Unit.

13. LULLINGSTONE, Kent (villa).

Exc. NPR.

S.

A rubbing of the tile is in the Lowther Papers. The earliest phase of the baths was originally dated *c* 180 (Meates 1979, 92), but has more recently been dated "pre-late second century" (R.J. Pollard in Meates 1987, 286: pottery groups IV and V).

? Lost.

14. ABACUS HOUSE / 33–39 GUTTER LANE, LONDON (provincial capital).

Un. Exc. NPR.

SS.*.

Two fragments of wall tile or brick associated with pottery dated 70–120 and 120–160.

Museum of London (ABC87).

15. THAMES EXCHANGE BUILDINGS, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (TEX88).

16. PARK STREET, Hertfordshire (villa).

Exc. O'Neil 1946, 52 and Lowther, *infra* 97–8 Fig. 23 No. 4a; Lowther 1955, 126.

S.*.

From Room XI which had a hypocaust constructed *c* 300: therefore reused. It may have been taken from a detached bath-house (Building N) which is undated but presumably earlier than the more elaborate bath-building of the mid 2 cent. (Saunders 1961, 102 and 115–6). Lowther (1948a, 13) initially believed the tile was stamped with die 15. Verulamium Museum.

17. TOWCESTER, Northamptonshire (roadside settlement).

Un. Exc. NPR.
SS.*.

One specimen (unstratified) from St Lawrence Church. The church is on the site of a probable bath-building. Another specimen is from an excavation at Allen's Yard. Poss. C. Woodfield (ultimately Northampton Museum).

18. WINCHESTER PALACE, SOUTHWARK, London (provincial capital).

Un. Exc. NPR (archive report N. Crowley).

S.*.

From a levelling dump associated with pottery dated 100–160.

Museum of London (WP83).

Die 16A

Context dating: example 7 from Wood Street London came from a context of Period 10 (Phase 2) dated c 120–40.

Dating by association: examples 1, 2, 9 and the possible example from Wall are all associated with die 16.

1. CHELMSFORD, Essex (roadside settlement with mansio).

Exc. Drury 1988, 80–84.

S.*.

From mansio baths. Unstratified.

Chelmsford Museum.

2. CANTERBURY, Kent (civitas capital).

Exc. Black forthcoming.

SS.*.

One specimen was residual in a late Roman context on Marlowe site 3. Frere and Stow (1983, 188–89 Fig. 75 No. 2) illustrate a specimen which is described as a 'Group 5 Pattern, perhaps die 15', from a medieval context at the Castle. Although this tile could not be found among the Frere material in Canterbury Museum store, the illustration seems to show a second specimen of die 16A. Canterbury Museum.

3. FRINDSBURY, near Rochester, Kent.

Cf. Arnold 1887, illustration facing pg 191.

S.*.

From the site of a possible villa.

Guildhall Museum, Rochester.

+4. SUNLIGHT WHARF / Upper Thames Street, LONDON (provincial capital).

Exc. NPR.

S.*.

From a post-Roman context.

Museum of London (SUN86).

5. East Wear Bay, FOLKESTONE, Kent (villa).

Exc. NPR.

SS.*.

Folkestone Museum; Royal Ontario Museum, Toronto, Canada.

+6. POST OFFICE / NEWGATE STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (GPO75).

7. ST ALBANS HOUSE, Wood Street, LONDON (provincial capital).

Exc. NPR.

S.*.

From a context of Period 10 (Phase 2) dated c 120–40.

Museum of London (ABS86).

8. WALL, Staffordshire (roadside settlement with mansio).

Exc. NPR.

S.

A rubbing of a tile from Wall in the Lowther papers seems to show die 16A.

Lost.

+9. ECCLES, Aylesford, Kent (villa).

Exc. NPR.

SS.*.

In contrast to tiles of die 12 and die 16 from the site those keyed with die 16A are not in a local fabric.

Poss. A.P. Detsicas.

10. LLOYDS BUILDINGS, CANNON STREET STATION (North Side), LONDON (provincial capital).

Exc. NPR.

S.*.

Associated with pottery dated 270–400.

Museum of London (LYD88).

11. THAMES EXCHANGE BUILDINGS, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (TEX88).

Die 17

There is no context or circumstantial dating.

Dating by association: die 17 is associated with die 16 at Wall.

+1. WALL, Staffordshire (roadside settlement with mansio).

Exc. Lowther 1948a, 14; Round 1992, 72 No.17.

SS.*.

A worn coin of Vespasian (dated 69–79) came from the construction trench of a Period 1 wall in the baths. Although the second reference mentions a single fragment of die 17, three specimens were seen in the English Heritage store at Hardwick Hall, Derbyshire in 1991. British Museum and Hardwick Hall.

2. Castle Hill, EAST BRIDGFORD (listed as WHITTON by Lowther), Nottinghamshire (Margidunum).

Exc. Lowther 1948a, 14.

SS.

From roadside settlement with mansio.

? Nottingham University Museum.

Die 18

There is an apparent discrepancy in the size of the impressions of what seems to be the same pattern on the examples from London (example 3) and from Canterbury (example 2), the latter a reconstruction from three small fragments. The London example is larger. Other examples (1, 4 and 5) occur on curved bricks and this makes comparison difficult. However, it seems possible that the die may have been re-cut.

There is no context dating.

Circumstantial dating: example 3 from Cheapside, London where the baths are believed to have been demolished in the mid 2 cent (B. Davies pers. comm.). Dating by association: at Cheapside (example 3) die 18 was associated with dies 40, 44, 63 and 85; at Littlecote Park example 5 was associated with dies 39, 68, and 92. Examples 1 and 4 from London and example 5 from Littlecote Park were from a distinctive type of curved brick. The only other die known to have been used to key such bricks is die 37. Lowther listed an example from Alfoldean identified from a photograph. This in fact showed a tile from the Folkestone villa.

+1. KING WILLIAM STREET, LONDON (provincial capital).

Ucd. Lowther 1948a, 13.

S.*.

Lowther's note is the only record of the provenance. The specimen is a curved brick c 36 mm thick, keyed on its outer surface.

Museum of London (Tile No. 2214).

2. CANTERBURY, Kent (civitas capital).

Exc. Frere and Stow 1983, 188–89 Fig. 75 No. 5; Black forthcoming.

SS.*.

From residual contexts at Marlowe site 1; Cakebread Robey site 2; St. Peter's Lane; and south of the St. Margaret's Street baths.

Canterbury Museum.

3. 100–116 CHEAPSIDE (Sun Life Assurance), LONDON (provincial capital).

Exc. Marsden 1976, 37–8 and 65–66 Fig. 26 No. 110. S.*.

The specimen was published as die 46. From a small bath-house probably constructed in the late 1 or early 2 cent. The baths underwent a major reconstruction at some stage before demolition which, according to recent re-examination of the pottery, probably took place in the mid 2 cent (B. Davis pers. comm.). From context ER334 overlaying the main flue and tank-platform of the bath-building.

Museum of London (GM37).

4. ST. MAGNUS / New Fresh Wharf / Lower Thames Street, LONDON (provincial capital).

Exc. Betts 1986, 250 Fig. 16.57.

S.*.

Part of a curved brick (see examples 1 and 5). From a post-Roman context.

Museum of London (SH75).

5. LITTLECOTE PARK, Hungerford, Wiltshire (villa).

Exc. NPR.

SS.*.

The die was used to key curved bricks (see examples 1 and 4).

Poss. The Roman Research Trust.

Die 19

Context dating: example 2 from Angmering was used in the original phase of a bath-building with an early Flavian *terminus post quem* and demolition in the mid 2 cent. (Scott 1938, 12–13). At Newhaven example 8 has a late Antonine *terminus ante quem* (Bell 1976, 236).

Lowther listed an example from Alfoldean identified from a photograph. This in fact showed a tile from the Folkestone villa stamped with die 65.

1. Chatley Farm, COBHAM, Surrey.

Exc. Lowther 1949, 94–5.

S.*.

Reused in 4 cent. baths.

British Museum.

+2. ANGMERING, Sussex.

Exc. Lowther 1948a, 13.

SS.*.

From a detached bath-building probably belonging to a villa. A *terminus post quem* for the bath-building is given by early Flavian samian and it was demolished in mid 2 cent. One complete box-tile with a central division in Lewes Museum (Acc. No. 1953.16) has die 19 on the two sides and die 21 on one face (the other is unkeyed). British Museum; Lewes Museum.

3. EASTBOURNE, Sussex (villa).

Cf. Harcum 1925, 287–88 and Fig. 7; A.W.G. Lowther in Sutton 1952, 12, Pls. Va and b.

SS.*.

One of the specimens recorded by Sutton is a 'West-hampnett' type voussoir keyed with die 19 on its base and with combed keying on both faces. The top is unkeyed. The other is a box-tile with a central division, combed on the surviving face and with die 19 on one side. The other side is unkeyed. Both specimens in the Royal Ontario Museum (Cat. Nos. 923.49.2 and 3) are of the second type. One of the divisions in this is provided with an oval cutaway in the centre and a triangular cutaway at each end of its combed surfaces. The use of these unusual flue-tiles is discussed in Section 5.

All the above specimens were found in building the Queen's Hotel (between Queen's Gardens and Marine Parade). A small fragment of tile stamped with die 19 was also found in Landsdowne Place, about half a mile from the Queen's Hotel. One of the specimens from the Royal Ontario Museum is shown in Plate 1. Royal Ontario Museum, Toronto, Canada; Towner Art Gallery and Local History Museum, Eastbourne.

4. FISHBOURNE, Sussex (villa).

Exc. NPR.

S.*.

Fishbourne Roman Palace Museum.

5. Frost Hill, BULLOCK DOWN, Eastbourne, Sussex.

Fw. Rudling 1982, 137; 1987, 239.

S.*.

Poss. D.R. Rudling (ultimately Towner Art Gallery and Local History Museum, Eastbourne).

6. LULLINGSTONE, Kent (villa).

Exc. Meates 1987, 305.

S.*.

The bath-suite was originally dated c 180 (Meates 1979, 92), but has more recently been dated "pre-late second century" (R.J. Pollard in Meates 1987, 286: pottery groups IV and V).

There is a strong possibility that the specimen of die 19 was reused at Lullingstone in view of the probable early 2 cent. date of the Fabric Group 1 dies, of which die 19 is a member (see Section 9).

British Museum.

7. CHICHESTER, Sussex (civitas capital).

Exc. E.W. Black in Down and Magilton 1993, 203.

SS.*.

One specimen came from Layer A26 (a late Roman hardstanding or wall-footing) on the Greyfriars (1984) site, the other from the rampart (Layer 4) at West Walls. Chichester Museum.

8. NEWHAVEN, Sussex.

Exc. Bell 1976, 297–8.

SS.*.

The specimens together with other tile and building material came from Layer 1 in the ditch delimiting the site. This was of Antonine date and suggested that a bath-building had been demolished at that time (Bell 1976, 236).

Brighton Museum.

9. BILLINGSGATE BATH HOUSE / 100 LOWER THAMES STREET, LONDON

(provincial capital).

Exc. NPR.

S.*.

Tile with die 21 stamped on an adjoining surface.

Museum of London (BIL75).

10. North Hill, STORRINGTON, Sussex.

Un. Cf. NPR.

S.*.

The tile is marked "North Hill, Storrington S5 55 X 1 1956." A letter from J. Harding in the Lowther Papers describes the find-spot as "above Storrington...on the way to Harrow Hill at Middle Brow Kithurst Hill." A Roman site is recorded at Middle Brow North (Curwen and Curwen 1923, 24 and pl. VIII), and this find, like the flue-tiles recorded from Kithurst Hill a little to the north (Wight 1922, 222), implies a building with hypocaust(s) nearby. British Museum.

11. BATTEN HANGER, Elsted, Sussex (villa).

Exc. NPR.

SS.*.

Used to key box-flue tiles measuring c 480 × 180–85 × 140 mm (these tiles were found too late to be included in Section 6). The sides were keyed with die 19 whilst the faces were combed. They were filled with mortar and re-used as *pilae* in the *caldarium* of a late Roman baths.

British Museum; Chichester and District Archaeological Unit.

Die 20

Lowther thought that die 21 was recut from die 20. Examination of examples 1 and 3 shows that traces of raised diamonds are visible within several of the divisions of the lattice, though missing from others.

Context dating: example 4 (uncertain) from Newhaven has a late Antonine *terminus ante quem* (Bell 1976, 236). Circumstantial dating: the second period of the baths at Wiggonholt (example 1) is dated c 120–25 (Evans K.J. 1974, 114–15; Winbolt and Goodchild 1937, 18–19).

Dating by association: die 20 is associated with dies 21, 22, 23, 37, 86, 111 and 125 at Wiggonholt (example 1), and with dies 19 and 22 at Newhaven (example 4).

1. Lickfold, WIGGONHOLT, Sussex.

Exc. Lowther 1948a, 13.

SS.*.

Bath-building and adjoining settlement. Additions were made to the baths c 120–25.

British Museum.

2. Rapsley, EWHURST, Surrey (villa).

Exc. Hanworth 1968, 36–7 Fig. 15.10.

SS.

"Several very badly frosted fragments of a double box flue-tile" came from Pit 6. Presumably a box-tile with central division is meant. The excavated baths are dated early 3 cent.

Lost.

+3. The Shepherds Garden, ARUNDEL, Sussex.

? Exc. and Fw. NPR.

SS.*.

Tile found in excavation included pieces resembling tegulae "with keyed patterns" (perhaps fragments of flanged 'half-box' tiles) and "tiles with keyed patterns (sometimes elaborate)" (Hearne 1936, 231 and 238). In Littlehampton Museum there is part of the face of a centrally-divided box-tile stamped with die 20. The tile itself is unmarked but when seen on 14 August 1986 it was contained in a bag marked 'From Box 73 AV/SHEP. GDN.' A second piece of die 20 was found by J. Kenny at the Shepherds Garden in 1985.

Littlehampton Museum and Poss. J. Kenny.

4. NEWHAVEN, Sussex.

Un. Exc. Bell 1976, 297–8.

S.*.

The specimen together with other tile and building material came from Layer 1 in the ditch delimiting the site. This was of Antonine date and suggested that a bath-building had been demolished at that time (Bell 1976, 236). The specimen is part of a centrally-divided box-tile.

Brighton Museum.

5. Chichester, Sussex (civitas capital)

Un. Exc. Down and Magilton 1993, 108.

S.*.

From the rampart (Layer 4) at West Walls.

Chichester Museum.

Die 21

Context dating: example 3 from Angmering was used in the original phase of the bath-building which has an early Flavian *terminus post quem* and was demolished in the mid 2 cent. (Scott 1938, 12–13). Example 11 from Wood Street London was associated with pottery dated c AD 50–200.

Circumstantial dating: the second period of the baths at Wiggonholt (example 1) is dated c AD 120–25 (Evans K.J. 1974, 114–15; Winbolt and Goodchild 1937, 18–19).

1. Lickfold, WIGGONHOLT, Sussex.

Exc. Lowther 1948a, 13.

SS.*.

From bath-building and adjoining settlement. Additions may have been made to the baths c 120–25 (Evans K.J. 1974, 114–15; Winbolt and Goodchild 1937, 18–19).

The present whereabouts of specimens found in the original excavation of the bath-building by Winbolt and Goodchild is not known. The later excavations (Evans K.J. 1974) produced further material which is in Worthing Museum.

2. WESTHAMPNETT, Sussex.

Cf. Hills 1868, 214 Pl. 16.

S.

A complete voussoir is illustrated by Hills. This and other tiles were found built into the Saxo-Norman church.

Lost.

3. ANGMERING, Sussex.

Exc. Lowther 1948a, 13; Scott 1938, 18 Fig. 10.1.

SS.*.

From a detached bath-building probably belonging to a villa. The baths have a *terminus post quem* given by early Flavian samian and were demolished in mid 2 cent. A complete box-tile with central division in Lewes Museum (Acc. No. 1953.16) has one face keyed with die 21 and its sides are keyed with die 19.

British Museum; Lewes Museum.

4. THAMES STREET (now Lower and Upper Thames Street), LONDON

(provincial capital).

Ucd. Smith C.R. 1849, 47–8.

S.*.

Part of a box-tile with central division. The entry in Lowther (1948a, 13: Die 21, No. 4) is confused with that for example 2 of Die 22 (*Ibid.*, 13: Die 22, No. 2). Smith refers to a portion of a double box-tile from Thames Street. His paper was concerned with the baths found on the Coal Exchange site in Lower Thames Street (Billingsgate Baths), but his wording is not sufficiently clear to make it certain that the tile came from here.

British Museum.

5. Ranscombe Hill, SOUTH MALLING, Sussex.

Exc. Bedwin 1978, 253–54 Fig. 6 No. 36.

SS.*.

The published specimen was found in the stoke-hole of a corn-drying oven. Parts of two semi-circular cutaways survive showing that it is from the face of a 'Westhampnett' type voussoir.

Lewes Museum.

6. SOUTHWICK, Sussex (villa).
? Exc. Rudling 1985, 82–3 Fig. 7 No. 30.
S.

The surface with die 21 has part of a semi-circular cutaway. The adjoining surface is stamped with a different die (see Group 5, example 5).
The Marlipins Museum, Shoreham.

7. Frost Hill, BULLOCK DOWN, Eastbourne, Sussex.
Fw. Rudling 1982, 137; 1987, 239.
SS.*.

One specimen is keyed with die 21 on one surface and on an adjoining surface with die 109 (see example 3). The tiles may have been brought from a villa with manure to be spread on fields.
Poss. D.R. Rudling (ultimately Eastbourne Museum).

+8. Unprovenanced.
Ucd. NPR.
S.*.

Part of a box-tile with central division marked "L XV Black I".
British Museum (Lowther Collection P 1973 4–3 130).

9. BROCKLEY HILL, Middlesex (roadside settlement).
Un. Exc. Suggett 1954, 186.
S.

The tile is not illustrated and its identification as die 21 cannot now be checked.
Lost.

10. Unprovenanced, possibly LONDON.
Ucd. NPR.
S.*.
Probably a 'Westhamnett' type voussoir.
Museum of London (Tile No. 86. 123/33).

11. ST ALBANS HOUSE, Wood Street, LONDON (provincial capital).
Exc. NPR.
S.*.
Associated with pottery dated c AD 50–200.
Museum of London (ABS86).

12. 44 LONDON WALL, LONDON (provincial capital).
Exc. NPR.
S.*.
Associated with pottery dated AD 240–300.
Museum of London (LDW84).

13. 55 MOORGATE, LONDON (provincial capital).
Exc. NPR.
S.*.
Fragment of a double-box flue tile. From a post-Roman context.
Museum of London (MGT87).

14. CHICHESTER, Sussex (civitas capital).
Exc. E.W. Black in Down and Magilton 1993, 203.
S.*.
From Layer B31(C) on the Greyfriars (1984) site (a post-medieval pit).
Poss. A. Down (ultimately Chichester Museum).

15. ROYAL MINT, LONDON (provincial capital).
Exc. NPR.
SS.*.
Museum of London (MIN86).

16. BILLINGSGATE BATH HOUSE / 100 Lower Thames Street, LONDON (provincial capital).
Exc. NPR.
S.*.
One surface is keyed with die 19 (see die 19, example 9).
Museum of London (BIL75).

17. UNPROVENANCED.
Ucd. NPR.
S.*.
British Museum (Lowther Collection P 1973 4–3 64).

Die 22

Context dating: example 1 from Angmering was used in the original phase of the bath-building which has an early Flavian *terminus post quem* and was demolished in the mid 2 cent. (Scott 1938, 12–13). Example 5 from Newhaven has a late Antonine *terminus ante quem* (Bell 1976, 236).

Circumstantial dating: at Fishbourne (example 3) the use of die 22 can be attributed to the refurbishment of the Period 1C baths when the Period 2 'palace' was constructed (Black 1985, 372–73). The excavator dated this c AD 75–80 (Cunliffe 1971a, 219), but an alternative dating within the period c AD 90–110 has been proposed (Black 1987, 84–6).

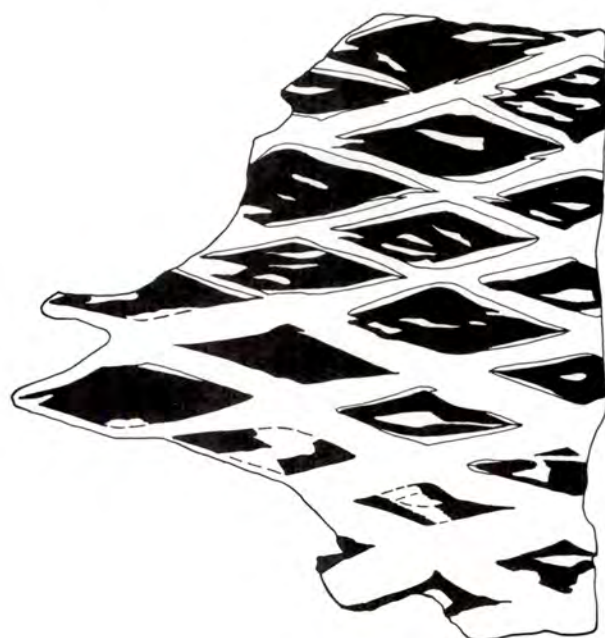
Analysis of tiles keyed with die 22 seems to show progressive wear of the roller. Drawing 22a shows the impression produced when the roller was new whilst drawings 22b and 22c seem to show the same pattern when the roller was worn.

+1. ANGMERING, Sussex.
Exc. Scott 1938, 18 Fig. 10.4.
SS.*.

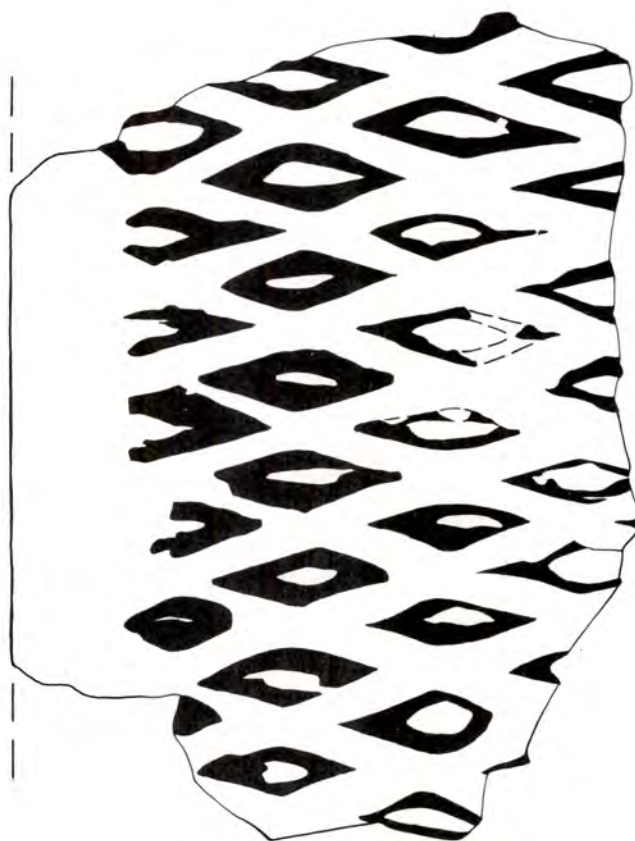
From a detached bath-building, probably belonging to a villa. The baths have an early Flavian *terminus post quem* and were demolished in the mid 2 cent. One specimen is a 'Westhamnett' type voussoir, keyed on its base/top and with combing on its faces. The specimen illustrated by Scott could not be found in Littlehampton Museum where the rest of the finds were deposited.
British Museum.



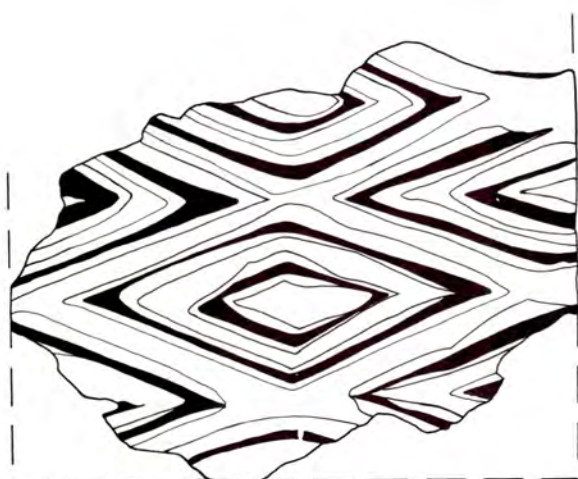
19



20



21



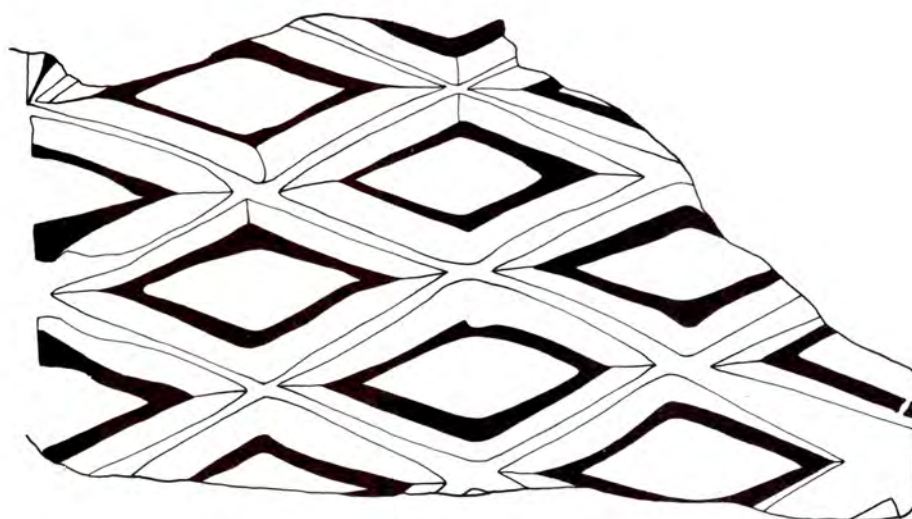
22 a



22 b



22 c



23

Dies 22–23. Scale 1:2

2. Unprovenanced, LONDON (provincial capital).
Ucd. Lowther 1948a, 13 (Die 22, No. 2); Smith C.R. 1849, 47–8, Fig. 1.

S.

Lowther confuses this tile with one he lists under die 21 (see example 4). The specimen is a box-tile with central division stamped on the one surviving side and combed on at least one face.

It was formerly in the British Museum but could not be found in 1982 or 1986.

3. FISHBOURNE, Sussex (villa).

Exc. NPR.

S.*.

Keyed on the base of a 'Westhampnett' type voussoir with combing on at least one face.

Fishbourne Roman Palace Museum.

4. Tarrant Street, ARUNDEL, Sussex (villa).

Exc. E.W. Black in Rudling forthcoming.

S.*.

The specimen is the base of a 'Westhampnett' type voussoir with combing on at least one face.

Arundel Museum.

5. NEWHAVEN, Sussex.

Exc. Bell 1976, 297–98 and Fig. 44 No. 2.

S.*.

The specimen together with other tile and building-material came from Layer 1 in the ditch delimiting the site. This was of Antonine date and suggested that a bath-building had been demolished at that time (Bell 1976, 236).

Brighton Museum.

6. WESTHAMPNETT, Sussex.

Cf. NPR.

S.*.

Keyed on the base/top of a voussoir, one of several built into the south wall of the chancel of the church.

Westhampnett Church.

7. ALFOLDEAN, Sussex (roadside settlement with probable mansio).

Ucd. NPR.

S.

A specimen was recorded by G. Brodribb in 1978.

Formerly in the collection of A.H. Baldwin; now lost.

+8. Lickfold, WIGGONHOLT, Sussex (bath-building and extensive settlement).

Exc. Evans K.J. 1974, 124.

SS.*.

The specimens seem to have been keyed when die 22 was very worn.

Worthing Museum.

9. ROYAL MINT, LONDON (provincial capital).

Unc. Exc. NPR.

S.*.

Two joining fragments from different contexts.

Museum of London (MIN86).

10. Batten Hanger, ELSTED, Sussex (villa).

Exc. NPR.

SS.*.

Two fragments of tiles keyed with die 22 came from a late Roman bath-house where others keyed with die 19 had been reused as *pilae*. One example is a 'Westhampnett' type voussoir with a depth of c 120 mm.

Chichester District Archaeological Unit.

Die 23

Context dating: example 4 from Angmering was used in the original phase of the bath-building which has an early Flavian *terminus post quem* and was demolished in the mid 2 cent. (Scott 1938, 12–13).

Circumstantial dating: at Wiggonholt (example 1) the second period of the baths is dated c AD 120–25 (Evans K.J. 1974, 114–15; Winbolt and Goodchild 1937, 18–19).

1. Lickfold, WIGGONHOLT, Sussex (bath-building and extensive settlement).

Exc. Lowther 1948a, 13.

SS.*.

Additions were made to the baths c AD 120–25 (Evans K.J. 1974, 114–15; Winbolt and Goodchild 1937, 18–19).

British Museum; Worthing Museum.

2. Chatley Farm, COBHAM, Surrey.

Exc. Lowther 1949, 97.

SS.*.

Reused in 4 cent. bath-house.

Guildford Museum.

3. High Down, ANGMERING, Sussex.

Exc. Lowther 1948a, 14.

SS.*.

Detached bath-building. The tiles were probably reused. Worthing Museum; Kingston upon Thames Museum and Heritage Centre.

4. ANGMERING, Sussex.

Exc. Lowther 1948a, 14.

SS.*.

From detached bath-building probably belonging to a villa. The baths have an early Flavian *terminus post quem* and were demolished in mid 2 cent.

British Museum.

5. ALFOLDEAN, Sussex (roadside settlement with probable mansio).

Un. Ucd. NPR.

S.*

Inf. G. Brodribb via D.E. Johnston.

Formerly in the collection of A.H. Baldwin; now lost.

6. Tarrant Street, ARUNDEL, Sussex (villa).

Exc. E.W. Black in Rudling forthcoming.

SS.*.

Four specimens came from an undated well below 95 Tarrant Street. A further twelve specimens were found in excavation in 1983.

Poss. A.J. Duke; Arundel Museum.

7. 29–32 CLEMENTS LANE, LONDON (provincial capital).

Exc. NPR.

SS.*.

Museum of London (CLE81).

8. 11 IRONMONGER LANE, LONDON (provincial capital).

Exc. A.W.G. Lowther in Dawe 1952, 126–27 Fig. 4 No.

9.

S.*

Museum of London (GM219).

9. 6–7 THE CRESCENT, LONDON (provincial capital).

Exc. NPR.

S.*.

From a post-Roman context.

Museum of London (CST85).

10. CHICHESTER, Sussex (civitas capital).

Exc. NPR (archive report by J. Pilmer).

S.*.

From a 3 cent. pit (P37) in Chapel Street Area 5 (Down 1978, 119).

Chichester Museum.

11. LLOYDS BUILDINGS, CANNON STREET STATION (North Side), LONDON (provincial capital)

Un. Exc. NPR.

SS.*.

Museum of London (LYD88).

12. 1–7 WHITTINGTON AVENUE, LONDON (provincial capital).

Exc. NPR.

SS.*.

One specimen was keyed with die 23 on two adjoining surfaces.

Museum of London (WIV88).

13. BILLINGSGATE BATH HOUSE / 100 Lower

Thames Street, LONDON (provincial capital).

Un. Exc. NPR.

S.*.

The extent of the pattern on this specimen is narrower than usual. If it is die 23 (this is uncertain), it would imply that the roller was reduced in size at some stage in its life. The tile is still *in situ* in the west wall of the *caldarium*. Construction of the baths is provisionally dated to the late 2/3 cent. and the baths may have survived in use until the first years of the 5 cent.

In situ Billingsgate Bath House.

+14. UNPROVENANCED.

Ucd. NPR.

S.*.

British Museum (Lowther Collection P 1973 4–3 20).

15. UNPROVENANCED.

Ucd. NPR.

S.*.

British Museum (Lowther Collection P 1973 4–3 22).

Die 24

There is no dating evidence for die 24. However, all examples are on tiles in Fabric Group 1 (see Section 9) and are presumably contemporary with other relief-patterned tiles from the same kiln source.

+1. High Down, ANGMERING, Sussex.

Exc. Lowther 1948a, 14.

SS.*.

From a detached bath-house. Both specimens have traces of mortar across broken edges and were therefore reused. One was a 'Westhampnett' type voussoir.

Worthing Museum; Kingston upon Thames Museum and Heritage Centre.

2. ANGMERING, Sussex.

Exc. Scott 1938, 18 Fig. 10.9.

S.

From a detached bath-building, probably belonging to a villa. The baths have a *terminus post quem* given by early Flavian samian, and were demolished in mid 2 cent. The specimen illustrated by Scott could not be found in Littlehampton Museum where other finds from the excavation are stored, and it is possible that the example is die 113 rather than die 24.

Lost.

3. LLOYDS BUILDINGS, CANNON STREET STATION (North Side), LONDON (provincial capital).

Un. Exc. NPR.

SS.*.

Museum of London (LYD88).

+4. 152 UPPER THAMES STREET (site of Bush Lane), LONDON (provincial capital).
Exc. Marsden 1975, 94 Fig. 42 Nos. 290 and 96.
S.*.

From the site assumed to be the Governor's Palace.
Residual in 4 cent. context.
Museum of London (GM25).

+5. 24–25 IRONMONGER LANE, LONDON (provincial capital).
Exc. NPR.
S.*.

From a post-Roman context.
Museum of London (IRO80).

+6. 9 CLOAK LANE, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (CKL88).

+7. 1–7 WHITTINGTON AVENUE, LONDON (provincial capital).
Exc. NPR.
SS.*.
Associated with pottery dated AD 70–160.
Museum of London (WIV88).

+8. Chatley Farm, COBHAM, Surrey.
Exc. Lowther 1949, 97–8.
S.*.
Re-used in a 4 cent. bath-house.
British Museum.

Die 25

There is no available context dating or circumstantial dating.
Dating by association: at Lower Wanborough (example 6) die 25 was associated with dies 3, 12, 39, 54, 68, and 92.

+1. CHARTERHOUSE on MENDIP, Somerset.
Ucd. Haverfield 1906, 337 Fig. 91 No. 6.
S.*.
Taunton Museum.

2. Worsham Bottom, BURFORD, Oxfordshire.
Cf. and Fw. Leeds 1923, 179 and Pl. XXVI Fig. 2; Brodribb *et al* 1971, 40.
SS.
From a bath-house, probably belonging to a villa.
Lost (one specimen formerly Ashmolean Museum).

3. WIDFORD, Oxfordshire.
Cf. and Fw. Brodribb *et al* 1971, 40.
SS.

The reference states that one specimen was in the Parish Church (which seems partly to overlie a Roman building) prior to 1965. A specimen was found about 91 metres south-east of the church in 1978 and is presumed not to be the same tile.
Lost.

+4. CIRENCESTER, Gloucestershire (civitas capital).
Exc. NPR.
SS.*.
From post-Roman contexts at Cirencester Abbey.
Corinium Museum.

5. LOWER WANBOROUGH, Swindon, Wiltshire (roadside settlement with probable mansio).
Exc. and Fw. NPR.
SS.*.
The earliest specimen is from a context provisionally dated *c* AD 325–400+.
Swindon Museum.

Die 26

There is no available context dating or circumstantial dating.
Dating by association: example 1 (Alresford) is associated with dies 8 and 29.
Lowther (1948) joined all the fragments of die 26 to produce a single composite drawing. However, it is now clear that one fragment (26b) cannot be linked with the other fragments (26a).

+1. ALRESFORD, Essex (villa).
? Exc. Lowther 1948a, 14.
SS.*.

One specimen has mortar across a broken edge indicating re-use.
Colchester and Essex Museum.

Die 27

The illustration in Lowther 1948a is inaccurate in some details. There is no useful context dating.
Circumstantial dating: the Huggin Hill baths (example 9) are believed to have been constructed in the Flavian period and underwent substantial modifications before demolition in the mid-late 2 cent.

1. Unprovenanced, LONDON (provincial capital).
Ucd. Lowther 1948a, 14.
S.
British Museum.

2. SILCHESTER, Hampshire (civitas capital).
Exc. Lowther 1948a, 14.
SS.*.

At least four specimens are among material from re-excavation of the basilica by M. Fulford.
Reading Museum; Hampshire Museums Service.

3. DOVER, Kent (port).
Ucd. Lowther 1948a, 14.
S.
? Dover Castle.

4. Beaver House, SUGAR LOAF COURT, LONDON (provincial capital).
Exc. NPR.
S.*.
From a post-Roman context.
Museum of London (SLO82).

5. POST OFFICE / NEWGATE STREET, LONDON (provincial capital).
Un. Exc. NPR.
S.*.
From a late 2 cent., or later, pit (Perring *et al* 1991, 26).
Found with die 35 (example 5).
Museum of London (GPO75).

6. BILLINGSGATE MARKET (Lorry Park / Lower Thames Street), LONDON (provincial capital).
Fw. NPR (archive report by I. Betts).
S.*.
The specimen was retrieved by C. St. J. Breen from spoil from the site dumped at Dartford Heath, Purfleet, and Chequers Lane, Dagenham.
Poss. Dartford and District Archaeological Group (Ceramic Study Project), Research Centre, Dartford.

7. WATLING COURT / 41–53 Cannon Street, LONDON (provincial capital).
Exc. NPR (archive report by I. Betts).
S.*.
From a post-Roman context.
Museum of London (WAT78).

8. COLCHESTER, Essex (colonia).
Exc. E.W. Black in Crummy 1992, 262–63.
S.*.
From the Gilbert School site. The specimen came from context A89, a post-medieval foundation.
Colchester and Essex Museum.

+9. DOMINANT HOUSE, (85 Queen Victoria Street), LONDON (provincial capital).
Exc. NPR.
SS.*.
Specimens from part of the baths complex at Huggin Hill. The baths are believed to have been constructed in the Flavian period and underwent substantial modifications before demolition in the mid-late 2 cent.
Museum of London (DMT88).

10. LINCOLN, Lincolnshire (colonia).
Exc. NPR.
S.
From an early 12 cent. dump layer from Flaxengate.
City of Lincoln Archaeology Unit.

Die 28

Context dating: example 4 from Newgate Street London is from a context provisionally dated *c* AD 120–40 and example 8 from the Old Bailey Central Criminal Court comes from one dated Hadrianic-Antonine or later. Example 7 from Wood Street came from a context in Period 10 (Phase 2) dated *c* AD 120–40.
Dating by association: die 28 is associated with eight different dies at five sites in London and at Farningham in Kent (examples 1–2 and 4–7). The association with die 12 occurs three times in London, and that with die 10 occurs once in London and at Farningham.
The drawing illustrates what appears to be almost the full length of the pattern. A number of specimens seem to show that more of the pattern exists to the right.

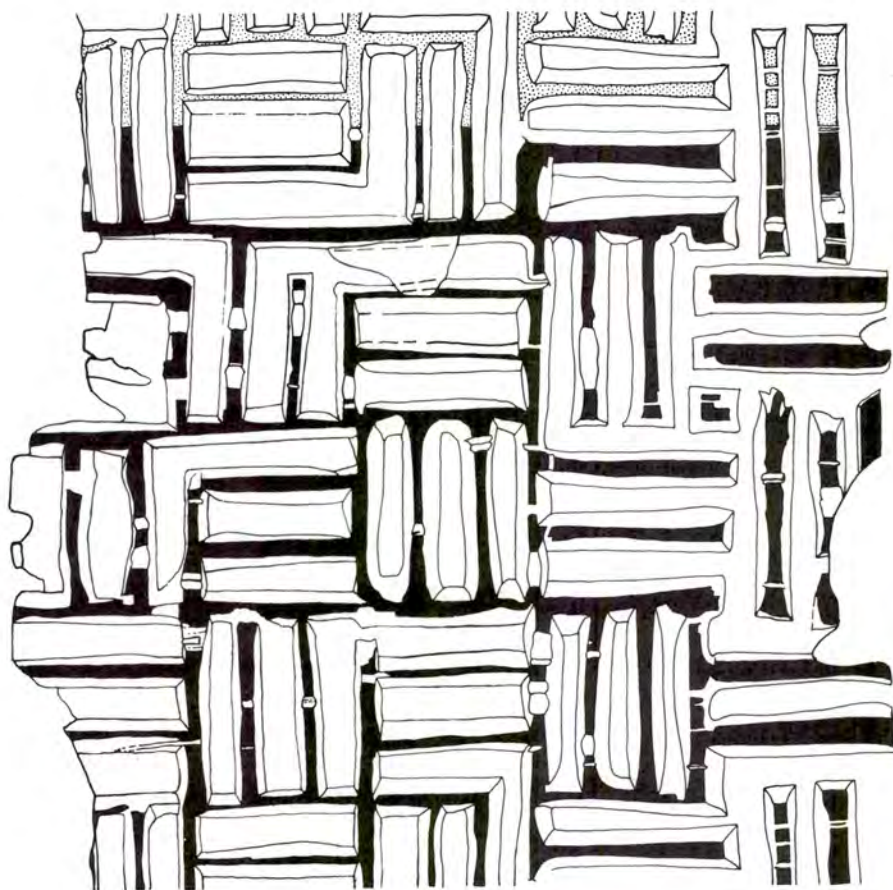
+1. EAST INDIA HOUSE, Leadenhall Street, LONDON (provincial capital).
Cf. Lowther 1948a, 14.
S.*.
British Museum.

2. Oliver Crescent, FARNINGHAM, Kent.
? Fw. NPR.
S.*.
“Farningham Drain Trench” is marked on the tile. A letter of 27 June 1949 from G.W. Meates in the Lowther Papers gives the provenance as the ditch system at Oliver Crescent, close to the site of a bath-building excavated in 1925 and 274 metres from the Farningham 2 villa.
British Museum.

+3. MITRE SQUARE / 10–11 Mitre Street, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (HTP79).

4. GPO Middle Area, NEWGATE STREET, LONDON (provincial capital).
Un. Exc. NPR.
S.*.
From a context provisionally dated *c* AD 120–40.
Museum of London (POM79).

5. 28–34 BISHOPSGATE, LONDON (provincial capital).
Exc. NPR (archive report by N. Crowley).
S.*.
From a post-Roman context.
Museum of London (BOP82).



24



25



26a



26b



27

Dies 24-27. Scale 1:2



28



29: Damaged
Roller



29



30

Dies 28–30. Scale 1:2

6. BILLINGSGATE MARKET (Lorry Park / Lower Thames Street), LONDON (provincial capital).
Exc. NPR (archive report by I. Betts).
S.*.

From a post-Roman context.
Museum of London (BIG82).

+7. ST ALBANS HOUSE, Wood Street, LONDON (provincial capital).
Exc. NPR.
S.*.

From a context in Period 10 (Phase 2) dated *c* AD 120–40.
Museum of London (ABS86).

+8. OLD BAILEY Central Criminal Court, LONDON (provincial capital).
Exc. NPR.
S.*.

From a context with pottery provisionally dated Hadrianic-Antonine or later.
Museum of London (GM131).

9. 1–7 WHITTINGTON AVENUE, LONDON (provincial capital).
Exc. NPR.
S.*.

Museum of London (WIV88).

Die 29

There is no context dating for die 29.

Dating by association: at Alresford (example 1) die 29 was associated with dies 8 and 26. The London specimens are in a different fabric type to those from Canterbury and Colchester.

The right-hand drawing is based on the London examples from Hooper Street (example 5) and Great Tower Street (example 7 in corpus appendix). The second drawing of die 29, which shows more evidence of wear and a more prominent split in the roller, illustrates the examples at Canterbury and Colchester.

1. ALRESFORD, Essex (villa).
Fw. Lowther 1948a, 15.
S.
Lost.

+2. CANTERBURY, Kent (civitas capital).
Exc. Frere and Stow 1983, 189 Fig. 75 No. 8.
SS.*.
One specimen came from a recent context at Butchery Lane and another from below the bank which was behind the Roman city wall. A third (unpublished) specimen came from the Cakebread Robey Site 2 (context 111).
Canterbury Museum.

3. ELSTREE, Hertfordshire.

Exc. NPR.

S.

Unpublished excavation by the Research Committee of the North Middlesex Archaeological Society in 1962 found tiles stamped with dies 29 and 36. The finds were stolen from a store in Brockley Hill (B.F. Rawlins and S.A. Castle pers. comm.).
Stolen.

+4. COLCHESTER, Essex (colonia).

Exc. Crummy 1992, 220 No.189, Fig.6.17.

S.*.

From the Gilberd School site. Reused as a “counter”.
Colchester and Essex Museum.

+5. HOOPER STREET, LONDON (provincial capital).

Exc. NPR.

SS.*.

Museum of London (HOO88).

6. GUILDHALL ART GALLERY / GUILDHALL YARD, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (GYE92)

Die 30

There is no available context dating.

Circumstantial dating: at Leicester (example 1) the public baths were completed *c* AD 155–60 (Wacher 1974, 342).

Dating by association: example 1 (Leicester) was associated with dies 7, 9, and 13.

+1. LEICESTER, Leicestershire (civitas capital).

Exc. Lowther 1948b, 277–78; Clay and Mellor 1985, 76.
SS.*.

One specimen was unstratified from Site 9 at Bath Lane. Others came from the site of the public baths (Jewry Wall), which were constructed *c* AD 155–60. The specimens from both sites were parts of voussoir tiles. Fourteen small fragments (some reused) keyed with die 30, also voussoir tiles, were found in excavations at Little Lane in 1988 (S. Martin and J. Lucas pers. comm.).

Jewry Wall Museum, Leicester.

Die 31

The roller bears three lines of text reading:
(tubum) parietalem Cabriabanu(s) farbicavi

This translates as ‘I, Cabriabanus, manufactured (this) wall (box-flue) tile’ (RIB II 1993, 91). Die 31, however, was used to key voussoir tiles not wall tiles. The meaning of the term ‘wall tile’ on die 31 is discussed further in Section 5.

There is no useful context or circumstantial dating for die 31.

Dating by Association: example 2 (Darenth) was associated with die 10.

+1. Allen's Farm, PLAXTOL, Kent (villa).

Exc. Luard 1859, 4 and Pl. VI; Wright and Hassall 1971, 297–98 Figs. 18 and 19; RIB II 1993, 90.

SS.*.

At Plaxtol the surviving fragments keyed with this die are all parts of voussoirs.

Maidstone Museum and Holy Cross Church, Sarratt (Hertfordshire).

+2. DARENTH, Kent (villa).

Exc. Wright and Hassall 1971, 297–98; Philp 1973, 153–54 Fig. 46 Nos. 456–57; Philp 1984, 110–11 Fig. 39 No. 248; RIB II 1993, 91.

SS.*.

The specimen found in 1969 is a fragment of voussoir. The published drawings in the references are inaccurate. It is now certain that the Darenth specimens are die 31 like those from Plaxtol.

Poss. Kent Archaeological Rescue Unit.

3. Unprovenanced, LONDON (provincial capital).

Ucd. Wright and Hassall 1971, 297 n. 52; RIB II 1993, 91.

S.

The example is reported to have come from a site in London.

Liverpool Museum.

Die 32

The majority of tiles keyed with die 32 are voussoirs. The remainder cannot be identified with any certainty, but may also be fragments of voussoir tile.

Context dating: example 6 from Watling Court, London is dated *c* AD 120–160 (probably mid 2 cent.), whilst example 3 from Canterbury is represented in a context of Period 3 III dated AD 150–75 on Marlowe site 5, and may derive from the installation of voussoir tiles stamped with die 32 in Building R12 in this period (Black forthcoming). Example 7 was from a possible tile-kiln at Parkfield, Potters Bar where pottery dated to the 1 cent. was present (McWhirr 1979b, 147–49).

Circumstantial dating: example 1 from Boxmoor Villa where the earliest (Period 3) hypocaust is mid 2 cent. (Neal 1976, 65), but the villa's baths have not been found.

Dating by association: example 1 (Boxmoor) was associated with dies 2 and 14.

1. BOXMOOR, Hertfordshire (villa).

Exc. Evans J. 1853, 62; Neal 1976, 85–6 Fig. L. No. 114.

S.*.

The specimen is part of a voussoir.

British Museum.

2. WOODPERRY, Oxfordshire.

Ucd. Lowther 1948a, 14.

S.*.

The specimen is part of a voussoir. There is no certainty that this is the same site as the villa at Beckley.

Ashmolean Museum.

+3. CANTERBURY, Kent (civitas capital).

Exc. Frere and Stow 1983, 190 and Fig. 75 Nos. 9–12; Black forthcoming.

SS.*.

One specimen found in a Period 3 III context (dated AD 150–75) on Marlowe site 5 may derive from the installation of the tiles in Building R12 where they were found in the decay layer of the succeeding period (3 IV: dated AD 175–300). Complete tiles were reused in the new Period 4 I *caldarium* of the public baths. The die was used to stamp voussoirs.

Canterbury Museum.

4. GREAT CHESTERFORD, Essex (roadside settlement).

Exc. Lowther 1948a, 15.

S.

According to a note by Lowther in the Lowther Papers the specimen was part of a voussoir.

Lost.

5. SANDY, Bedfordshire (roadside settlement).

Ucd. Johnston and Williams 1979, 388 and Fig. 21.3.

SS.*.

Due to inaccuracies in Lowther's published drawings, one example was published by Johnston and Williams as a variant of die 32, termed die 32A. It is now known for certain that it is die 32.

Bedford Museum.

6. WATLING COURT / 41–53 Cannon Street, LONDON (provincial capital).

Exc. NPR (archive report by I. Betts).

SS.*.

From Period V, dated *c* AD 120–160: the tile was found associated with the destruction of clay walled Building S (Perring *et al* 1991, 43). Two other specimens are from post-Roman contexts. The specimens are all voussoirs.

Museum of London (WAT78).

7. Parkfield, POTTERS BAR, Hertfordshire.

Exc. Gillam 1956.

SS.*.

From the site of a tile-kiln associated with 1 cent. pottery.

The specimens are voussoirs.

British Museum.

8. STANTON LOW, Buckinghamshire (villa).
Exc. Woodfield 1989, 255–56 Fig. 50 No. 51.
S.

The specimen is part of a voussoir tile. It is suggested by Woodfield that it was used in Room 2, added to the baths (Building III) in the Antonine period.

Poss. C. Woodfield (ultimately Aylesbury Museum).

9. Gorefields, near STOKE GOLDINGTON, Buckinghamshire.

Exc. NPR.

SS.

One of the specimens has a cutaway in a keyed surface indicating that it is a voussoir. The tiles were reused in a building of the late 11/early 12 cent (D.C. Mynard pers. comm.).

Poss. Milton Keynes Archaeological Unit.

Die 32A

This number was assigned to an example from Sandy, Bedfordshire (Johnston and Williams 1979, 388), but this is now known to be an example of die 32 (example 5).

Die 33

The incorporation of the initials I.V. into the design of die 33 links it to dies 6 and 13. It has been suggested (Black 1985, 362) that I.V. represent the initial letters of the *nomen* and *cognomen* of a freedman tile-maker. The lettering is discussed in more detail in Section 13.

There is no useful context dating or circumstantial dating. Dating by association: example 1 (Ridgewell) is associated with die 4, and example 3 (Chalk) with dies 14 and 73.

1. RIDGEWELL, Essex (villa).

Exc. Walford 1803, 66 and Pl. XIII.2; RIB II 1993, 89.
S.

Lost.

2. HARTLIP, Kent (villa).

Exc. Smith C.R. 1852, Pl. VIII No. 2; RIB II 1993, 89.
S.

Lowther (1948a, 14) tentatively classified this specimen as die 34. Comparison of the drawing with a large specimen of die 33 from Chalk shows that the Hartlip tile was stamped with this die.

Lost.

+3. CHALK, Kent (villa).

Exc. and Ucd. Johnston 1972, 119 and 127 and Fig. 7 No. 5; RIB II 1993, 89.

SS.*.

Of the two specimens found in excavation one was residual in a late Roman context and the other unstratified.

The text and caption in the reference refer to the residual specimen while the illustration shows the unstratified piece. Seven specimens come from unpublished excavations in the vicinity in 1974.

? Maidstone Museum and British Museum; Poss. J. Shepherd.

4. 36–37 KING STREET, LONDON (provincial capital).
Exc. RIB II 1993, 89.

S.*.

Museum of London (KNG85).

Die 34

An example from Hartlip, Kent, known only from a drawing, was tentatively assigned this die number by Lowther. It is now clear that it was an example of die 33.

Die 35

Context dating: a tile keyed with die 35 was reused in a drain in the Period 3 bath-building at Gadebridge Park villa (example 2). This has a rather uncertain mid 2 cent. *terminus post quem* (Black 1985, 366), and it may have been contemporary with the construction of Building A, the first masonry villa, in the late 2 / early 3 cent. (Neal 1974, 13). If so, this provides a *terminus ante quem*. There is no reason why the die 35 tile must be assigned to Period 1 of the baths and allocated a 1 cent. date, rather than to the undated Period 2 (Black 1985, 366: *contra* Neal 1974, 195).

Circumstantial dating: example 8 from Lullingstone where the earliest baths are dated “pre-late second century” (R.J. Pollard in Meates 1987, 286). Example 9 from Whittington Avenue, London was associated with pottery dated AD 70–160.

Dating by association: example 2 is associated with one die (die 49) and example 6 with eight dies (1, 9, 12–13, 16, 69, 73 and 78). Die 35 may be a re-cut of die 58. Impressions of the dies are the same width (c 80–83 mm). Die 58 has a length of 194 mm and die 35 is 188 mm long.

1. DORCHESTER on THAMES, Oxfordshire (roadside settlement).

? Exc. Lowther 1948a, 15.

S.

Unstratified.

Lost.

2. Gadebridge Park, HEMEL HEMPSTEAD, Hertfordshire (villa).

Exc. Neal 1974, 195–96 Fig. 86 No. 714 and Pl. IVb.
S.*.

Reused in a drain in Period 3 of the baths. On the dating see Black 1985, 366 and above.

Poss. D.S. Neal (ultimately Verulamium Museum).

3. TRIANGLE, BILLINGSGATE BUILDINGS, 101–110 Lower Thames Street, LONDON (provincial capital).
Exc. Jones and Rhodes 1980, 136–37 Fig. 78 No. 704.
SS.*.

From a residual context.
Museum of London (TR74).

4. BRADWELL-ON-SEA, Essex.
Ucd. Lowther in Saunders 1961, 132.
S.

The tile could not be found in the Colchester and Essex Museum in 1988.

5. POST OFFICE / NEWGATE STREET, LONDON (provincial capital).

Exc. NPR.
S.*.

From a late 2 cent., or later, pit (Perring *et al* 1991, 26).
Museum of London (GPO75).

6. SEAL HOUSE / 106–108 Upper Thames Street, LONDON (provincial capital).

Exc. NPR (archive report by A. Leddy and I. Betts).
S.*.

From a post-Roman context.
Museum of London (SH74).

+7. LULLINGSTONE, Kent (villa).

Exc. Lowther in Saunders 1961, 132; Meates 1987, 303, Fig. 90, Nos. 436 and 438.

SS.*.
The earliest phase of the baths was originally dated *c* AD 180 (Meates 1979, 92), but has more recently been dated “pre-late second century” (R.J. Pollard in Meates 1987, 286: pottery groups IV and V).

Dartford Museum.

8. 55 MOORGATE, LONDON (provincial capital).

Exc. NPR (archive report by J. Drummond-Murray).
S.*.

From an area of external dumping, associated with pottery dated AD 200–400.

Museum of London (MGT87).

9. 1–7 WHITTINGTON AVENUE, LONDON (provincial capital).

Exc. NPR.
SS.*.

One specimen associated with pottery dated AD 70–160.
Museum of London (WIV88).

10. NEW FRESH WHARF, Lower Thames Street, LONDON (provincial capital).

Exc. NPR.
S.*.

From a post-Roman context.
Museum of London (NFW74).

Die 36

Context dating: example 1 from St Albans occurred in a make-up layer of AD 120–30 (57 V VIII 16) below Building 3B in Insula XIV (Wilson 1984, 113). At 11 Ironmonger Lane (example 4) in London die 36 came from a layer dated to the late 1 cent. (Frere 1984, 309). Example 5 from Queen Victoria Street was in the fill of Well 20 and therefore Antonine or earlier (Wilmott 1982, 65).

+1. ST ALBANS, Hertfordshire (municipium).

Exc. Wilson 1984, 113 and Fig. 50 No. 19.
SS.*.

The published specimen occurred in a make-up layer of AD 120–30 (57 V VIII 16) below Building 3B in Insula XIV. Further examples, probably of die 36, were found in Insulae XII and XXII, in the central area of the city. Lowther (1948a, 15) recorded one specimen from the site of the theatre (Insula XV).

Verulamium Museum.

2. ELSTREE, Hertfordshire.

Exc. Lowther 1948a, 5; O’Neil 1950, 231.
SS.

The reference in Lowther is to a specimen in the collection of N. Davey found at Elstree in 1947. It may have been found in trial-trenching the site of a possible tile-kiln at TQ 177955. This was further investigated in 1948 and in her report O’Neil (1950, 231) refers to a second specimen of die 36. One tile from her excavation in Verulamium Museum is keyed with die 16 (example 10); the other finds were stolen from a store in Brockley Hill. Excavations on the same site by the North Middlesex Archaeological Committee in 1962–63 produced tiles keyed with dies 29 and 36 which were also stolen from the Brockley Hill store (B.F. Rawlins and S.A. Castle pers. comm.). A letter of 24 June 1961 from J.E. Ayto in the Lowther Papers refers to a specimen found at TQ 1780 9545 which he had presented to the London Museum. In 1986 a dump of clay was observed *c* 60 metres south of the kiln containing a mass of wasters, two ceramic spacers and late 1–early 2 cent. pottery (Frere 1987, 327).

Museum of London (Tile No. 61.97); others stolen.

3. 152 UPPER THAMES STREET (site of Bush Lane), LONDON (provincial capital).

Exc. Marsden 1975, 96 and Fig. 42 No. 288.
S.*.

Found in the fill of a hypocaust in a building which overlay the ‘Governor’s Palace’.

Museum of London (GM25).

4. 11 IRONMONGER LANE, LONDON (provincial capital).

Exc. A.W.G. Lowther in Dawe 1952, 126–27 Fig. 4 No. 10.



31



32



33



35

Dies 31–33 and 35. Scale 1:2



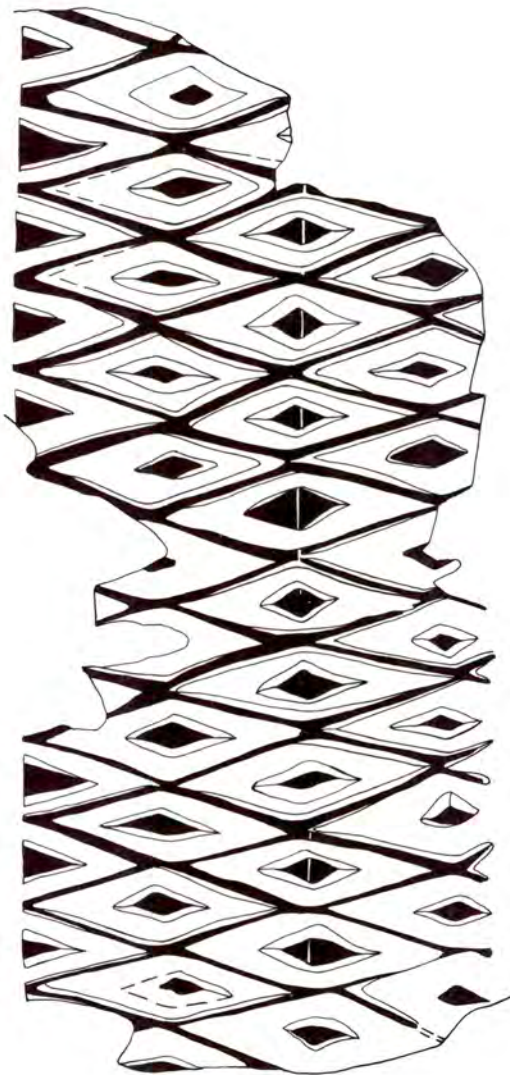
36



38 a



38b



39

Dies 36 and 38-39. Scale 1:2

SS.*.

Two specimens were from a 3 cent. pit and one from "the first century layer in trench 1". A section below the mosaic floor on the site has shown that the layer referred to dates to the late 1 cent. (Frere 1984, 309).
Museum of London (GM219).

5. 40–66 QUEEN VICTORIA STREET, LONDON (provincial capital).

Exc. Wilmott 1982, 65 and Fig. 41 No. 166.

S.*.

From the fill of Well 20 and therefore Antonine or earlier.
Museum of London (GM135).

6. 9–11 BUSH LANE, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (GM210).

+7. GORHAMBURY, Hertfordshire (villa).

Exc. Neal *et al* 1990, 166 (Fig. 147 No 1065) and 169.

S.*.

From an Antonine deposit in the upper fill of Ditch 74.
Poss. D.S. Neal (ultimately Verulamium Museum).

+8. LLOYDS BUILDINGS, CANNON STREET STATION (North Side), LONDON (provincial capital).

Exc. NPR.

SS.*.

Associated with pottery dated AD 270–350/400.
Museum of London (LYD88).

9. THAMES EXCHANGE BUILDINGS, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (TEX88).

Die 37

There is no useful context dating for die 37.

Circumstantial dating: the second period of the baths at Wiggonholt (example 3) is dated *c* AD 120–25 (Evans K.J. 1974, 114–15; Winbolt and Goodchild 1937, 18–19).

Dating by association: example 3 from Wiggonholt is associated with dies 20–23, 86, 111 and 125.

+1. TRINITY SQUARE, LONDON (provincial capital).

Ucd. Lowther 1948a, 14.

S.*.

The specimen is a curved brick with an incomplete length of 576 mm with a width across the chord of 228 mm. The wall is up to 48 mm thick. It has been stamped on the upper surface to provide keying for plaster.
British Museum.

2. 29–32 CLEMENTS LANE, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (CLE81).

3. WATLING COURT / 41–53 Cannon Street, LONDON (provincial capital).

Un. Exc. NPR (archive report by I. Betts).

S.*.

From a post-Roman context.

Museum of London (WAT78).

4. Lickfold, WIGGONHOLT, Sussex.

Exc. NPR.

SS.*.

There is an extensive area of settlement including a detached bath-building. Two specimens are from curved tiles *c.* 30–40 mm thick.

Worthing Museum.

5. Market Field, STEYNING, Sussex.

Exc. D.R. Rudling in Gardiner 1994, 53.

S.*.

From a Saxon context. This is a small specimen 27–31 mm thick with no sign of curvature.

Worthing Museum.

Die 38

There is no useful context or circumstantial dating for this die. Dating by association: at Canterbury (example 4) an uncertain specimen of die 38 was associated with die 97. Lowther (1948a, 14) listed an example from Hartlip, Kent basing his identification on a drawing. It is not considered that the drawing is adequate for identifying the die which is listed in this corpus as Uncertain Group 5. However, example 4 from Canterbury in Kent is keyed with die 38 or with a very similar die. It is illustrated here along with what is so far known of the pattern.

The drawing illustrates a fragment of die 38 from Silchester (38a) and a small part of what is probably the same pattern from Canterbury (38b).

+1. SILCHESTER, Hampshire (civitas capital).

Exc. Lowther 1948a, 14.

SS.*.

Reading Museum.

2. Unprovenanced, probably ALCHESTER, Oxfordshire (roadside settlement).

Ucd. NPR.

S.*.

Donated by a resident of Oxford to the Ashmolean Museum (Acc. No. 1967, 709). The provenance is catalogued as Alchester. A label on the back of the tile reads "Roman

Brick Tile from Aichester". The letter 'i' seems clear, but the initial A not so clear.

Ashmolean Museum.

3. WINCHESTER, Hampshire (civitas capital).

Exc. NPR.

SS.*.

Found in demolition debris (dated AD 270–400) during trial excavations at the Pilgrims School site.

Winchester Museums Service.

+4. CANTERBURY, Kent (civitas capital).

Un. Exc. NPR.

S.*.

The single specimen came from Stour Street site B in 1986 (context 27).

Canterbury Archaeological Trust (ultimately Canterbury Museum).

Die 39

Context dating: example 5 from Lower Wanborough is represented in a context provisionally dated *c* AD 80–150.

Dating by association: example 3 (Littlecote Park) is associated with dies 18, 68, and 92 and example 5 (Lower Wanborough) with dies 3, 12, 25, 54, 68, and 92.

1. SILCHESTER, Hampshire (civitas capital).

Exc. Lowther 1948a, 14.

S.

Said by Lowther to be in Reading Museum. It could not be found in 1983.

Lost.

2. CIRENCESTER, Gloucestershire (civitas capital).

Exc. NPR.

SS.*.

From post-Roman contexts. One specimen from the Abbey Walls site was 28 mm thick and was probably from a flat tile or brick.

Corinium Museum.

3. LITTLECOTE PARK, Hungerford, Wiltshire (villa).

Exc. NPR.

SS.*.

Poss. The Roman Research Trust.

4. Little London, PAMBER, Berkshire (tilery).

Ucd. Greenaway 1981, 291.

S.*.

Overfired waster.

Poss. Hampshire Museums Service.

+5. LOWER WANBOROUGH, Swindon, Wiltshire (roadside settlement with probable mansio).

Exc. and Fw. NPR.

SS.*.

One specimen comes from a context provisionally dated *c* AD 150 and it seems to be part of a flat tile or brick. Another is part of a voussoir.

Swindon Museum.

6. West Park, ROCKBOURNE, Hampshire (villa).

Exc. NPR.

SS.*.

The specimens may have been associated with an early bath-house the plunge-bath of which was incorporated into the south-west wall of Building 49 (RCHM 1983, 132). "Well" is marked on one specimen.

Poss. Hampshire Museums Service.

7. WINCHESTER, Hampshire (civitas capital).

Exc. NPR.

SS.*.

Four specimens from the 1988 Brooks site excavation in the form of tesserae which are in the plain surround of a mosaic pavement of late Roman date (AD 240–400).

Winchester Museums Service.

Die 40

Context dating: the stratified tiles from Watling Court, London (example 4) were from Period V. Although this is dated *c* AD 120–160 all tiles were found in contexts associated with pottery dated AD 120–140.

Circumstantial dating: example 3 was found on the site of Cheapside Baths, London which dates from the late 1 / early 2 to around the mid 2 cent.

Dating by association: example 2 from Arundel is associated with dies 22, 23 and 86. At 100–116 Cheapside London example 3 is associated with dies 18, 44 and 63. The drawing shows two separate fragments of the die (40a and 40b).

1. Unprovenanced, LONDON (provincial capital).

Ucd. Lowther 1948a, 14.

S.*.

British Museum.

2. Tarrant Street, ARUNDEL, Sussex (villa).

Exc. E.W. Black in Rudling forthcoming.

S.*.

Arundel Museum.

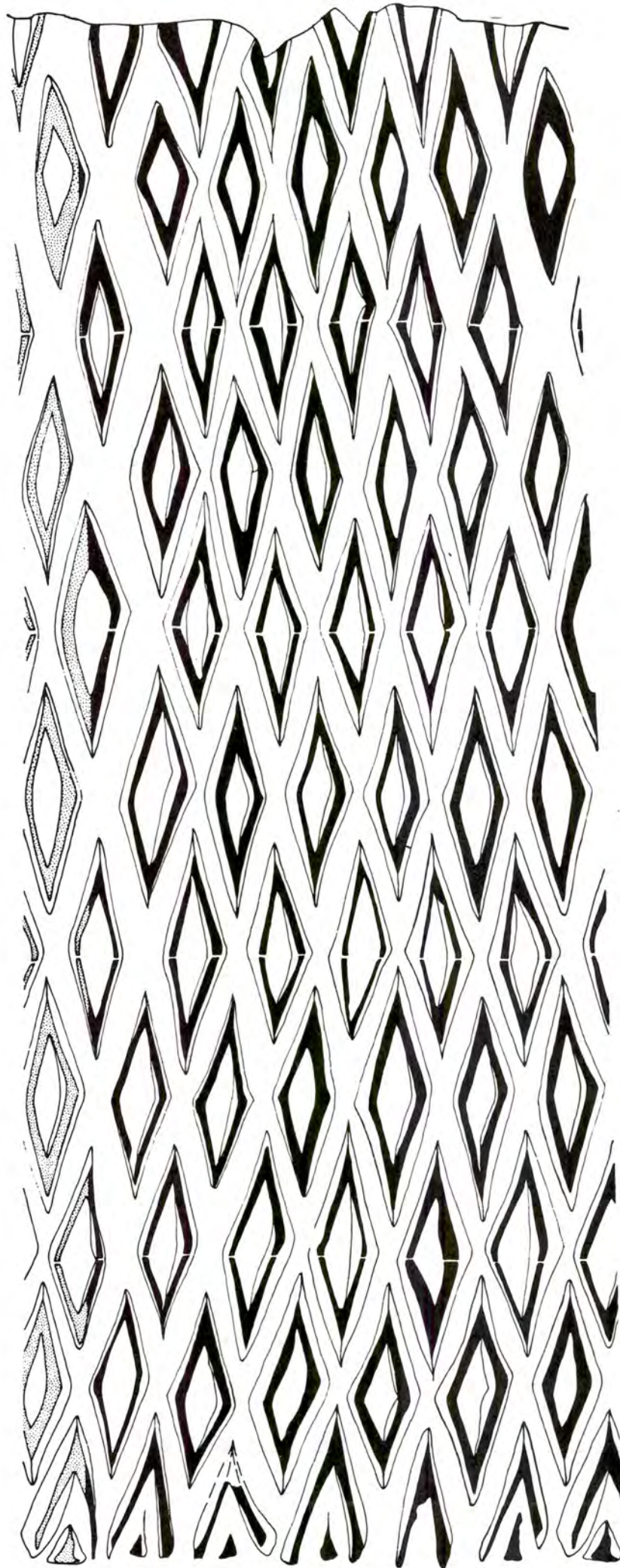
3. 100–116 CHEAPSIDE (Sun Life Assurance), LONDON (provincial capital).

Exc. NPR.

S.*.

Found on the site of a small bath-house believed to have been constructed in the late 1 or early 2 cent. and probably demolished in the mid 2 cent (B. Davies pers. comm.).

British Museum.



37

Die 37. Scale 1:2

+4. WATLING COURT / 41–53 Cannon Street, LONDON (provincial capital).

Exc. NPR (archive report by I. Betts).

SS.*.

The specimens found in stratified Roman contexts came from Period V (Perring *et al* 1991, 41–42). Although this is dated *c* AD 120–160, all the tile fragments came from contexts associated with pottery dated AD 120–140. The majority of tiles came from dumps and silting which occurred at Watling Court after destruction by the Hadrianic Fire in *c* AD 120, or a little later. One has part of a semi-circular cutaway.

Museum of London (WAT78).

5. WINCHESTER PALACE, SOUTHWARK, London (provincial capital).

Exc. NPR.

SS.*.

One tile was used in a wall repair in Room B of a hypocausted masonry building (Building 13); the other is from a dark earth layer. Building 13 was constructed after *c* AD 120 and demolished *c* AD 250 or later.

Museum of London (WP83).

6. 1–6 MILK STREET, LONDON (provincial capital).

Exc. NPR (archive report by I. Betts).

S.*.

From a post-Roman context.

Museum of London (MLK76).

Die 41

There is no useful context dating for die 41.

Dating by association: die 41 was associated with dies 97 and 108 at St John's Lane and Stour Street, Canterbury and with die 93 at Stour Street, Canterbury.

Drawing 41a shows two separate areas of die 41, both impressed into the same tile. Drawing 41b shows what is believed to be an adjoining part of the pattern (see also comments for die 118).

+1. CANTERBURY, Kent (civitas capital).

Exc. Frere and Stow 1983, 190 and Fig. 75 No. 13; Black forthcoming.

SS.*.

Frere and Stow's specimen was from a medieval pit in Rose Lane. The second reference lists tiles from Marlowe site 5 context 608, Cakebread Robey site 2 context 71, and St John's Lane context 288, and compares them to die 41. The first of these is now considered not to have been stamped with die 41, the second is considered uncertain, and the third was definitely stamped with die 41.

These specimens are stated by Black to bear impressions of a second die which he identified as die 103. This identification is now thought to be wrong and the

occurrence of two different dies on the same tiles is uncertain. Another specimen definitely stamped with die 41 came from Stour Street (context 643).

Canterbury Museum and Canterbury Archaeological Trust (ultimately Canterbury Museum).

Die 42

Context dating: example 1 (Canterbury) is represented in an insecurely sealed Period 2 (late 1 cent.) context. The construction of the public baths in which tiles stamped with die 42 were employed has been attributed to the succeeding Period 3I, dated *c* AD 100–25 (Black forthcoming). Example 3 from Peter's Hill was found in late 3 cent. dumping associated with pottery dated AD 100–120 (Williams 1993, 55).

Circumstantial dating: example 2 from Huggin Hill and example 6 from Dominant House, London where the bath-building is believed to have been constructed in the Flavian period and underwent substantial modifications before demolition in the mid-late 2 cent.

1. CANTERBURY, Kent (civitas capital).

Exc. Frere and Stow 1983, 190 and Fig. 75 No. 14; Black forthcoming.

SS.*.

The specimens were used in the public baths *c* AD 100–25. They may have been stamped on one face and scored with a knife on the other.

Canterbury Museum.

+2. HUGGIN HILL, LONDON (provincial capital). Exc. Marsden 1976, 58–9 Fig. 23 No. 43, (archive reports 1986 by B. Davies and I. Betts).

SS.*.

From the site of a public bath-building believed to have been constructed in the Flavian period and which underwent substantial modifications before demolition in the mid-late 2 cent. One specimen is relief-patterned on one face and has the other scored with a knife.

Museum of London (GM80).

3. PETER'S HILL / Castle Baynard Street / Lower Thames Street, LONDON (provincial capital).

Exc. Betts 1993, 99–100.

S.*.

From late 3 cent. terrace make-up deposits, associated with pottery dated AD 100–120 (Williams 1993, 55).

Museum of London (PET81).

4. WATLING COURT / 41–53 Cannon Street, LONDON (provincial capital).

Exc. NPR (archive report by I. Betts).

S.*.

From a post-Roman context.

Museum of London (WAT78).



40a



40b



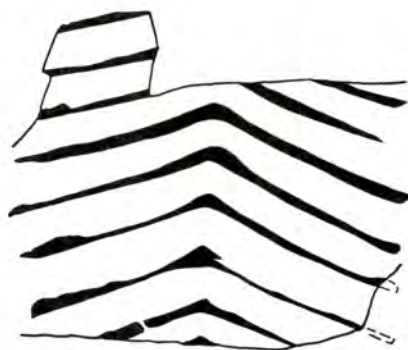
41a



41b



42



43

5. ANGEL COURT / 30–35 Throgmorton Street, LONDON (provincial capital).

Exc. NPR.

S.*.

From a late 4 cent. river silt deposit.

Museum of London (ACW74).

6. DOMINANT HOUSE (85 Queen Victoria Street), LONDON (provincial capital).

Exc. NPR.

SS.*.

Specimens from part of the Huggin Hill baths complex (see example 2).

Museum of London (DMT88).

7. THAMES EXCHANGE BUILDINGS, LONDON (provincial capital).

Ucd. NPR.

S.*.

From Crayford spoil dump.

Museum of London (TEX88).

8. GUILDHALL ART GALLERY / GUILDHALL YARD, LONDON (provincial capital).

Exc. NPR.

S.*.

Associated with pottery dated AD 250–400.

Museum of London (GAG87).

Die 43

Context dating: example 1 (Canterbury) is represented in a late 1/early 2 cent. context (Frere and Stow 1983, 190).

+1. CANTERBURY, Kent (civitas capital).

Exc. Frere and Stow 1983, 190 and Fig. 75 Nos. 15 and 16; Black forthcoming.

SS.*.

In post-Roman contexts on Cakebread Robey site 2 and in a late 1/early 2 cent. context at Butchery Lane.

Canterbury Museum.

2. BROCKLEY HILL, Middlesex (roadside settlement).

Un. Exc. Suggett 1954, 186–87 Fig. 5 T.2.

? S.

Although published as die 42, the drawing seems to show die 43.

Lost.

Die 44

Context dating: example 1 (Chelmsford) is represented in contexts of *c* AD 200 or later (Drury 1988, 84 Table 2) and example 2 (Cheapside, London) in the destruction deposits of a probable 1 or early 2 cent. bath-building which was demolished by around the mid 2 cent. Example

3 from 9 Northumberland Alley in London was associated with pottery dated *c* AD 120–40.

Dating by association: example 1 (Chelmsford) was associated with dies 4, 6, 8, 16, 16A, and 46; example 2 (Cheapside) was associated with dies 18, 40, 63 and 85. Drawing a shows die 44, whilst Drawing b shows part of what is either the same die, or a different die of very similar design.

+1. CHELMSFORD, Essex (roadside settlement with mansio).

Exc. Drury 1988, 80–84.

SS.*.

From mansio baths. From contexts of *c* AD 200 or later. Two of the specimens are in a fabric which is significantly different from the others. Neither can be matched exactly with die 44, so it is possible these may represent a different die (Drawing b).

Chelmsford Museum.

2. 100–116 CHEAPSIDE (Sun Life Assurance), LONDON (provincial capital).

Exc. Marsden 1976, 65–6 Fig. 26 No. 111.

SS.*.

From a small bath-building probably constructed in the late 1 or early 2 cent. The baths underwent a major reconstruction at some stage before demolition which, according to recent re-examination of the pottery, probably took place in the mid 2 cent (B. Davies pers. comm.). The specimens came from destruction deposits in Rooms 4 and 5 and above Flue 8.

Museum of London (GM37).

3. 9 NORTHUMBERLAND ALLEY, LONDON (provincial capital).

Exc. NPR.

S.*.

Associated with pottery dated *c* AD 120–40.

Museum of London (NHA86).

4. GUILDHALL ART GALLERY / GUILDHALL YARD, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (GYE92)

Die 45

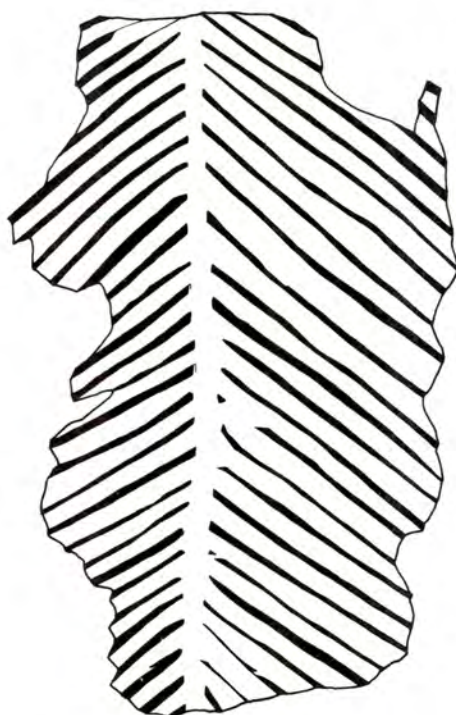
There is no useful context or circumstantial dating.

Dating by association: example 1 (Wall) was associated with dies 16 and 17.

The example from Canterbury published by Frere and Stow (1983, 191 Fig. 75 No. 17) has combing rather than relief-patterned keying. The only other example listed by Lowther, from Wall, has not been examined by the authors. A specimen excavated subsequently at Wall is not certainly die 45.



44b



44a



45



46



48

Dies 44–46 and 48. Scale 1:2

+1. WALL, Staffordshire (roadside settlement with mansio).

Exc. Lowther 1948a, 15; Round 1992, 71 No.10.

SS.

A worn coin of Vespasian (dated between AD 69–79) came from the construction trench of the baths. The uncertain specimen published by Round came from a Phase 3 foundation trench (belonging to the masonry mansio), and has a *terminus ante quem* in the second half of the 2 cent.

The whereabouts of the original specimens is unknown; the example published by Round is poss. English Heritage.

Die 46

Context dating: at Chelmsford example 1 is represented in contexts dated to c AD 200 or later (Drury 1988, 84 Table 2).

Dating by association: example 1 (Chelmsford) is associated with dies 4, 6, 8, 16, 16A and 44, and example 4 (Old Windsor) with uncertain specimens of die 51.

+1. CHELMSFORD, Essex (roadside settlement with mansio).

Exc. Drury 1988, 80–4.

SS.*.

From mansio baths. Found in residual contexts. Chelmsford Museum.

2. Warren's Farm, GREAT TEY, Essex (villa).

Un. Exc. NPR.

?S.

Specimen(s) dug up by a Mr Blythe and seen by J.G.S. Brinson in 1966 (W. Rodwell pers. comm.).

? Lost.

3. COLCHESTER, Essex (colonia).

Exc. and Cf. Richardson 1968, 15.

SS.

One specimen was noted in 1976 built into the chapel in front of the Norman Castle (W. Rodwell pers. comm.). The excavated specimens came from the debris of a room with a hypocaust in Insula 39, House V, along with fragments keyed with die 8 and a majority of fragments with combed or scored keying. The house is dated to the late 2 cent. or later which suggests that the tiles were reused.

The tiles could not be found in the Colchester and Essex Museum in March 1988.

4. OLD WINDSOR, Berkshire.

Exc. NPR.

S.*.

Among a quantity of Roman tile fragments found in the excavation of a medieval hunting-lodge.

Reading Museum.

Die 47

A single fragment attributed to Roake Farm, Broughton (Hampshire) was published as die 47 (Johnston and Williams 1979, 386–87 Fig. 21.2). It is now clear that this is a fragment of die 5A (example 9), and it has been identified by Mr C. Going as a specimen from Boxted Stebbing (Essex) which he had submitted for thin-sectioning.

Die 48

Context dating: example 2 (Chichester) is represented in a context (B10) on the site of the public baths which was sealed by a layer containing Hadrianic samian (Down 1978, 140). It has been suggested that B10 (a slot) may have been filled and the clay above it deposited at the same time so that the pottery would give a *terminus post quem* rather than a *terminus ante quem* for the fill of B10 (Black 1985, 374).

Dating by association: at Chichester (example 2) a fragment of tile stamped with die 4 also came from the slot B10.

+1. FISHBOURNE, Sussex (villa).

Exc. Cunliffe 1971b, (No. 32, not 26) and 48–9 Fig. 25C; Johnston and Williams 1979, 386.

SS.*.

The published specimen came from rubble in the north-west corner of the palace garden. A second specimen came from context (C8) at the Fishbourne By-Pass site adjacent to the 'palace' in 1983. Fishbourne Roman Palace Museum and poss. A. Down.

+2. CHICHESTER, Sussex (civitas capital).

Exc. Down 1974, 58 Fig. 5.10 No. 68; (and archive report by J. Pilmer).

SS.*.

From the site of the public baths. The specimens seem to be voussoirs stamped on their faces and with unkeyed top and base, though little of these adjoining surfaces survives in any specimen. There are no signs of cutaways in the surviving specimens and it is likely that there were none. One specimen from Chapel Street (Area 3) was unstratified. On the site of the public baths (Area 7) two specimens came from slot B10; two came from B48 (the demolition fill of the stokehole in Room 5); one from B24 (a tip-line of rubbish in the disused hypocaust in Room 7). The stokehole and hypocaust are assigned to Phase C of the baths and were functioning in the 4 cent. (Down 1978, 149). If the tiles stamped with die 48 were fitted in Room 7 they must have been reused.

Chichester Museum.

Die 49

Context dating: example 2 from Piddington came from a ditch provisionally dated late 1 or early 2 cent.



49



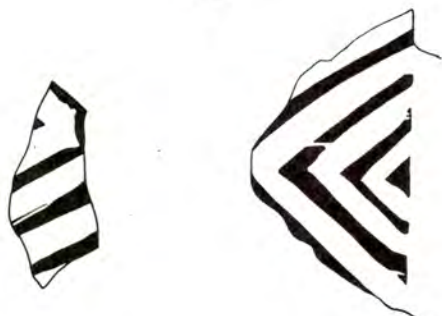
49: Damaged
Roller



50



51a



51b

51c



53

Dies 49–51 and 53. Scale 1:2

Dating by association: example 1 (Gadebridge Park) was associated with die 35.

The left-hand drawing (example 1, Gadebridge Park) shows almost the full pattern, whilst the other drawing (example 2, Piddington) shows damage to the roller and part of the design not present on example 1. It should be noted that the top right-hand side of the damaged die shows an area of pattern which appears to have been cut at two different levels. The latter is also slightly larger as it has shrunk less than the Gadebridge Park tile during firing.

+1. Gadebridge Park, HEMEL HEMPSTEAD, Hertfordshire (villa).

Exc. Neal 1974, 195–97 Fig. 86 No. 716; Johnston and Williams 1979, 386.

SS.*.

A complete tile with two oval cutaways in each side, which may have been used in a horizontal flue at the top of vertical stacks of flue-tiles. Reused in a drain in Period 3 of the baths. A second specimen was reused in a corn-drying oven. On the dating see Black 1985, 366.

Poss. D.S. Neal (ultimately Verulamium Museum).

+2. Piddington, Northamptonshire (villa).

Exc. NPR.

SS.*.

From Ditch 332 (layers 19 and 20), underneath Room 43, dated late Flavian to early-mid Trajanic (R. Friendship-Taylor pers. comm.). The pattern shows two gaps due to damage of the roller.

Poss. R. Friendship-Taylor.

Die 50

There is no useful context dating or circumstantial dating.

Dating by association: example 1 (Park Street) was associated with dies 2, 16 and 35.

+1. PARK STREET, Hertfordshire (villa).

Exc. Lowther in Saunders 1961, 131–32 Fig. 9 No. 2.

S.*.

British Museum.

Die 51

There is no useful context dating.

Circumstantial dating: the earliest bath-house at the Shakenoak villa (example 2) is dated *c* 120 (Brodribb *et al* 1973, 25). Dating by association: example 2 (Shakenoak) is associated with dies 53 and 56, and the uncertain example 3 (Old Windsor) with die 46.

The drawings show three parts of the die. None can be linked with any certainty.

1. NORTH LEIGH, Oxfordshire (villa).

Cf. Johnston and Williams 1979, 380–82 and Pl. 21.1.

S.*.

Published as die 46.

Poss. D.E. Johnston.

+2. SHAKENOAK, Oxfordshire (villa).

Exc. Brodribb *et al* 1971, 36–37 and 39–40 Fig. 11.17; 1973, 24. Johnston and Williams 1979, 386.

SS.*.

One specimen was from Building C, a bath-house constructed *c.* AD 120 (Brodribb *et al* 1973, 25).

Only the illustrated specimen could be found among the Shakenoak material in the Ashmolean Museum.

+3. OLD WINDSOR, Berkshire.

Un. Exc. NPR.

SS.*.

Among a quantity of Roman tile from the site of a medieval hunting lodge.

Reading Museum.

Die 52

Dies 52 and 53 from Shakenoak Villa in Oxfordshire were distinguished as separate dies on the basis of the published drawings in the excavation reports which repeated minor differences (Johnston and Williams 1979, 388). Inspection of the tiles in the Ashmolean Museum has shown that all are stamped with the same die and that the drawing in Brodribb *et al* 1978, 37 (Fig. 11) is inaccurate. This was the die designated die 52 by Johnston and Williams. The specimens assigned to this die from Shakenoak are now assigned to example 1 of die 53.

Die 53

There is no useful context dating.

Circumstantial dating: the earliest bath-house at Shakenoak Villa (example 1) is dated *c* AD 120 (Brodribb *et al* 1973, 25).

Dating by association: example 1 at Shakenoak is associated with dies 51 and 56.

+1. SHAKENOAK, Oxfordshire (villa).

Exc. Brodribb *et al* 1971, 36–37 and 39–40 Fig. 11.15; 1973, 40–41 Fig. 21.73; 1978, 36–37 Fig. 11; Johnston and Williams 1979, 388.

SS.*.

The die was used to key flat bricks apparently employed in Building C which was constructed *c.* AD 120. The illustration in Brodribb *et al* 1978 is inaccurate.

Ashmolean Museum.

2. CIRENCESTER, Gloucestershire (civitas capital).

Exc. M. Stone in McWhirr 1986, 130.

S.*.

Thin section analysis has shown that the fabric matches

tiles manufactured at the Minety kilns. From a late Roman context at the Beeches Road site.
Corinium Museum.

3. BATH, Somerset (temple complex and roadside settlement).

Exc. Cunliffe and Davenport 1985, 134 and Pl. LXVII. S.

From a context of Period 7a (Saxon) in the temple precinct.

Roman Baths Museum, Bath.

Die 54

Context dating: example 1 from Shaw is associated with pottery production dated AD 65–85.

Dating by association: example 2 (Lower Wanborough) was associated with dies 3, 12, 25, 39, 68, and 92.

+1. SHAW, Newbury, Berkshire.

Exc. Johnston and Williams 1979, 390–91.

SS*.

Reused in the structure of a pottery-kiln. From a kiln site producing both tile and pottery. The pottery is dated AD 65–85.

Poss. S.D. Ford.

+2. LOWER WANBOROUGH, Swindon, Wiltshire (roadside settlement with probable mansio).

Fw. NPR.

S*.

The die was used on a flat tile with a nail-setting, intended for use with ceramic spacers in a wall-jacketing.

Swindon Museum.

Die 55

There is no useful context or circumstantial dating.

Dating by association: examples 1 and 2 (Fishbourne and Chichester) are associated with die 48.

+1. FISHBOURNE, Sussex (villa).

Exc. Cunliffe 1971b, 48–9 Fig. 25E.

SS*.

The specimen from Cunliffe's excavations came from context FB 61/9 Layer 2. A second specimen came from context (B9) at the Fishbourne By-Pass site adjacent to the 'palace' in 1983.

Fishbourne Roman Palace Museum and poss. A. Down.

+2. CHICHESTER, Sussex (civitas capital).

Exc. E.W. Black in Down and Magilton 1993, 203.

SS*.

Specimens come from demolition levels (B48 and C11) in the pubic baths (Tower Street: Area 7) and from late Roman and post-Roman contexts at Chapel Street and

the Central Car Park site (Down 1974, 110). Another specimen is from a 18 or 19 cent. feature (A12) at the Greyfriars (1984) site.

British Museum; Chichester Museum.

Die 56

This is the same as Johnston and Williams die 50 (Johnston and Williams 1979, 386).

There is no useful context dating.

Circumstantial dating: the earliest bath-house at Shakenoak (example 2) is dated *c* AD 120 (Brodrigg *et al* 1973, 25).

Dating by association: example 2 (Shakenoak) is associated with dies 51 and 53.

The drawings illustrate three parts of the die. Whilst there are certainly overlaps, these are not extensive enough to link the separate parts together with complete assurance.

1. MINETY, Wiltshire (tile-works).

Exc. NPR.

SS*.

Three specimens from the fill of a kiln (one of which is a waster).

Poss. A. J. Scammell.

+2. SHAKENOAK, Oxfordshire (villa).

Exc. Brodrigg *et al* 1971, 36–7 Fig. 11.16 and 39–40; 1973, 24 and 40–41 Fig. 21.74.

SS*.

One specimen was from Building C, constructed *c* AD 120.

Ashmolean Museum.

3. BATH, Somerset (temple complex and roadside settlement).

Ucd. NPR.

SS*.

A letter of 7 December 1951 from G.C. Boon in the Lowther Papers has a rubbing of a specimen then in the possession of Mrs W. Beare of Bristol. The whereabouts of this tile is not now known. A second specimen, part of a voussoir, is in the Roman Baths Museum.

Roman Baths Museum, Bath.

4. Truckle Hill, NORTH WRAXALL, Wiltshire (villa).

Ucd. NPR.

S*.

The villa was excavated in the early 1860s. The specimen was seen by M. Stone.

Whereabouts not now known.

5. CIRENCESTER, Gloucestershire (civitas capital).

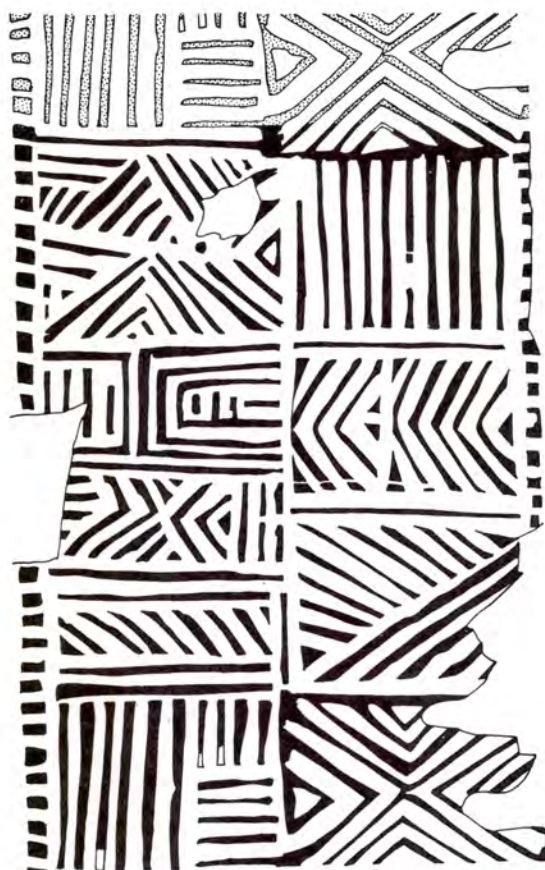
Exc. NPR.

S*.

From a post-Roman context at Cirencester Abbey.
Corinium Museum.



54



55



56a



56b



56c



57

Dies 54-57. Scale 1:2

6. Rough Ground Farm, LECHLADE, Gloucestershire (villa).

Exc. NPR.

S.*.

The tile is marked "LEG 58 surface die 18A." This die number was presumably assigned by Lowther, but does not appear to have been published. The earliest construction phase of the villa is assigned to the period AD 130–150 (Allen *et al* 1993, 183–86).

British Museum.

7. LOWER WANBOROUGH, Wiltshire (roadside settlement with probable mansio).

Fw. NPR.

S.*.

From fieldwalking over the site of the mansio. Thin-section analysis suggests a Minety product.

Swindon Museum.

Die 57

There is no available context or circumstantial dating for this die.

Dating by association: an uncertain specimen of die 73 (example 4) also comes from Mucking.

The pattern on the tile from Mucking is very difficult to distinguish. The drawing of this particular die may therefore not be as accurate as others in the corpus. In this drawing only areas of definite pattern are black and areas of possible pattern are dotted.

+1. MUCKING, Essex.

Exc. NPR.

S.*.

Inf. D.E. Johnston.

British Museum (ultimately Thurrock Museum).

Die 58

Context dating: at Winchester Palace example 11 was found in the demolition debris of Building 14 which has a *terminus post quem* of AD 150–250 and was demolished c 287 or later (B. Yule pers. comm.).

Circumstantial dating: the earliest phase of the bath-suite at Pudding Lane (example 3) is dated mid 2 cent. and this may have been altered to a different use in early 3 cent., again becoming a bath-suite after c AD 370 (Milne 1985, 139–41). There is a similarity between the designs of dies 35 and 58, and a re-cut seems possible. If this was the case, since the pattern of die 58 is longer than that of die 35, die 58 will have been the earlier die.

1. WELWYN BY-PASS, Hertfordshire.

Exc. NPR.

SS.

The two specimens came from the site of a corn-drier (T.

Rook pers. comm.). There was no dating material apart from the tiles (Rook 1987, 105–6).

Letchworth Museum.

2. NEW FRESH WHARF, Lower Thames Street, LONDON (provincial capital).

Exc. Betts 1986, 250 Fig. 16.55.

S.*.

From the infill of the quay constructed c AD 225–45, associated with pottery dated c AD 180–245.

Museum of London (NFW74).

+3. PUDDING LANE / 118–127 Lower Thames Street, LONDON (provincial capital).

Exc. NPR (archive report by F. Pritchard).

SS.*.

The earliest specimens are from a phase dated to late 2/early 3 cent.

Museum of London (PDN81).

+4. ST. MAGNUS / New Fresh Wharf / Lower Thames Street, LONDON (provincial capital).

Exc. Betts 1986, 250 Fig. 16.56.

SS.*.

Three specimens are from contexts in the infill of the quay constructed c AD 225–45, associated with pottery dated c AD 180–245.

Museum of London (SH75).

5. CALVERTS BUILDINGS, (15–23 Southwark Street), SOUTHWARK, LONDON (provincial capital).

Exc. NPR. (archive report by N. Crowley).

S.*.

From a floor make-up in Building 6, a clay and timber building with a hypocaust, constructed AD 120 or later and probably demolished c AD 120–160. There have, however, been serious problems interpreting the stratigraphy of this site, which has led to less certainty with regard to dating (C. Cowan pers. comm.).

Museum of London (CB80).

6. 93–97 FENCHURCH STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

From a medieval pit associated with pottery dated AD 100–300.

Museum of London (FST85).

7. ANGEL COURT / 30–35 Throgmorton Street, LONDON (provincial capital).

Exc. NPR.

S.*.

From a late 4/early 5 cent. river silt deposit.

Museum of London (ACW74).

8. PARK STREET, Hertfordshire (villa).

Exc. A.W.G. Lowther in Saunders 1961, 132 Fig. 9 No.3. S.

The specimen was published as die 35, but the drawing allows a correct identification to be made. From rubble filling of the *tepidarium* of a bath-building constructed in the mid 2 century. It was the only specimen of relief-patterned tile among "large quantities of flue-tiles" (Saunders 1961, 104).

Lost.

9. Church Farm, SAUNDERTON, Buckinghamshire (villa).

Ucd. NPR.

S.*.

A mortared fragment marked "Church Farm Saunderton Bucks" was donated to Aylesbury Museum by E.C. Rouse. There is a reference to a fragment of tile stamped with a zig-zag pattern (Ashcroft 1939, 408) and another to a weathered fragment of stamped tile (Branigan 1969, 266 and 269). Neither fragment can be positively identified with the specimen of die 58.

Aylesbury Museum.

10. ST ALBANS, Hertfordshire (municipium).

Exc. NPR.

S.*.

From Insula III on the site of probable public baths. Verulamium Museum.

11. WINCHESTER PALACE, SOUTHWARK, London (provincial capital).

Exc. NPR. (archive report N. Crowley).

S.

From demolition rubble in Room A of Building 14, a hypocausted masonry building with a *terminus post quem* of AD 150–250 and demolished *c.* AD 287 or later (N. Crowley and B. Yule pers. comm.).

Museum of London (WP83).

Die 59

The lettering on this die appears to be identical to that on die 31, although less of the pattern is known. The roller would originally have had three lines of text reading:

(tubum) parietalem Cabriabanu(s) farbicavi

'I, Cabriabanus manufactured (this) wall (box-flue) tile'

There is no context or circumstantial dating.

Dating by association: example 1 from Plaxtol was associated with die 31.

+1. PLAXTOL, Kent (villa).

Ucd. NPR.

S.*.

It is probable that the specimen was part of the material found in excavating the bath-house in the 19 cent. along

with tiles stamped with die 31. Specimens of the latter are also in the possession of Holy Cross Church, Sarratt (Rev. Martin Culverwell pers. comm.).

Poss. Holy Cross Church, Sarratt (Hertfordshire).

Die 60

There is no useful context or circumstantial dating available.

Dating by association: example 1 at Fishbourne can be associated with dies 19, 22, and 81; the uncertain example 2 at Chichester with dies 19, 21, 23, 81, and 87. Die 60 was used to key 'Westhampnett' type voussoirs.

+1. FISHBOURNE, Sussex (villa).

Exc. Cunliffe 1971b, 48–9 Fig. 25B.

SS.*.

One specimen is the base of a 'Westhampnett' type voussoir with traces of combing on the front and rear faces. Cunliffe 1971b, 47 No. 26 should refer to die B (not C), and No. 31 should refer to D (not B).

Fishbourne Roman Palace Museum.

2. Unprovenanced, probably CHICHESTER, Sussex (civitas capital).

Un. Exc. NPR.

S.*.

The specimen is from a 'Westhampnett' type voussoir, keyed with die 60 on the base and with combed face. Part of the tile has been detached along with the context number. Chichester Museum.

Die 61

There is no useful dating evidence for this die.

+1. CANTERBURY, Kent (civitas capital).

Exc. Frere and Stow 1983, 191 Fig. 75.18 (published as 'perhaps die 46'); Black forthcoming.

SS.*.

At least two of the three specimens are voussoirs. One (unstratified) was from Whitehall Field. Another came from a 4 cent. deposit of rubble within the St Margaret's Street baths. The third was from a late Saxon context at the Marlowe Theatre site.

Canterbury Museum.

Die 62

There is no useful dating evidence for this die.

+1. CANTERBURY, Kent (civitas capital).

Exc. Black forthcoming.

S.*.

Residual in a medieval level at Marlowe site 1 (Watling Street).

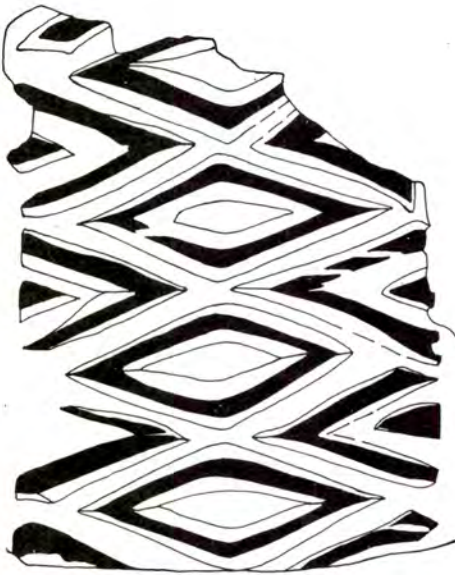
Canterbury Museum.



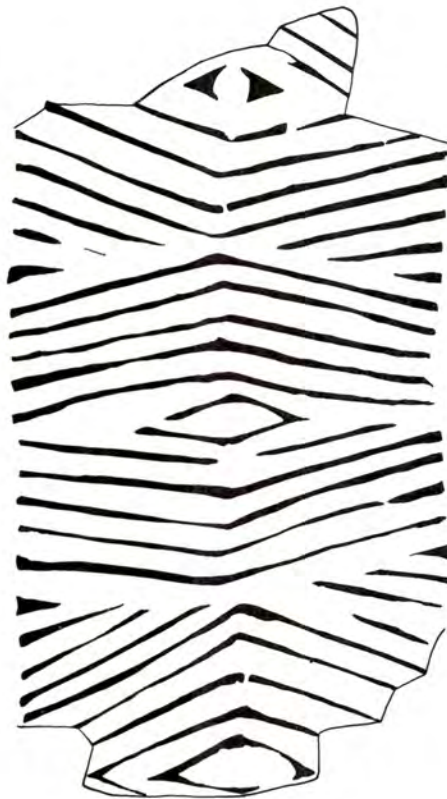
58



59



60



61



62

Die 63

The design of die 63 incorporates initials (PTP) separated by stops in the form of saltires and preceded by a leaf stop. the final P seems to have been originally cut as an F. These letters are more fully discussed in Section 13. Context dating: example 2 (Cheapside, London) was found in the destruction deposits of a probable 1 or early 2 cent. bath-building demolished around the mid 2 cent. Dating by association: example 2 (Cheapside) was associated with dies 18, 40, 44 and 85. The illustration of example 3 from Southwark may show that the tile was provided with an extension or 'hood' for locking into another flue-tile or some other aperture. This feature is also present on tiles stamped with dies 16 and 105.

1. CANTERBURY, Kent (civitas capital).

Exc. Hassall and Tomlin 1982, 413; RIB II 1993, 88; Black forthcoming.
SS.*.

One was residual in a late Roman context at Marlowe site 2B (the St Margaret's Street baths). A second specimen came from St Mildred's and is published as die 16 (Frere and Stow 1983, 189). A third (unpublished) specimen comes from context 36 at Stour Street (1986 site B). Canterbury Museum and Canterbury Archaeological Trust (ultimately Canterbury Museum).

+2. 100–116 CHEAPSIDE (Sun Life Assurance), LONDON (provincial capital).

Exc. Marsden 1976, 65–66 Fig. 26 No. 109; RIB II 1993, 88.
SS.*.

From a small bath-building probably constructed in the late 1 or early 2 cent. The baths underwent a major reconstruction at some stage before demolition which, according to recent re-examination of the pottery, probably took place in the mid 2 cent. (B. Davies pers comm.). The specimens were from the bath-house destruction deposits in Rooms 4, 5 and 6 and above Flue 8.

Marsden (1976, 38) mistakenly refers to a specimen from context ER342 as stamped with the letters XTXA. Inspection of the tile in the British Museum (Acc. No. P. 1973 4–3 186) shows that the letters are XTXP. Another specimen in the British Museum (P. 1973 4–3 136) has the letters PXT showing that the full set of initials was PXTXP rather than TTXXP (given by Marsden 1976, 66).

British Museum; Museum of London (GM37).

3. REDCROSS WAY / Thrale Street, SOUTHWARK, London (provincial capital).

Ucd. Smith C.R. 1859, 114 Fig. 3; RIB II 1993, 87–88.
S.

A drawing of the tile is in G. Gwilt's unpublished 'Roman Antiquities found in Southwark' where the findspot is given as "about 300 feet westward of Red Cross Street

and half that distance northward of Castle Street, Southwark". This tile is listed twice in error in RIB II where it is recorded as both example 2490.3 'i' and example 2490.3 'v'.

? British Museum.

4. 1–6 MILK STREET, LONDON (provincial capital).

Exc. RIB II 1993, 88.

S.*.

From a post-Roman context.

Museum of London (MLK76).

5. UNPROVENANCED.

Ucd. RIB II 1993, 87.

S.*.

Cambridge University Museum.

6. CHEAPSIDE (West of St. Mary le Bow), LONDON (provincial capital).

Ucd. NPR.

S.*.

British Museum.

Die 64

There is no useful context dating.

Circumstantial dating: the Lodge Farm, Harrold specimens came from a tile and pottery production site. They were associated with the manufacture of tiles in Phase 3, dated to the late 2 cent. (Brown 1994, 105–106). Example 2 from Brixworth was in the destruction deposits of a bath-suite which is provisionally assigned a late 3 / 4 cent. construction date (Woods 1972, 4). These tiles may be reused.

Examples 1 and 2 are in the same distinctive shelly fabric (as is the example of die 123) as the Harrold tiles. This would suggest that they originated from the tile manufacturing site at Harrold.

The area of pattern reconstructed for die 64 is sufficiently large to suggest the probable length of the roller (shown as a line to the left of the drawing).

+1. BRAUGHING, Hertfordshire (roadside settlement).

Exc. Lowther 1955, 126.

SS.*.

Residual in 4 cent. rubbish deposit.

British Museum.

2. Lodge Leys, BRIXWORTH, Northamptonshire (villa).

Exc. NPR.

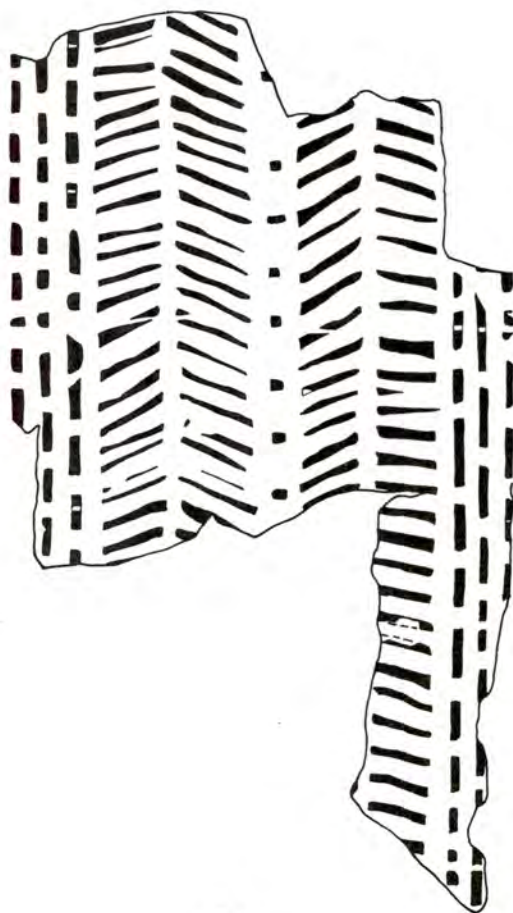
SS.

The tiles came from the fill of the bath-suite. The west wall of the *praefurnium* overlay a pit containing pottery dating from c AD 160–80, but the construction of the baths is provisionally assigned to Period IV (late 3 / 4 cent.) (Woods 1972, 4 and 95).



63

Length of roller?



64



65



66

Dies 63-66. Scale 1:2



66: Damaged
Roller

? British Museum.

There are three unprovenanced specimens of die 64 (P 1973 4–3 150–2) in the Lowther Collection in the British Museum. In all probability these are the Brixworth specimens.

3. Lodge Farm, HARROLD, Bedfordshire (pottery and tile-making site).

Exc. Brown 1994, 78–80 Fig.41.8.

SS.

Five abraded fragments, four joining, were found unstratified from south-east of Kiln 1 (Trench 2). These are associated with the production of tiles in Phase 3, dated to the late 2 cent.

Bedford Museum.

Die 65

Context dating: example 3 from Winchester Palace, Southwark was found in the make-up of Building 13 constructed after c 120. Die 65 was also found associated with Building 14 which has a *terminus post quem* of AD 150–250 and was demolished c AD 287 or later.

Dating by association: example 1 from the Farningham 2 villa was associated with dies 10 and 69 and example 2 from Folkestone with die 16A.

1. Farningham Manor House, FARNINGHAM, Kent (The 'Farningham 2' villa).

Exc. NPR.

SS.*.

British Museum; Dartford Museum.

2. East Wear Bay, FOLKESTONE, Kent (villa).

Exc. NPR.

SS.*.

Folkestone Museum, Kent Museums' Service.

+3. WINCHESTER PALACE, SOUTHWARK, London (provincial capital).

Exc. NPR. (archive report N. Crowley)

SS.*.

One specimen came from the demolition of a clay and timber structure (Building 9), associated with pottery dated AD 120–130. Six specimens were found in a stone and tile 'raft' for an *opus signinum* subfloor of Room B in Building 13. Another specimen came from the demolition of this room. One specimen came from the demolition rubble in Room A, Building 14, whilst others came from the demolition debris and robbing of Room B (14 specimens). Another came from robbing of the south-west wall footings of the same building. Both Buildings 13 and 14 are hypocausted masonry structures. Building 13 was built after c AD 120 and demolished c AD 250, or later, whilst Building 14 has a *terminus post quem* of AD 150–250 with demolition c AD 287 or later.

Other specimens of die 65 came from a levelling dump, a dark earth layer and a post-Roman context (N. Crowley and B. Yule pers. comm.).

Museum of London (WP83).

4. THAMES EXCHANGE BUILDINGS, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (TEX88).

5. POST OFFICE / NEWGATE STREET, LONDON (provincial capital). Exc. NPR.

S.*.

Museum of London (GPO75).

Die 66

There is no useful context dating available for die 66. Circumstantial dating: example 4 from the Beddington villa where the earliest phase of the baths is provisionally dated c AD 180 (Adkins and Adkins 1986, 77).

Dating by association: example 3 is associated with dies 1, 4, 5, 6, and 14 at Ashted Common and example 4 with dies 4, 5, and 14 at Beddington.

Part of the roller used to produce die 66 has been damaged during its lifetime. This has led to the loss of half of one of the vertical elements above the 'W' chevron.

+1. EWELL, Surrey (roadside settlement).

Cf. NPR.

SS.*.

The finds were made at Purberry Shot and Tayles Hill, both on the south-west side of the roadside settlement to the west of Stane Street. It is likely that they derive from the same building. Part of the pattern is missing on the Ewell specimens, indicating use of a damaged roller.

British Museum.

2. ISLEWORTH, Middlesex.

Exc. NPR.

SS.*.

The specimens were unstratified from a site with only late Roman occupation. (Letter of 25 September 1955 from I. Noel-Hume in the Lowther Papers).

British Museum.

3. ASHTEAD COMMON, Surrey (villa).

Exc. NPR.

S.*.

From tile-making area adjacent to the villa.

Poss. J.N. Hampton.

4. Beddington Sewage Farm, BEDDINGTON, Surrey (villa).

Exc. E.W. Black in Adkins and Adkins forthcoming.

SS.*.

Poss. Thames Water Authority.

5. ALFOLDEAN, Sussex (roadside settlement with probable mansio).

Fw. NPR.

S.*.

Poss. J. Gower (ultimately Horsham Museum).

+6. ST ALBANS, Hertfordshire (municipium).

Exc. NPR.

SS.*.

From Insula III on the site of a probable public bath house. Verulamium Museum.

7. BILLINGSGATE BATH HOUSE / 100 Lower Thames Street, LONDON (provincial capital).

Exc. NPR.

SS.*.

Museum of London (BIL75).

8. 68 UPPER THAMES STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (VRY89).

Die 67

Context dating: example 1 is found in Phase 3 contexts at Blue Boar Lane, Leicester. These consist largely of late 2 / early 3 cent. destruction deposits of the Phase 2 (early 2 cent.) house (R.A. Rutland pers. comm.).

Circumstantial dating: the Phase 2 (early 2 cent.) house at Blue Boar Lane Leicester was extensively renovated in the mid 2 cent. A specimen of die 67 also comes from the site of the public baths in Leicester, which were completed c. AD 155–60 (Wacher 1974, 342).

Dating by association: example 1 (Leicester) is associated with dies 7, 9, 13, and 30 from the site of the public baths.

+1. LEICESTER, Leicestershire (civitas capital).

Cf. and Exc. NPR.

SS.*.

One specimen was unstratified from the area of the 'forum site' in 1951. This was presumably Insula XXI, now interpreted as the site of the public baths. Others came from the excavation of a town house at Blue Boar Lane in Insula XVI. The earliest contexts belonged to Phase 3 (the destruction deposits of the Phase 2 house) dated late 2 / early 3 cent. Phase 2 is dated to the early 2 cent., with extensive renovation in the mid 2 cent. (Wacher 1974, 348–49).

British Museum; Jewry Wall Museum, Leicester.

2. CAVE'S INN, Warwickshire (roadside settlement with mansio).

Exc. Lucas 1984, 34 (Fig. 8 No. 12) and 36.

S.*.

Poss. Rugby Archaeological Society.

Die 68

There is no useful context dating or circumstantial dating available for die 68.

Dating by association: example 2 (Littlecote Park) is associated with dies 18, 39, and 92 and example 3 (Lower Wanborough) with dies 3, 12, 25, 39, 54 and 92.

1. CIRENCESTER, Gloucestershire (civitas capital).

Ucd. NPR.

S.*.

From an unknown site in the city.

Corinium Museum.

+2. LITTLECOTE PARK, Hungerford, Wiltshire (villa).

Exc. NPR.

SS.*.

Poss. The Roman Research Trust.

+3. LOWER WANBOROUGH, Swindon, Wiltshire (roadside settlement with probable mansio).

Fw. NPR.

SS.*.

Swindon Museum.

Die 69

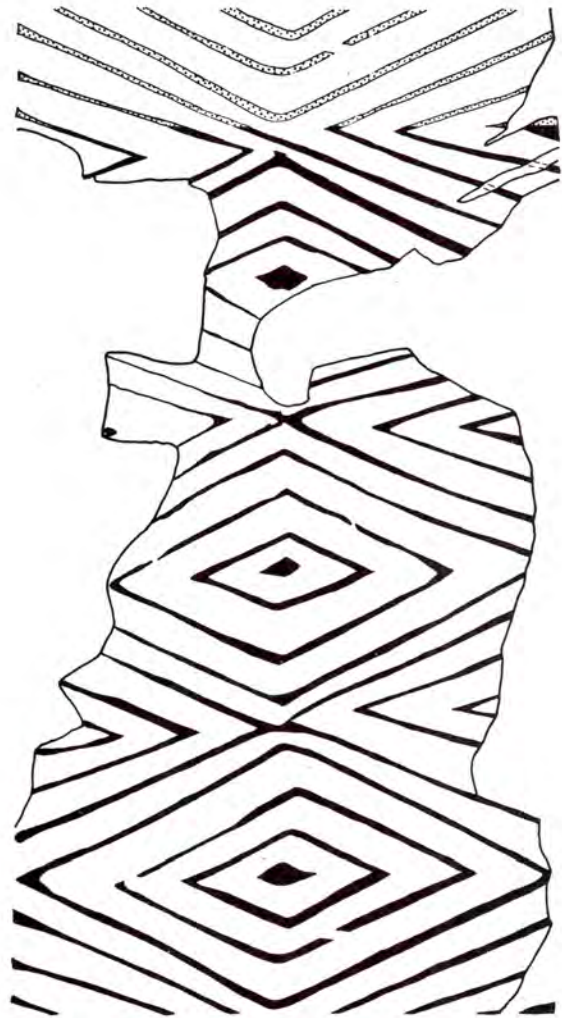
Context dating: the tile from Watling Court, London (example 7) is from Period V. Although this is dated c AD 120–160, the tile was in a context associated with pottery dated AD 120–140. A complete tile keyed with die 69 was found *in situ* in the south-west corner of Room 22 of the bath-suite at Lullingstone (example 3) and can be attributed to the initial construction of the baths (Meates 1979, 98). In the second volume of the excavation report two pottery groups (IV and V) from below the baths are dated "pre-late second century" (R.J. Pollard in Meates 1987, 286). Another group (XI) is described as "construction of first (Period 2) Baths and Occupation" and dated "up to late second century into third century" (*Ibid*, 287). Most of the listed contents of this group comprises Antonine samian ware which was found "lying crushed upon the lowest of the three floors of the frigidarium of the baths" (G. Simpson in Meates 1987, 159). The nature of this deposit is difficult to conjecture but its stratigraphical position is clear: it provides a *terminus ante quem* only and not the date of the construction of the baths (*contra* Meates 1979, 93). The pottery evidence from Lullingstone therefore does not contradict the dating provided by the association of die



67



69



68



70a



70b

Dies 67-70. Scale 1:2

69 with die 28 (R.J. Pollard pers. comm.), or the earlier date of the Watling Court specimen.

Dating by Association: example 1 (Farningham) is associated with dies 10, 28 and 65. Example 2 (Newgate Street, London) is associated with die 10 and possibly die 28. It is possible that die 80 is a re-cut of die 69.

1. Farningham Manor House, FARNINGHAM, Kent (The 'Farningham 2' villa).

Exc. NPR.

SS.*.

British Museum; Dartford Museum.

2. GPO Middle Area, NEWGATE STREET, LONDON (Provincial Capital).

Exc. NPR.

S.*.

From a post-Roman context.

Museum of London (POM79).

+3. LULLINGSTONE, Kent (villa).

Exc. Meates 1987, 303 Fig. 90, No. 439.

SS.*.

A complete tile was found *in situ* in Room 22 of the bath-suite. See above for dating evidence.

British Museum; Dartford Museum.

4. 1-7 WHITTINGTON AVENUE, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (WIV88).

+5. ST ALBANS, Hertfordshire (municipium).

Exc. NPR.

S.*.

From Insula III on the site of a probable public bath-house.

Verulamium Museum.

6. DORKING, Surrey.

Exc. NPR.

S.*.

From fill of ditch dated provisionally mid to late 2 cent.

Poss. J. Gower (ultimately Guildford Museum).

7. WATLING COURT / 41-53 Cannon Street, LONDON (provincial capital).

Exc. NPR.

S.*.

The specimen came from Period Va, a series of dumps and silting which occurred after the Hadrianic Fire in c AD 120, or a little later. Although Period V is dated c AD 120-160 the tile was associated with pottery dated AD 120-140.

Museum of London (WAT78).

Die 70

Context dating: example 2 (Well Court, London) is dated c AD 85/90-120, whilst specimens of example 1 (Watling Court, London) are from Period V. Although Period V is dated c AD 120-160 all the tiles were found in contexts associated with pottery dated AD 120-140.

The drawings (70a and 70b) show separate fragments of the die. It is possible that this die may in fact be part of die 40. Both are found in Period V at Watling Court.

+1. WATLING COURT / 41-53 Cannon Street, LONDON (provincial capital).

Exc. NPR (archive report by I. Betts).

SS.*.

The specimens found in stratified Roman contexts came from Period V (Perring *et al* 1991, 41-43). Although dated c AD 120-160 all the tile fragments came from contexts associated with pottery dated AD 120-140. Most tiles came from a gravel yard surface over the site of Building H (Vb.13).

Museum of London (WAT78).

2. WELL COURT / 44-48 Bow Lane, LONDON (provincial capital).

Exc. NPR (archive report by I. Betts).

S.*.

The tile is from Period V.9, Area C where successive timber half-cellaried buildings were built into the edge of the street. This period is dated c AD 85/90-120 (Perring *et al* 1991, 54).

Museum of London (WEL79).

Die 71

Context dating: the construction of the Billingsgate baths where two tiles keyed with die 71 are still *in situ* (example 1) is provisionally dated late 2/early 3 cent. At Cannon Street Station, London (example 6) one specimen of die 71 is associated with Flavian pottery.

+1. BILLINGSGATE BATH HOUSE / 100 Lower Thames Street, LONDON (provincial capital).

Exc. Lethaby 1923, Fig. 25 (facing pg. 44) (From 'The Builder', June 11th, 1859, pg. 389).

SS.*.

Two tiles are still *in situ* in the west wall of the *caldarium*. The more southerly specimen seems to be the flue illustrated in the reference. The drawing in the reference is inaccurate. A drawing by F.W. Fairholt (Victoria and Albert Museum: Collection of British Antiquities, etc. Vol. ii, pg. 58) shows a 'fragment of flue tile with indented pattern' which is the same die. The keying on the side of the tile in this illustration is a close-set lattice which could be either stamped or scored. Construction of the baths is provisionally dated to the late 2/3 cent. The baths may have survived in use until the first years of the 5 cent.

In situ Billingsgate Bath House; Museum of London (BBH87).

2. THAMES STREET (now Lower and Upper Thames Street), LONDON (provincial capital).
Ucd. Lethaby 1923, 26 Fig. 13.
S.

The drawing shows a complete face of a tile keyed with die 71. The drawing may be a reconstruction based on fragmentary specimens, and it is possible that it was based on tiles from the bath-building at 100 Lower Thames Street (example 1).

? Lost.

3. CATHEDRAL CRYPT, SOUTHWARK, London (provincial capital).

Exc. NPR.

S.*.

Mortar across a broken edge indicates reuse.

Museum of London (SCC77).

4. WATLING COURT / 41-53 Cannon Street, LONDON (provincial capital).

Exc. NPR (archive report by I. Betts).

S.*.

From a post-Roman context.

Museum of London (WAT78).

+5. 107 FENCHURCH STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

From a post-Roman context.

Museum of London (FCS87).

6. LLOYDS BUILDINGS, CANNON STREET STATION (North Side), LONDON (provincial capital).

Exc. NPR.

SS.*.

Associated with pottery dated AD 70–100, 120–180 and 180–250.

Museum of London (LYD88).

Die 72

Context dating: example 3 (Stonea) is dated Hadrianic or earlier.

1. GREAT CASTERTON, Rutland (roadside settlement).
Ucd. NPR.

S.*.

The tile is marked 'Great Casterton (?O)F 58'. It is possible that it came from a trench dug in 1958 which located part of a bath-house near the south gate of the walled town, possibly one belonging to a *mansio*. It is suggested that the bath-house was constructed in the late

1 cent. (Corder 1961, 49–50).
British Museum.

+2. EASTON MAUDIT, Northamptonshire (villa).
Exc. NPR.

SS.

Bozeat Archaeology and Local History Society.

3. STONEA, Cambridgeshire.

Exc. NPR.

S.*.

Used in foundations for masonry building of Hadrianic date.

British Museum.

Die 73

There is no useful Context dating available for die 73. Circumstantial dating: example 3 from Lullingstone where the earliest baths are dated "pre-late second century".

Dating by association: examples 1, 2 and 3 are associated with ten different dies but never more than once with any of them. However, example 1 (Chalk) is associated with die 33 and example 3 (Lullingstone) with die 13, both of which incorporate the letters I V, perhaps the initial letters of the *nomen* and *cognomen* of a tile-maker, in their design (Black 1985, 362).

The drawings (73a–c) show three separate areas of what must presumably have been a pattern of reasonably large size.

1. CHALK, Kent (villa).

Exc. NPR.

SS.*.

The keying of adjacent surfaces on one specimen and the presence of a cutaway in a keyed surface suggest the specimens are *voussoirs*.

Poss. J. Shepherd.

2. 28–34 BISHOPSGATE, LONDON (provincial capital).

Exc. (archive report by N. Crowley).

SS.*.

Two specimens from Ditch 603 dated AD 350–400; one specimen from a post-Roman context.

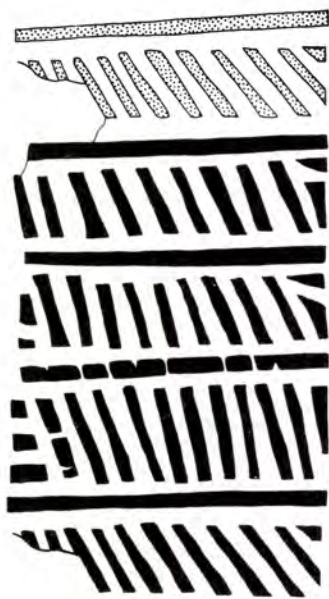
Museum of London (BOP82).

+3. LULLINGSTONE, Kent (villa).

Exc. NPR.

SS.*.

The presence of a cutaway in a keyed surface suggests that the specimens are *voussoirs*. The earliest phase of the baths was originally dated c AD 180 (Meates 1979, 92), but has more recently been dated "pre-late second century" (R.J. Pollard in Meates 1987, 286; pottery groups IV and V). Since the contexts have not been published it



71



72



73a



73b



73c

Dies 71–73. Scale 1:2

is not clear whether the tiles were used in this phase or a later phase.

British Museum.

4. MUCKING, Essex.

Un. Exc. NPR.

S.*.

British Museum (ultimately Thurrock Museum).

5. 158–164 BISHOPSGATE, LONDON (provincial capital).

Exc. NPR.

S.*.

From a post-Roman context.

Museum of London (OPS88).

Die 74

There is no available dating evidence for die 74.

+1. MARGARETTING, Essex.

Ucd. NPR.

S.*.

British Museum.

Die 75

There is no available dating evidence for die 75.

+1. ST ALBANS, Hertfordshire (municipium).

Exc. Wilson 1984, 113 and Fig. 50 No. 3.

S.*.

Verulamium Museum.

Die 76

There is no useful dating evidence available for die 76.

+1. CANTERBURY, Kent (civitas capital).

Exc. Black forthcoming.

S.*.

From a post-Roman context at Cakebread Robey, site 2. Canterbury Museum.

Die 77

There is no useful dating evidence available for die 77. Drawing 77b is a composite based on a number of separate fragments. Drawing 77a shows another part of the pattern on a further tile.

+1. CANTERBURY, Kent (civitas capital).

Exc. Frere and Stow 1983, 189 and Fig. 75 Nos. 6 and 7 (published as 'perhaps die 22'); Black forthcoming.

SS.*.

From residual or unstratified contexts at Simon Langton

School Yard, St. George's Street bath-building, and Marlowe, sites 2A and 4. Further specimens were excavated in 1987 at the Tannery Allotments (contexts 62, 90, and 92).

Canterbury Museum and Canterbury Archaeological Trust (ultimately Canterbury Museum).

Die 78

There is no useful context dating for die 78.

Circumstantial dating: example 2 from Lullingstone where the earliest baths are dated "pre-late second century".

Dating by association: examples 1 and 2 (Seal House, London and Lullingstone) are both associated with dies 12 and 35.

1. SEAL HOUSE / 106–108 Upper Thames Street, LONDON (provincial capital).

Exc. NPR (archive report by A. Leddy and I. Betts).

S.*.

From a post-Roman context.

Museum of London (SH74).

2. LULLINGSTONE, Kent (villa).

Exc. NPR.

S.*.

The earliest phase of the baths was originally dated *c* AD 180 (Meates 1979, 92), but has more recently been dated "pre-late second century" (R.J. Pollard in Meates 1987, 286: pottery groups IV and V). Since the contexts of the relief-patterned tiles have not been published it is not clear whether the tile was used in this or in a later phase. British Museum.

+3. 61 QUEEN STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

Associated with pottery dated *c* AD 250–330.

Museum of London (QUN85).

4. GUILDHALL ART GALLERY / GUILDHALL YARD, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (GAG87).

Die 79

There is no useful dating evidence for die 79.

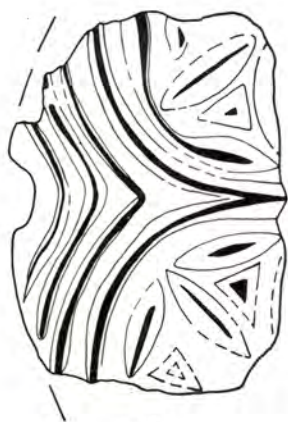
+1. 36–37 KING STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

Associated with pottery dated *c* AD 270–330.

Museum of London (KNG85).



74



75



76



77a



77b



78



79

Dies 74–79. Scale 1:2

Die 80

Context dating: example 1 came from the fill of Feature C at 48–50 Cannon Street London and is therefore dated Hadrianic or earlier (C. Green in Boddington 1979, 23–24).

It is possible that die 80 is a recut of die 69.

Drawings 80b, 80c and 80d show isolated elements of pattern similar in appearance to die 80 (drawing 80a). It cannot be stated with any certainty that they actually form part of die 80.

+1. 48–50 CANNON STREET, LONDON (provincial capital).

Exc. C. Green in Boddington 1979, 23–24, Fig. 13 No. 64. S.*.

From the fill of Feature C and therefore Hadrianic or earlier.

Museum of London (CS75).

+2. BILLINGSGATE MARKET, (Lorry Park / Lower Thames Street),

LONDON (provincial capital).

Fw. NPR (archive report by I. Betts).

SS.*.

The specimens were retrieved by C. St. J. Breen from spoil from the site dumped at Dartford Heath, Purfleet, and Chequers Lane Dagenham.

Poss. Dartford and District Archaeological Group (Ceramic Study Project), Research Centre, Dartford.

+3. 52–54 CARTER LANE, LONDON (provincial capital).

Un. Exc. NPR.

S.*.

From a post-Roman context.

Museum of London (CAT86).

+4. MILES LANE / 132–7 Upper Thames Street,
LONDON (provincial capital).

Un. Exc. NPR.

S.*.

From a context dated *c* AD 120–60.

Museum of London (ILA79).

5. ABACUS HOUSE / 33–39 GUTTER LANE,
LONDON (provincial capital).

Un. Exc. NPR.

S.*.

Museum of London (ABC87).

Die 81

Context dating: example 2 from Chichester came from Layer F46 in the fill of the 'deep excavation' on the site of the public baths. This contained Flavian samian as its latest datable finds and was probably contemporary with

the construction of the public baths in the late Flavian period or slightly later (Down 1978, 142; Black 1987, 85–86).

The drawings (81a and 81b) show two, possibly joining, areas of pattern.

+1. FISHBOURNE, Sussex (villa).

Exc. NPR.

S.*.

Fishbourne Roman Palace Museum.

+2. CHICHESTER, Sussex (civitas capital).

Exc. NPR.

SS.*.

From Layer F46 in the fill of the deep excavation which contained Flavian samian as its latest datable finds and which was probably contemporary with the construction of the public baths in the late Flavian period or slightly later (Down 1978, 142).

Chichester Museum.

Die 82

There is no dating evidence available for die 82.

+1. FOSTER LANE, LONDON (provincial capital).

Ucd. NPR.

S.*.

Museum of London (Tile No. 11256–11269).

2. Unprovenanced, ? LONDON.

Ucd. NPR.

S.*.

Museum of London (Tile No. 86.123/37).

Die 83

There is no useful context dating for die 83.

Circumstantial dating: the second period of baths at Wiggonholt (example 1) is dated *c* AD 120–25 (Evans K.J. 1974, 114–15; Winbolt and Goodchild 1937, 18–19).

Reconstruction of die 83 proved difficult due to the abraded nature of the specimen used for illustration. It initially seemed likely that the pattern only comprised three diamond elements (shown in black). However, it proved impossible to match the top and bottom of the pattern adequately with only three diamonds. Hence, there is a possibility that the roller had a fourth diamond and this has been added in white.

+1. Lickfold, WIGGONHOLT, Sussex.

Exc. Lowther 1948a, 13

SS.*.

Although listed as die 19 by Lowther, a detailed study has shown these specimens to be of a different die. The



80a



80b



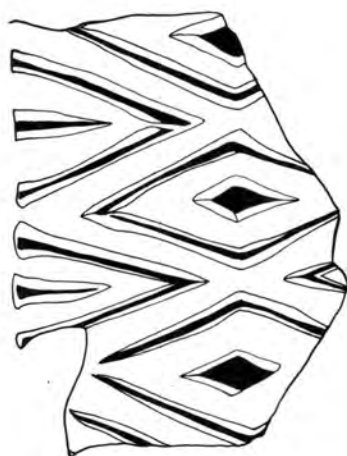
82



80c



80d



81a



81b



83

site has a bath-building in an extensive area of settlement. Additions to the baths are dated *c* AD 120–25 (Evans K.J. 1974, 114–5; Winbolt and Goodchild 1937, 18–19). British Museum; Worthing Museum

Die 84

Context dating: example 2 from 11 Ironmonger Lane, London was associated with late 1 cent. pottery. The second drawing of die 84 clearly shows that the roller has split at some stage during its life.

+1. Unprovenanced, LONDON (provincial capital).

Ucd. Lowther 1948a, 13.

S.*.

Lowther's entry for die 18, No. 1 indicates a second specimen from London stamped with die 18. A photograph in the Lowther Papers showing this specimen is marked 'Die 18 in my series'. However, it differs from die 18 and is best treated as a separate die.

Museum of London (probably Tile No. 2202).

+2. 11 IRONMONGER LANE, LONDON (provincial capital).

Exc. A.W.G. Lowther in Dawe 1952, 126 and Fig. 4 No. 8.

(? S)S.*.

The reference indicates a single specimen from a 3 cent. pit. A letter of 5 October 1950 from A.H. Oswald in the Lowther Papers is annotated 'Dies 18 (diamond) – 2 pieces; (chevron) 36 – 3 pieces; (diamond) 23 – 1 piece'; and an accompanying photograph showing one specimen of die 36 and the second specimen of the Group 5 die is marked '36' and '18' and 'From a layer with late 1st cent. pottery'. The single specimen in the Museum of London is die 84.

Museum of London (GM219).

+3. LLOYDS BUILDINGS, CANNON STREET STATION (North Side), LONDON (provincial capital).

Exc. NPR.

SS.*.

One specimen is associated with 2 cent. pottery. A second specimen shows clear evidence of splitting of the wooden roller.

Museum of London (LYD88).

Die 85

Context dating: example 2 (Winchester Palace, Southwark) came from a hypocausted building constructed after *c* AD 120 and demolished *c* AD 250, or later.

Circumstantial dating: example 6 was from dumped deposits made after the demolition of the public baths at Huggin Hill London. The baths are believed to have been constructed in the Flavian period and underwent substantial

modifications before demolition in the mid-late 2 cent.

1. HARDWICK By-pass, Oxfordshire.

Exc. Rodwell in Chambers and Williams 1976, 24–25, Fig. 5 No. 1.

S.*.

The tile is marked 'F8 PG'.

Oxfordshire Department of Museums Services.

2. WINCHESTER PALACE, SOUTHWARK, London (provincial capital).

Exc. NPR (archive report N. Crowley).

SS.*.

One specimen was found in the demolition debris in Room B of a hypocausted masonry building (Building 13) constructed after *c* AD 120 and demolished *c* AD 250, or later. (N. Crowley and B. Yule pers. comm.).

Museum of London (WP83).

3. STONESFIELD, Oxfordshire (villa).

Un. Ucd. Johnston and Williams 1979, 382.

S.*.

Published as die 46.

Ashmolean Museum.

4. CANTERBURY, Kent (civitas capital).

Exc. Black forthcoming.

SS.*.

From a late Roman context at Marlowe site 3 and from Cakebread Robey site 2. A specimen from Canterbury Castle was published as die 18 (Frere and Stow 1983, 189).

Canterbury Museum.

+5. CIRENCESTER, Gloucestershire (civitas capital).

Exc. NPR.

SS.*.

From post-Roman contexts at Cirencester Abbey.

Corinium Museum.

+6. HUGGIN HILL, LONDON (provincial capital).

Exc. Marsden 1976, 58–9 Fig. 23 No. 44 (and archive reports by B. Davies and I. Betts 1986).

SS.*.

From material dumped in Feature 17 on the site of the public baths after mid 2 cent. The baths are believed to have been constructed in the Flavian period and underwent substantial modifications before demolition in the mid-late 2 cent.

Museum of London (GM80).

7. PETER'S HILL / Castle Baynard Street / Lower Thames Street, LONDON (provincial capital).

Exc. Betts 1993, 99–100.

SS.*.

From a late 3 cent. dump deposit associated with large amounts of early 2 cent. pottery.
Museum of London (PET81).

8. 49 MOORGATE / 72–73 Coleman Street, LONDON
(provincial capital).

Un. Exc. NPR.

S.*.

Associated with late 1–early 2 cent. pottery.

Museum of London (MOG86).

9. UNPROVENANCED.

Ucd. NPR.

S.*.

Kingston upon Thames Museum and Heritage Centre.

+10. 55–60 GRACECHURCH STREET (Midland Bank), LONDON
(provincial capital).

Exc. NPR.

S.*.

Associated with pottery provisionally dated *c* AD 100–40.

Museum of London (GM69).

11. DOMINANT HOUSE (85 Queen Victoria Street), LONDON
(provincial capital).

Exc. NPR.

SS.*.

Specimens from part of the Huggin Hill baths complex (see comments for example 6). Museum of London (DMT88).

12. RICHBOROUGH, Kent (port with mansio).

Ucd. NPR.

S.*.

Kent Museums Service, West Malling Air Station.

13. LLOYDS BUILDINGS, CANNON STREET STATION
(North Side), LONDON (provincial capital).

Exc. NPR.

S.*.

Associated with pottery dated AD 270–350.

Museum of London (LYD88).

14. 100–116 CHEAPSIDE (Sun Life Assurance), LONDON
(provincial capital).

Exc. NPR.

S.*.

Found on the site of a small bath-house believed to have been constructed in the late 1 or early 2 cent. and probably demolished in the mid 2 cent (B. Davies pers. comm.).
Museum of London (GM37).

Die 86

Context dating: example 3 from Miles Lane London was associated with pottery dated *c* AD 120–200.

Circumstantial dating: the second period of the baths at Wiggonholt (example 1) is dated *c* AD 120–25 (Evans K.J. 1974, 114–15; Winbolt and Goodchild 1937, 18–19).
Dating by association: example 1 (Wiggonholt) is associated with dies 20–23, 37, 111 and 125; example 2 (Clements Lane London) with dies 23 and 37; example 4 (Arundel) with dies 22, 23, and 40.

The drawings (86a and 86b) show two separate areas of pattern.

1. Lickfold, WIGGONHOLT, Sussex.

Un. Exc. NPR.

S.*.

From extensive settlement area with detached bath-building. The tile is unmarked and the context is therefore not known.

Worthing Museum.

+2. 29–32 CLEMENTS LANE, LONDON (provincial capital).

Exc. NPR.

SS.*.

Residual in late Roman contexts.

Museum of London (CLE81).

3. MILES LANE / 132–137 Upper Thames Street, LONDON
(provincial capital).

Exc. NPR.

SS.*.

Associated with pottery dated *c* AD 120–200.

Museum of London (ILA79).

4. Tarrant Street, ARUNDEL, Sussex (villa).

Exc. E.W. Black in Rudling forthcoming.

SS.*.

Arundel Museum.

5. TORTINGTON, Sussex.

Fw. NPR.

SS.*.

Found in field-walking along with Romano-British pottery after deep-ploughing. No other Roman tile was found. The villa at Tarrant Street Arundel lies *c* 1.5 km to north-east.

Poss. A. Pudwell (ultimately Arundel Museum).

+6. BARKING ABBEY, Essex.

Exc. NPR.

S.*.

Re-used in a Saxon context.

Passmore Edwards Museum.

Die 87

Context dating: example 2 (Winchester) is from a series of occupation/demolition layers provisionally dated late



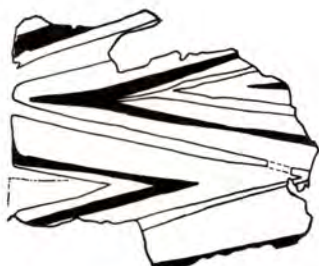
84



84: Damaged
Roller



86a

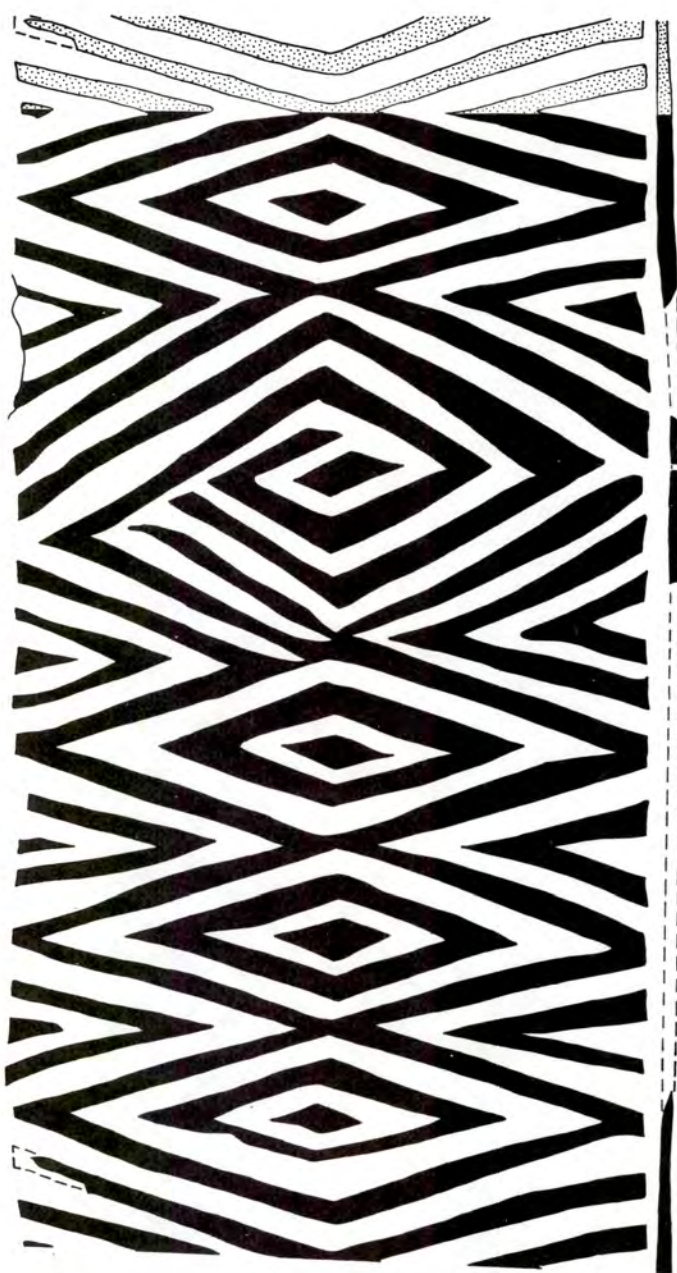


86b



85

Dies 84–86. Scale 1:2



87



88



89a



89b



90



91

Dies 87-91. Scale 1:2

1 – early 2 cent. Example 3 from Chapel Street Area 3 at Chichester came from a layer of clay contemporary with layers sealing buildings associated with early Flavian samian. It was sealed by gravel metalling which was Antonine or later (Down 1978, 94–97 and Fig. 7.33). The design of die 87 is bordered on the right by a vertical line. Although there is no proof at present, it would seem likely that a similar vertical line occurred on the left-hand edge of the pattern.

+1. Pitlands Farm, UPMARDEN, Sussex (villa).

Exc. Down 1979, 175 and Fig. 65, No. 7.

SS.*.

Two complete tiles were found *in situ* in Room 4 of Building 1. The first phase of the building, to which these tiles belong, is undated.

Chichester Museum; poss. P. Huxham.

2. WINCHESTER, Hampshire (civitas capital).

Exc. NPR.

S.*.

The specimen came from the Brooks excavation and was found in an occupation/demolition layer provisionally dated 1 – early 2 cent.

Winchester Museums Service.

3. CHICHESTER, SUSSEX (civitas capital).

Exc. Down 1966, 53 Fig.5 No. 36.

SS.*.

One specimen from Chapel Street Area 3 was from Layer Y 31. This was a layer of clay contemporary with layers sealing buildings associated with early Flavian samian which had been burned down. Y 31 was sealed by gravel metalling (Y 30) which was Antonine or later. Conjecturally Y 31 was late Flavian and contemporary with the construction of the public baths (Down 1978, 94–97 and Fig. 7.33). The published specimen was from the site of the County Library Headquarters in Tower Street (the scale of the illustration should be 1/3 not 1/1).

Chichester Museum.

Die 88

There is no available context dating for die 88.

Circumstantial dating: example 1 (Winchester Palace Southwark) was from the site of a masonry building constructed after c AD 130–150 (B. Yule pers. comm.). Dating by association: examples 1 and 2 (Winchester Palace, Southwark and the Public Cleansing Department, Upper Thames Street London) were both associated with die 4.

+1. WINCHESTER PALACE, SOUTHWARK, London (provincial capital).

Exc. NPR.

S.*.

The specimen was unstratified. Found on the site of a masonry building (Building 13) constructed in c AD 130–150 and demolished by c AD 250, or later (B. Yule pers. comm.).

Museum of London (WP83).

+2. UPPER THAMES STREET / Dowgate / Walbrook Wharf (Public Cleansing Department), LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (GM156).

3. POST OFFICE / NEWGATE STREET, LONDON (provincial capital).

Un. Exc. NPR.

S.*.

Museum of London (GPO75).

Die 89

Context dating: an uncertain example (example 2) from Cannon Street, London was found with early 2 cent. pottery.

There is no circumstantial dating evidence available for die 89.

Dating by association: example 1 (9–11 Bush Lane London) was associated with die 36.

Drawing 89b shows what may be another area of die 89.

+1. 9–11 BUSH LANE, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (GM210).

+2. LLOYDS BUILDINGS, CANNON STREET STATION (North Side), LONDON (provincial capital).

Un. Exc. NPR.

S.*.

Associated with early 2 cent pottery.

Museum of London (LYD88).

Die 90

Example 2 from Winchester Palace, Southwark is associated with a building constructed in AD 150–250 and demolished c AD 287 or later.

+1. PETER'S HILL / Castle Baynard Street / Lower Thames Street, LONDON (provincial capital).

Exc. Betts 1993, 99–100.

S.*.

From a post-Roman context.

Museum of London (PET81).

+2. WINCHESTER PALACE, SOUTHWARK, London (provincial capital).

Exc. NPR. (archive report N. Crowley).
SS.*.

One specimen is from the robbing of Room B, Building 14, a hypocausted masonry building with a *terminus post quem* of AD 150–250 and demolished *c* AD 287 or later (N. Crowley and B. Yule pers. comm.). Another specimen is from a dark earth layer near this building.
Museum of London (WP83).

Die 91

Context dating: example 1 (Peter's Hill, London) was from a late 3 cent. dumped deposit containing much early 2 cent. pottery.

+1. PETER'S HILL / Castle Baynard Street / Lower Thames Street, LONDON (provincial capital).

Exc. Betts 1993, 99–100.

S.*.

From a late 3 cent. dumped deposit containing a large quantity of early 2 cent. pottery.

Museum of London (PET81).

Die 92

Context dating: example 1 from Lower Wanborough is represented in a context provisionally dated *c* AD 80–150.

Dating by association: example 1 (Lower Wanborough) is associated with dies 3, 12, 25, 39, 54, and 68; example 2 (Littlecote Park) is associated with dies 18, 39, and 68.

+1. LOWER WANBOROUGH, Swindon, Wiltshire (roadside settlement with probable mansio).

Exc. and Fw. NPR.

SS.*.

One specimen comes from a context provisionally dated *c* AD 80–150 from the vicinity of a probable mansio in a minor town.

Swindon Museum.

2. LITTLECOTE PARK, Hungerford, Wiltshire (villa).

Exc. NPR.

SS.*.

Poss. The Roman Research Trust.

3. CLAYDON PIKE, Gloucestershire.

Exc. NPR.

SS.*.

Poss. Oxford Archaeological Unit.

Die 93

Context dating: example 1 (Newgate Street London) is dated *c* AD 75/85–90 and *c* AD 90–120.

1. POST OFFICE / NEWGATE STREET, LONDON (provincial capital).

Exc. NPR.

SS.*.

One specimen came from brickearth make-up dumps (VI.25) east of Building H dated *c* AD 75/85–90, and the other from buildings (*c* AD 90–120) destroyed in the Hadrianic Fire in *c* AD 120 or soon after (V11.49), (Perring *et al* 1991, 12–13).

Museum of London (GPO75).

+2. PETER'S HILL / Castle Baynard Street / Lower Thames Street, LONDON (provincial capital).

Exc. Betts 1993, 99–100.

SS.*.

From the destruction and robbing of a late 3 cent. monumental building.

Museum of London (PET81).

3. CANTERBURY, Kent (civitas capital).

Exc. NPR.

S.*.

The single recorded specimen was from excavations in Stour Street in 1986 (context 127).

Canterbury Archaeological Trust (ultimately Canterbury Museum).

+4. 9 CLOAK LANE, LONDON (provincial capital).

Exc. NPR.

S.*.

From a post-Roman context.

Museum of London (CKL88).

+5. THAMES EXCHANGE BUILDINGS, LONDON (provincial capital).

Exc. NPR.

SS.*.

Museum of London (TEX88).

Die 94

There is no dating evidence available for die 94.

+1. GREAT WELDON, Northamptonshire (villa).

Exc. Smith D.J. *et al* 1990, 46 and Fig. 19.

S.*.

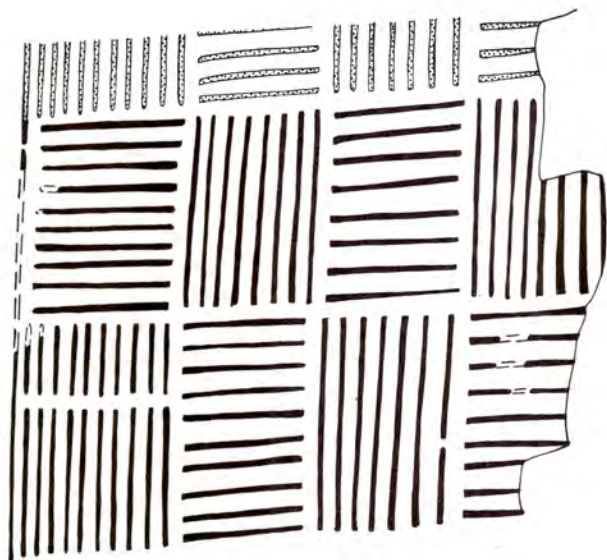
The first villa is dated to *c* 200. The illustration in the excavation report shows the raised part of the pattern black and the recessed part white, i.e. the reverse of the convention used here.

British Museum.

Die 95

There is no context or circumstantial dating evidence available for die 95.

Dating by association: example 1 (Ranscombe Hill) is associated with die 21.



92



93



94



95



96a



96b



96c

Dies 92-96. Scale 1:2



97a



97b



98



99



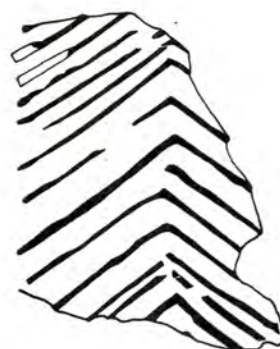
100



101



102



103



+1. RANSCOMBE HILL, South Malling, Sussex.

Exc. NPR.

S.*.

From the upper fill of the stokehole of a corn-drying oven. An adjoining surface is unkeyed and the specimen may be part of the top and side of a 'Westhampnett' type voussoir.

Lewes Museum.

Die 96

There is no context or circumstantial dating evidence available for die 96.

Dating by association: **example 2 (Southwick)** is associated with die 21.

Reconstruction of the pattern of die 96 has proved very difficult. The largest fragment (96a) showed a large degree of overlap, particularly near the top, so much so that the third upper diamond can only be crudely reconstructed. Drawings 96b and 96c illustrate what are probably other fragments of tile with the same pattern.

+1. FISHBOURNE HARBOUR, Sussex.

Un. Exc. Rudkin 1986, 65–66 Fig. 7 No. 8.

S.*.

From a disturbed occupation level in the aisled building. The tile may have come from the nearby Fishbourne 'Palace'.

Fishbourne Roman Palace Museum.

+2. SOUTHWICK, Sussex (villa).

Ucd. Rudling 1985, 82–3, Fig. 7 No. 29.

S.*.

Barbican House Museum, Lewes.

3. Little Oldwick Copse, LAVANT, Sussex.

Cf. Aldsworth and Black 1989, 243–44 Fig. 26.

S.*.

Found by D. Grenfell at a modern gravel pit. Parts of two adjoining surfaces survive. One is keyed with die 96 and the other has angular combing.

Chichester City Museum.

+4. BIGNOR, Sussex (villa).

Exc. Frere 1982, 182.

S.*.

The reference gives the context as Trench 59 II, topsoil over Room 34. It was mistakenly identified as die 46. Mortar covering breaks indicates reuse. There are two superimposed impressions of the die.

Bignor Roman Villa Site Museum.

Die 97

Context dating: die 97 is associated with pottery dated AD 100–140 at Bucklersbury, London (example 2).

There is no circumstantial dating evidence for die 97.

The drawings (97a and 97b) show two fragments of die 97, which may show areas of overlap.

+1. CANTERBURY, Kent (civitas capital).

Exc. Black forthcoming.

SS.*.

From residual (late Roman and post-Roman) contexts at Marlowe site 3, Cakebread Robey site 2, Stour Street and St. John's Lane.

Canterbury Archaeological Trust (ultimately Canterbury Museum).

+2. DLR SHAFT / BUCKLERSBURY, LONDON (provincial capital).

Un. Exc. NPR.

S.*.

Associated with pottery dated AD 100–140.

Museum of London (BUC87).

Die 98

Context dating: **example 1 (Winchester)** is represented in a context provisionally dated late 1 – early 2 cent.

+1. WINCHESTER, Hampshire (civitas capital).

Exc. NPR.

SS.*.

The specimens came from the Brooks excavation, where one was found in an occupation/demolition layer provisionally dated 1–early 2 cent.

Winchester Museums Service.

Die 99

There is no useful context or circumstantial dating for die 99.

Dating by association: at Spring Wood, Kemsing (**example 1**) die 99 was associated with die 12.

+1. Spring Wood, KEMSING, Kent.

Exc. NPR.

S.*.

Clark and Stoyel (1975, 19) note the excavation of heated rooms and occupation of 1–4 cent.

British Museum.

Die 100

There is no useful dating evidence for die 100.

+1. 5–12 FENCHURCH STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

Associated with pottery dated c AD 250–300.

Museum of London (FEN83).

Die 101

There is no useful dating evidence for die 101.

+1. THAMES EXCHANGE BUILDINGS, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (TEX88).

2. PETER'S HILL / Castle Baynard Street / Lower Thames Street, LONDON (provincial capital).

Exc. Betts 1993, 99–100.

SS.*.

Found reused as building debris associated with the foundations of a masonry building constructed in 294 (Williams 1993, 51).

Museum of London (PET81).

3. POST OFFICE / NEWGATE STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (GPO75).

Die 102

No dating evidence is available for die 102.

The drawing shows two separate parts of the same pattern impressed into a single tile fragment.

+1. LINCOLN, Lincolnshire (colonia).

Exc. NPR.

S.*.

From a post-Roman context at West Parade.

City of Lincoln Archaeology Unit.

Die 103

Context dating: example 1 (Billingsgate Buildings, London) came from a context of *c* AD 70–125. The reference in Black forthcoming to tiles from Canterbury keyed with die 103 is now thought to be a mis-identification.

The drawing shows two separate parts of the same pattern impressed into a single tile fragment.

+1. TRIANGLE, BILLINGSGATE BUILDINGS, 101–110 Lower Thames Street, LONDON (provincial capital).

Exc. Jones and Rhodes 1980, 136–37, Fig. 78 No. 702.

SS.*.

One specimen came from context 412 which may date *c* AD 70–100, though *c* AD 70–125 would be a safer date (Jones and Rhodes 1980, 5). The other two specimens were from context 208 (*c* AD 125–60).

Museum of London (TR74).

Die 104

There is no useful dating evidence for die 104.

+1. ST ALBANS, Hertfordshire (municipium).

Exc. Wilson 1984, 112–13 Fig. 50 nos. 17.

SS.*.

Incorrectly published as die 25.

From Insulae XIV and XXVIII. Another possible example, now lost, came from Insula XXII.

Verulamium Museum.

+2. STAINES, Middlesex (roadside settlement).

Exc. NPR.

SS.*.

Poss. Staines Archaeological Unit.

Die 105

There is no useful dating evidence for die 105.

+1. ST ALBANS, Hertfordshire (municipium).

Exc. Wilson 1984, 112–3 Fig. 50 No. 18.

S.*.

Incorrectly published as die 25. From a rubble spread on extra-mural Site R, dated *c* AD 360–370.

Verulamium Museum.

Die 106

Context dating: example 1 (St Albans) is represented in a context of *c* AD 105–130.

+1. ST ALBANS, Hertfordshire (municipium).

Exc. NPR.

SS.*.

From Insula XIV, context T XX 18, a secondary clay floor in Room 7, dated *c* AD 105–130 (Period IIB: Frere 1972, 45).

Verulamium Museum.

Die 107

Context dating: example 1 (St Albans) is represented in a context of *c* AD 130–50.

+1. ST ALBANS, Hertfordshire (municipium).

Exc. NPR.

S.*.

From Insula XIV, context A I 15, a “floor patch” on the occupation layer of the secondary clay floor of Room 24, dated *c* AD 130–50 (Period IIC: Frere 1972, 64).

Verulamium Museum.

Die 108

There is no dating evidence available for die 108.

+1. CANTERBURY, Kent (civitas capital).

Exc. NPR.

SS.*.

One specimen from Stour Street (context 688) and two from St John's Lane (context 295).

Canterbury Archaeological Trust (ultimately Canterbury Museum).

2. CALVERTS BUILDINGS (15–23 Southwark Street), SOUTHWARK, London (provincial capital).

Un. Exc.

S.*.

Museum of London (CB80).

Die 109

There is no useful context or circumstantial dating available for die 109.

Dating by association: example 1 (Arundel) was associated with dies 22–23, 40 and 86.

The pattern of die 109 is close to that of die 22 and one specimen from Arundel (example 1) has indications that die 109 is a re-cut die.

The drawings (109a and 109b) show two separate areas of pattern. On drawing 109b the design appears to be on two different levels. The lower level is shown black and the upper level hatched. This could be due to the roller being partly recut.

+1. Tarrant Street, ARUNDEL, Sussex (villa).

Exc. E.W. Black in Rudling forthcoming.

SS.*.

Arundel Museum.

2. Old Town, CROYDON, Surrey.

Exc. Drewett 1974, 18.

S.*.

The reference mentions two specimens from a silted stream-bed in a layer with Romano-British and late Saxon-early medieval pottery.

Poss. Croydon Natural History and Scientific Society.

3. Frost Hill, BULLOCK DOWN, Eastbourne, Sussex.

Un. Fw. Rudling 1982, 137; 1987, 239.

S.*.

A small fragment keyed on adjacent faces (with different dies, the other apparently die 21).

Poss. D.R. Rudling (ultimately Eastbourne Museum).

4. 47–49 FENCHURCH STREET, LONDON (provincial capital).

Un. Exc. NPR.

S.*.

The specimen is 32mm thick and could be the base/top of a 'Westhamnett' type voussoir.

Museum of London (FEC80).

Die 110

The pattern of die 110 is the same as that of die 1, so that a similar date for the two dies seems likely. There is no useful additional dating evidence.

1. St Bride's Church, FLEET STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (WFG62).

+2. 50 CORNHILL, LONDON (provincial capital).

Ucd. NPR.

S.*.

Museum of London.

+3. LULLINGSTONE, Kent (villa).

Exc. Meates 1987, 303 Fig. 90 Nos. 435 and 437.

SS.*.

The earliest phase of the baths was originally dated *c* AD 180 (Meates 1979, 92), but has more recently been dated "pre-late second century" (R.J. Pollard in Meates 1987, 286: pottery groups IV and V).

British Museum; Dartford Museum.

Die 111

There is no useful context dating for die 111.

Circumstantial dating: the second period of the baths at Wiggonholt (example 1) is dated *c* AD 120–25 (Evans K.J. 1974, 114–15; Winbolt and Goodchild 1937, 18–19).

Dating by Association: at Wiggonholt die 111 is associated with dies 20–23, 37, 86, and 125.

+1. Lickford, WIGGONHOLT, Sussex (bath-building and extensive settlement).

Exc. Evans K.J. 1974, 124.

SS.*.

The reference describes this as "a variant on the diamond and lattice type die 38".

Worthing Museum.

Die 112

Context dating: example 2 from Chichester has an early Flavian *terminus post quem* and a *terminus ante quem* in the Antonine period.

1. Ounces Barn, BOXGROVE, Sussex.

Exc. NPR.

S.*.

The specimen was unstratified from excavations at a terminal of the Devil's Ditch, one of the Chichester Dykes (Bedwin *et al* 1983, 83–7).

Poss. D.R. Rudling.



104



105



106



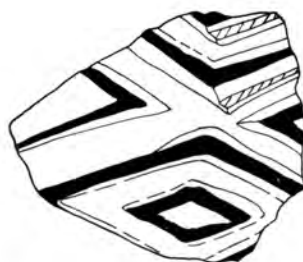
107



108



109a



109b



110

+2. CHICHESTER, Sussex (civitas capital).

Exc. NPR.

S.*.

From Layer Y34 in Area 3 (Chapel Street). This deposit was later than Period 2 (early Flavian) layers and was sealed by Antonine gravel metalling (Down 1978, 94–5 and 107 Fig. 7.33).

Chichester Museum.

Die 113

This die appears to be die 24 which has been partially recut when worn. For dating see under die 24.

1. Chatley Farm, COBHAM, Surrey.

Exc. Lowther 1949, 97–8.

SS.*.

Reused in a 4 cent. bath-house.

British Museum; Guildford Museum.

+2. LLOYDS BUILDINGS, CANNON STREET STATION (North side), LONDON (provincial capital).

Exc. NPR.

S.*.

Associated with pottery dated AD 120–180.

Museum of London (LYD88).

Die 114

There is no useful dating evidence available for die 114.

+1. CAVE'S INN, Warwickshire (roadside settlement with mansio).

Exc. Lucas 1984, 37–8 Fig. 11 No. 2.

S.*.

Poss. Rugby Archaeological Society on loan to Warwickshire Museum Service.

Die 115

Context dating: example 2 from St Albans is represented in a context of *c* AD 135–40.

Drawing 115c shows a composite reconstruction of die 115. Drawings 115a and 115b show what are believed to be further fragments of the same pattern.

+1. GORHAMBURY, Hertfordshire (villa).Exc. Neal *et al* 1990, 166 (Fig. 147 No. 1064) and 169.

S.*.

From an accumulation of the Antonine period in the fill of the ditch dug in the late Iron Age to separate enclosures A and B.

Poss. D.S. Neal (ultimately Verulamium Museum).

+2. ST ALBANS, Hertfordshire (municipium).

Exc. Wilson 1984, 112–13 Fig. 50 Nos. 16 and 20.

SS.*.

The reference incorrectly identifies two specimens as die

18 and die 29. The latter is from the wall-trench between Rooms 1 and 4 in the building occupying the eastern corner of Insula XIV: Period IID beginning *c* AD 150 (Frere 1972, 89 and 97–8). The former is from Insula XXVII, Antonine Fire material re-deposited in AD 378–80. Three unpublished specimens in Verulamium Museum are from Insula XXVII, context 56 II 34 (*c* AD 135–40) and context 57 XVI 9 (*c* AD 380) (Frere 1983, 198 and 201; 216 and 220); and from Insula III, the site of a probable public baths.

Verulamium Museum.

Die 116

Context dating: examples 7 (Winchester Palace) comes from a floor accumulation dated *c* AD 70–120.

The drawing shows two separate parts of the same pattern impressed into a single tile fragment.

1. THAMES EXCHANGE BUILDINGS, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (TEX88).

+2. LLOYDS BUILDINGS, CANNON STREET STATION (North Side), LONDON (provincial capital).

Exc. NPR.

SS.*.

Associated with pottery dated AD 120–180 and AD 250–400.

Museum of London (LYD88).

3. ABACUS HOUSE / 33–39 GUTTER LANE, LONDON (provincial capital).

Exc. NPR.

S.*.

Associated with pottery dated AD 65–180.

Museum of London (ABC87).

4. 36–37 KING STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (KNG85).

5. 1–7 WHITTINGTON AVENUE, LONDON (provincial capital).

Exc. NPR.

S.*.

Reused as a tessera.

Museum of London (WIV88).

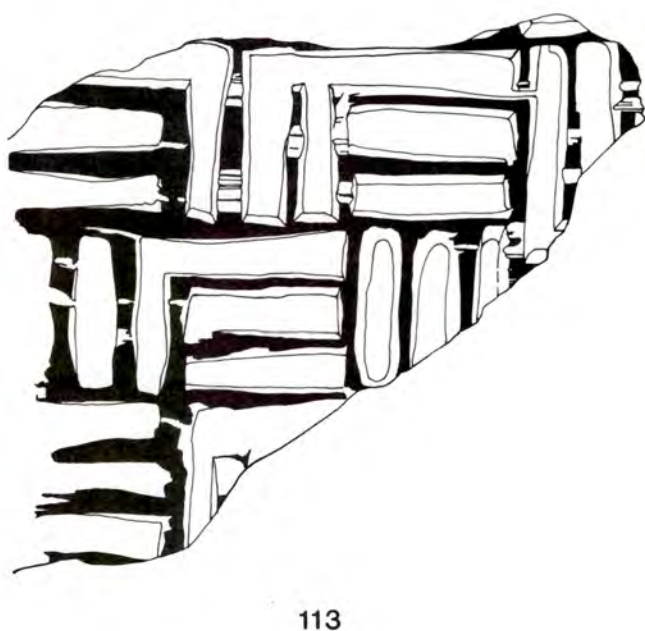
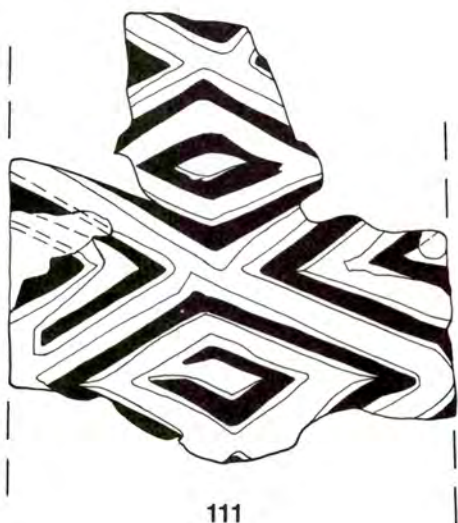
6. CALVERTS BUILDINGS (15–23 Southwark Street), SOUTHWARK, London (provincial capital).

Exc. NPR. (archive report by N. Crowley)

S.*.

From a post-Roman context.

Museum of London (CB80).



7. WINCHESTER PALACE, SOUTHWARK, London
(provincial capital).

Exc. NPR. (archive report by N. Crowley)

S.

From a floor accumulation dated c AD 70–120 in a clay and timber building (Building 9, Room B) (B. Yule pers comm.).

Museum of London (WP83)

Die 117

There is no useful dating evidence available for die 117.

+1. THAMES EXCHANGE BUILDINGS, LONDON
(provincial capital).

Exc. NPR.

S.*.

Museum of London (TEX88).

Die 118

Context dating: example 2 (Abacus House, London) is associated with pottery dated AD 70–180.

Although listed as a separate die there is a possibility that the pattern may be part of die 41. However, it only partly matches drawing 41a, and does not match drawing 41b.

+1. BILLINGSGATE BATH HOUSE / 100 Lower Thames Street, LONDON (provincial capital).

Exc. NPR.

S.*.

Found on the site of a bath-building and house constructed in the late 2/3 cent. which may have survived in use until the first years of the 5 cent.

Museum of London (GM111).

+2. ABACUS HOUSE / 33–39 GUTTER LANE, LONDON (provincial capital).

Exc. NPR.

S.*.

Associated with pottery dated AD 70–180.

Museum of London (ABC87).

3. GUILDHALL ART GALLERY / GUILDHALL YARD, LONDON (provincial capital).

Un. Exc. NPR.

S.*.

Museum of London (GYE92)

4. 49 MOORGATE / 72–73 Coleman Street, LONDON
(provincial capital)

Exc. NPR.

S.*.

Museum of London (MOG86)

Die 119

There is no useful dating evidence available for die 119.

+1. ST ALBANS, Hertfordshire (municipium).

Exc. Wilson 1984, 112–3 Fig. 50 No. 14.

SS.*.

Four specimens: one from Insula XIV from a residual late Roman context (context 59 B I 9: dated 310–5) published as die 16; the rest from Insula III, the site of a probable public baths.

Verulamium Museum.

Die 120

There is no useful dating evidence available for die 120.

+1. SANDY, Bedfordshire (roadside settlement).

Exc. NPR.

S.*.

Poss. Bedfordshire Archaeological Unit.

Die 121

There is no useful dating evidence available for die 121.

+1. CANTERBURY, KENT (civitas capital).

Exc. NPR.

S.*.

From 41 St George's Street (context 414).

Canterbury Archaeological Trust (ultimately Canterbury Museum).

Die 122

There is no useful dating evidence available for die 122.

+1. CANTERBURY, KENT (civitas capital).

Exc. NPR.

S.*.

From St John's Lane (context 288).

Canterbury Archaeological Trust (ultimately Canterbury Museum).

Die 123

There is no context dating available for die 123.

Circumstantial dating: this tile is in the same shelly fabric as die 64. At Harrold shelly relief-patterned tiles are associated with tile manufacture in Phase 3, which is dated to the late 2 cent.

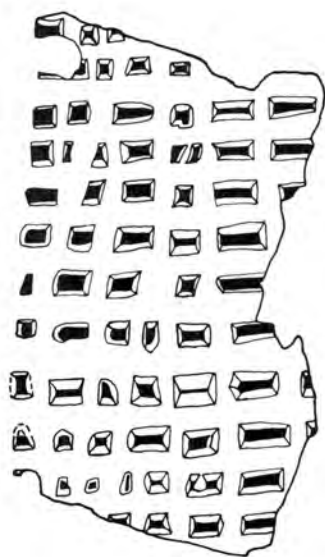
+1. PIDDINGTON, Northamptonshire (villa).

Exc. NPR.

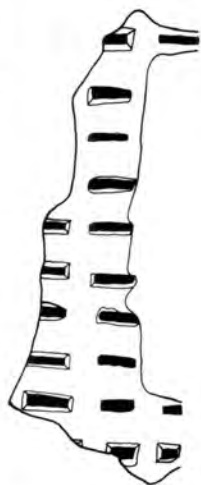
S.*.

From a disturbed context. Die 123 is probably a re-cut of shelly fabric die 64.

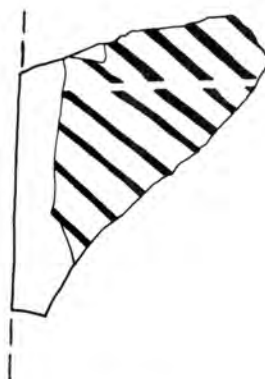
Poss. R.M. Friendship-Taylor.



116



117



118



119



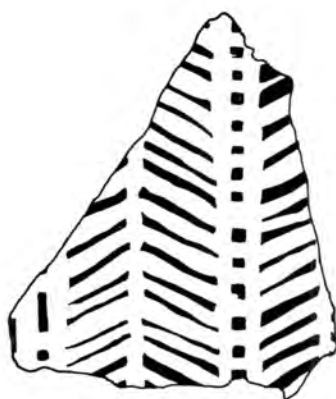
120



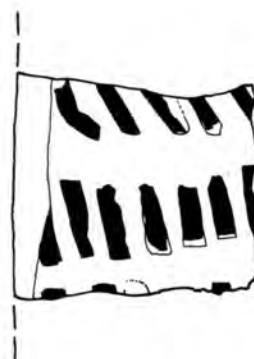
121



122



123



124

Dies 116-124. Scale 1:2

Die 124

There is no useful context or circumstantial dating for die 124.

Dating by associated: example 1 (Billingsgate bath house) is associated with dies 19, 21, 66, 71 and 118.

+1. BILLINGSGATE BATH HOUSE / 100 Lower Thames Street, LONDON (provincial capital).

Exc. NPR.

S.*.

From the site of a bath-building and house constructed in the late 2/3 cent. which may have survived in use until the early years of the 5 cent.

Museum of London (BIL75).

Uncertain

This section includes examples examined by the Group which we have been unable to identify, generally because the specimens were too small to include distinctive detail. It also includes tiles the existence of which has been notified to the Group but with insufficient detail to allow attribution to a particular die. Where possible examples have been assigned to one of Lowther's Groups (Groups 1, 5 and 9).

W-CHEVRON DESIGNS (Lowther's Group 1)

1. Headley Court, LEATHERHEAD, Surrey.

? Exc. NPR.

SS.*.

British Museum.

2. WATLING COURT / 41–53 Cannon Street, LONDON (provincial capital).

Exc. NPR (archive report by I. Betts).

S.*.

From a post-Roman context. The specimen (Acc. No. 1161) cannot be assigned to a particular die but it differs from example 3.

Museum of London (WAT78).

3. WATLING COURT / 41–53 Cannon Street, LONDON (provincial capital).

Exc. NPR (archive report by I. Betts).

S.*.

From a post-Roman context. The specimen (Acc. No. 1137) cannot be assigned to a particular die but it differs from example 2.

Museum of London (WAT78).

4. Pixham, DORKING, Surrey.

Cf. NPR.

S.

Poss. Friends Provident Life Assurance, Dorking.

5. Unprovenanced, ? LONDON.

Ucd. NPR.

S.*.

Possibly Group 1.

Museum of London (Tile No. 86 123/38).

6. Stable Meadow Allotments, NORTH CRAY, Kent.

Fw. NPR.

S.

Die 4 or similar Group 1 pattern, from site of possible villa. A drawing by A.J.J. Parsons is in the Lowther Papers.

Lost.

7. LITLINGTON, Cambridgeshire (villa).

Fw. NPR.

S.

A letter of 20 July 1950 from J. Holmes in the Lowther Papers refers to the tile.

Poss. ? J. Holmes.

8. CALVERTS BUILDINGS (15–23 Southwark Street), SOUTHWARK, London (provincial capital).

Exc. NPR.

S.*.

Museum of London (CB80).

9. UNPROVENANCED.

Ucd. NPR.

S.*.

British Museum (Lowther Collection P 1973 4–3 237).

DIAMOND AND LATTICE DESIGNS (Lowther's Group 5)

1. Lickfold, WIGGONHOLT, Sussex.

Exc. NPR.

S.*.

The tile is unmarked. It is just possibly die 81, but is best classified as uncertain.

Worthing Museum.

2. RIDGEWELL, Essex (villa).

Exc. Walford 1803, Pl. XIII No. 4 (facing pg. 64).

? S.

Lowther (1948a, 13) classified the illustrated specimen as die 19 but the drawing is too sketchily done for any confident identification.

Lost.

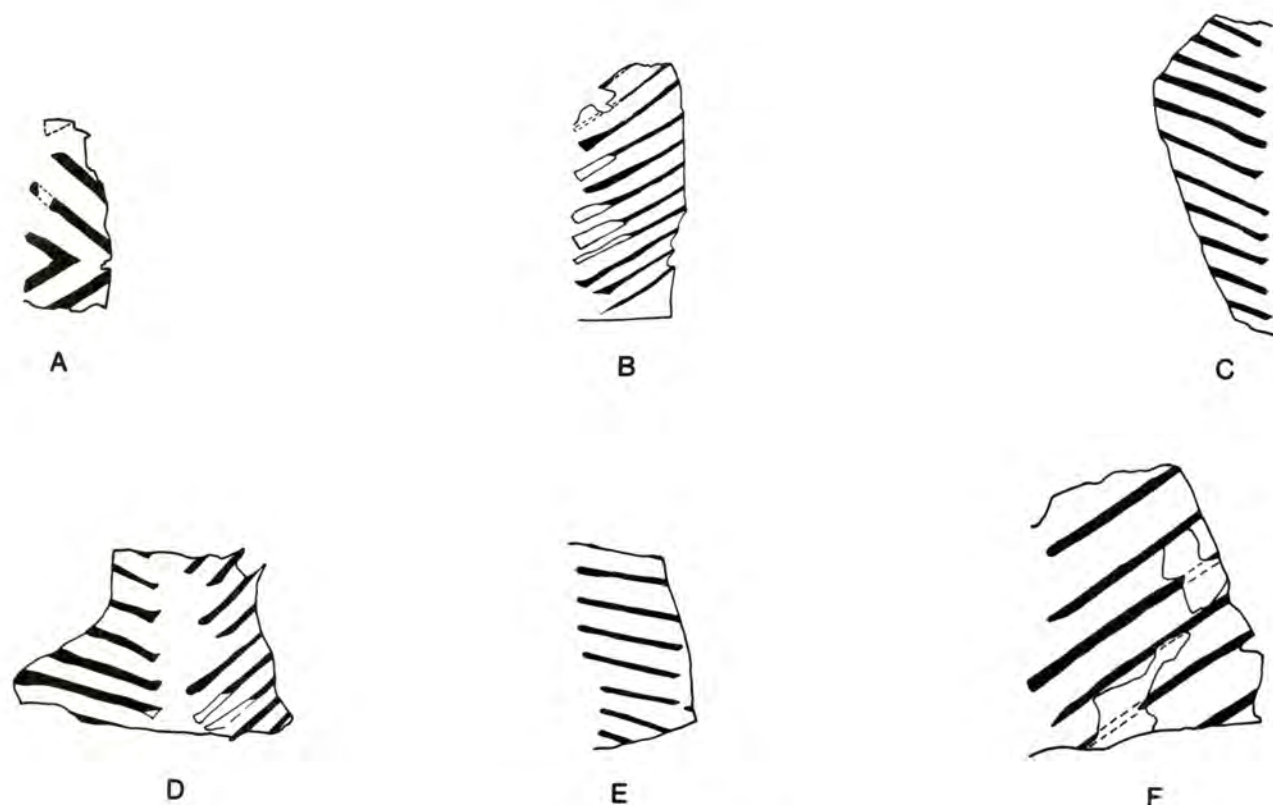
3. WESTHAMPNETT, Sussex.

Cf. NPR.

S.*.

Visible in the south exterior of the chancel of the church.

Westhampnett Church.



Uncertain dies A–F. Scale 1:2

4. HARTLIP, Kent (villa).

Exc. Smith C.R. 1852, Pl. VIII No. 1.

S.

Although listed by Lowther (1948a, 14) as die 38, the drawing is inadequate for a confident identification.

? Lost.

5. SOUTHWICK, Sussex (villa).

Ucd. Rudling 1985, 82–3 Fig. 7 No. 30.

S.

The specimen is on the base of a 'Westhampnett' type voussoir which has die 21 on the adjoining face.

Marlipins Museum, Shoreham.

+6. WATLING COURT / 41–53 Cannon Street, LONDON (provincial capital).

Exc. NPR (archive report by I. Betts). Drawing A. SS.*.

One specimen is from Period IV dated *c* AD 70–120, or slightly later, two specimens are from Period V dated *c* AD 120–160, and another specimen came from a post-Roman context. Although Period V is dated *c* AD 120–160, the tiles are actually in contexts associated with pottery of AD 120–140. All tiles are in Fabric Group 1 (see Section 9).

The post-Roman example has been illustrated as this could

be part of a die not illustrated in the main catalogue. Museum of London (WAT78).

7. THAMES STREET (now Lower and Upper Thames Street), LONDON (provincial capital).

Ucd. Lethaby 1923, 26 Fig. 13.

S.

The published drawing shows a tile stamped with a Group 5 die, possibly die 40 or similar. It is possible that it is a copy of the drawing of die 22, example 2, by C. Roach Smith.

? Lost.

8. BILLINGSGATE MARKET (Lorry Park / Lower Thames Street), LONDON (provincial capital).

Exc. NPR (archive report by I. Betts). SS.*.

Museum of London (BIG82).

9. 27–30 LIME STREET, LONDON (provincial capital).

Exc. NPR (archive report by I. Betts). S.*.

From a post-Roman context. Part of a curved brick. Museum of London (IME83).

10. 1–6 MILK STREET, LONDON (provincial capital).
Exc. NPR (archive report by I. Betts).
S*.
From a post-Roman context.
Museum of London (MLK76).

11. 10 MILK STREET, LONDON (provincial capital).
Exc. NPR.
S*.
From a post-Roman context.
Museum of London (MIL72).

12. WALL, Staffordshire (roadside settlement with mansio).
Exc. Blay 1925, facing pg. 22.
?S.
? Lost.

13. LITTLECOTE PARK, Hungerford, Wiltshire (villa).
Exc. NPR.
S*.
Poss. The Roman Research Trust.

14. FISHBOURNE, Sussex (villa).
Exc. NPR.
S*.
The specimen is from context D1075 in the 1985 excavations at the Fishbourne By-Pass site adjacent to the 'palace'. There are indications on the specimen that it was keyed using a die that had been re-cut.
Poss. A. Down.

15. GUILDHALL ART GALLERY/ GUILDHALL YARD, LONDON (provincial capital).
Exc. NPR.
S*.
Museum of London (GAG87).

16. THAMES EXCHANGE BUILDINGS, LONDON (provincial capital).
Exc. NPR.
S*.
Museum of London (TEX88).

17. LLOYDS BUILDINGS, CANNON STREET STATION (North Side), LONDON (provincial capital).
Exc. NPR.
S*.
Associated with pottery dated AD 120–180.
Museum of London (LYD88).

18. ST ALBANS, Hertfordshire (municipium).
Exc. NPR.
SS*.
Two specimens from Insula III, the site of a probable Public Baths.
Verulamium Museum.

19. Botolphs, SHOREHAM, Sussex.
Exc. NPR.
S*.
From an Anglo-Saxon site: possibly die 22 or 81.
Poss. D.R. Rudling.

20. MITRE SQUARE / 10–11 Mitre Street, LONDON (provincial capital).
Exc. NPR.
S*.
Museum of London (HTP79).

21. WINCHESTER, Hampshire (civitas capital).
Exc. NPR.
SS*.
The specimens came from the Brooks excavation and were found in an occupation/demolition layer provisionally dated 1–early 2 cent. All specimens are in Fabric Group 1 (see Section 9).
Winchester Museums Service.

22. GUILDHALL ART GALLERY / GUILDHALL YARD, LONDON (provincial capital).
Exc. NPR.
S*.
Museum of London (GYE92)

PLAIN CHEVRON DESIGNS (Lowther's Group 9)

1. COLCHESTER, Essex (colonia).
Exc. Drury 1984, 42 and Fig. 14.4.
S.
The tile could not be found in the Colchester and Essex Museum in March 1988.

2. BROCKLEY HILL, Middlesex (roadside settlement).
Exc. Suggett 1954, 186–87 Fig. 5 T.I.
? S.
Given as "perhaps a variation a Lowther's Group 1, W chevron design". From the inadequate drawing this seems more likely to be a Group 9 die.
Lost.

3. RICHBOROUGH, Kent (port with mansio).
Exc. Bushe-Fox 1949, 103.
SS.
"A number of broken tiles with herringbone pattern" came from Pit 204, south-west of the south-west corner of the Saxon Shore fort. The pit also contained a coin-hoard deposited c AD 350.
? Lost.

+4. PUDDING LANE / 118–127 Lower Thames Street, LONDON (provincial capital).
Exc. NPR (archive report by F. Pritchard). Drawing B.
S*.

From a phase dated AD 120–140. The specimen may be keyed with the same die as examples 11 and 13 below. Museum of London (PDN81).

+5. TRIANGLE, BILLINGSGATE BUILDINGS, 101–110 Lower Thames Street, LONDON (provincial capital). Exc. Jones and Rhodes 1980, 136–137 Fig. 78 Nos. 702–703. Drawing C. SS.*.

The specimens came from contexts dated *c* AD 70–125, *c* AD 125–60, and indeterminate late Roman or Saxon. Museum of London (TR74).

6. 5–12 FENCHURCH STREET, LONDON (provincial capital). Exc. NPR. (archive report by N. Crowley). S.*. From a post-Roman context. Museum of London (FEN83).

7. 28–34 BISHOPSGATE, LONDON (provincial capital). Exc. NPR. S.*. Associated with pottery dated *c* AD 150–300. Museum of London (BOP82).

8. BILLINGSGATE MARKET (Lorry Park / Lower Thames Street), LONDON (provincial capital). Exc. NPR. S.*. Museum of London (BIG88).

9. ABACUS HOUSE / 33–39 GUTTER LANE, LONDON (provincial capital). Exc. NPR. S.*. Associated with pottery dated AD 120–180. Museum of London (ABC87).

+10. THAMES EXCHANGE BUILDINGS, LONDON (provincial capital). Exc. NPR. Drawing D. S.*. Abraded fragment, with relief-patterned keying. Museum of London (TEX88).

11. CANTERBURY, Kent (civitas capital). Exc. Black forthcoming. S.*. From context 608 (dated *c* AD 150–75) on Marlowe site 5. The reference states that the specimen is keyed with two dies (103 and possibly 41). Neither of the identifications is correct, though what was thought to be die 103 may be the same die as examples 4 and 13. The occurrence of two different dies on the same specimen is uncertain. Canterbury Museum.

12. CANTERBURY, Kent (civitas capital). Exc. NPR. S.*.

From context 430 on Cakebread Robey site 4. Canterbury Museum.

13. CANTERBURY, Kent (civitas capital). Exc. NPR. S.*.

From Marlowe site 3 context 596. The specimen may be keyed with the same die as examples 4 and 11 above. Canterbury Museum (missing in July 1989).

+14. CANTERBURY, Kent (civitas capital). Exc. NPR. Drawing E. S.*.

From Canterbury Tannery, the site of a substantial masonry building, possibly a mansio. The tile is in a cream fabric (see Section 9) manufactured in the Eccles area of north-west Kent (see also die 12, example 22; die 16, example 1). Canterbury Archaeological Trust.

15. UNPROVENANCED.

Ucd. NPR. S.*. British Museum (Lowther Collection P 1973 4–3 46).

16. 68 UPPER THAMES STREET, LONDON (provincial capital). Exc. NPR. S.*. Museum of London (VRY89).

+17. GUILDHALL ART GALLERY / GUILDHALL YARD, LONDON (provincial capital). Exc. NPR. Drawing F. S.*.

Keyed on adjoining edges, so possibly a voussoir tile. A similar pattern to dies 43 and 54, neither of which has been found in London, but cannot be matched with any certainty. This tile is in a very similar fabric to tiles keyed with die 73 (Fabric Group 6, see Section 9) which suggests that it may have originated from the same tiliary. Museum of London (GYE92).

OTHERS / UNKNOWN

1. PANFIELD, Essex (villa). Ucd. Rodwell 1978, 31. SS. Poss. ? P.J. Drury.

2. LITTLE HALLINGBURY, Essex (villa). Exc. Hull 1963, 137. ? S. Lost.

3. FERNHURST, Sussex.

Fw. Aldsworth 1976, 328.

S.

One piece of relief-patterned tile is reported as coming from a concentration of tile, possibly deriving from a kiln-site (Frere 1990, 359–60). It cannot be traced.

Lost.

4. PENINSULAR HOUSE / 112–116 Lower Thames Street, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (PEN79).

5. SEAL HOUSE / 106–108 Upper Thames Street, LONDON (provincial capital).

Exc. NPR. (archive report by A. Leddy and I. Betts).

S.*.

Museum of London (SH75).

6. SEAL HOUSE / 106–108 Upper Thames Street, LONDON (provincial capital).

Exc. NPR. (archive report by A. Leddy and I. Betts).

S.*.

From a post-Roman context. The tile is in Fabric Group 1 (see Section 9).

Museum of London (SH75).

7. South bank of Thames, near London Bridge, LONDON (provincial capital).

Fw. NPR.

S.*.

Museum of London.

8. TRIANGLE, BILLINGSGATE BUILDINGS, 101–110 Lower Thames Street, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (TR74).

9. Bedens Field, NORTH CRAY, Kent.

Exc. NPR.

S.

A drawing by A.J.J. Parsons is in the Lowther Papers. The site comprised a group of ditched enclosures one of which contained a bath-building.

Lost.

10. COLEMAN STREET, LONDON. (provincial capital).

Cf. NPR.

S.

A letter of 10 October 1957 from W.S.C. Kennett in the Lowther Papers refers to the finding of a relief-patterned tile from the excavations "on the London Roman Wall at Colman Street".

Poss. ? W.S.C. Kennett.

11. STANCHESTER, Wiltshire.

?. NPR.

N. Thompson reported that there were relief-patterned tiles from Stanchester in correspondence with M. Stone.

Lost.

12. 11–19 ST. THOMAS STREET, SOUTHWARK, London (provincial capital).

Exc. NPR.

SS.*.

Two unidentifiable fragments.

Museum of London (11STS77).

13. WOUGHTON-ON-THE-GREEN, Buckinghamshire.

Exc. Zeepvat 1987, 123.

S.

Recorded features were ditches, pits, hut gulleys, and cobbled yard surfaces. No masonry buildings were found. The specimen came from a mid-late 2 cent. pit fill.

Poss. Milton Keynes Archaeology Unit (missing in July 1989).

14. BROCKLEY HILL, Middlesex (roadside settlement).

Exc. Applebaum 1950, 208 and 213.

SS.

The site was further explored by Suggett in 1951 (see Die 21, example 9; Die 43?, example 2; uncertain Group 9, example 2). The reference mentions fragments of tile "keyed with a fret design" from below cobbling ('layer a') in the "Hut Area", and "fragments of fret-keyed hypocaust flue" from the fire-pit of a pottery kiln (Castle 1976, 225: Kiln No. 1) dated c AD 100–160. Comparison with "fret-keyed hypocaust tiles" from Ashted in the report makes it clear that relief-patterned tiles were meant.

Lost.

15. Choseley Farm, ODIHAM, Hampshire.

Exc. R. Ball in Morris 1986, 103.

SS.

The reference mentions two fragments "from relief flue tiles". The descriptions of these tiles in frame 72 of the microfiche issued with the report are inadequate for identifying the die(s) and may refer to combed tiles. No illustrations are given. The only stone-built feature excavated on the site was a corn-drying oven.

Poss. ? Hampshire Museums Service.

16. SHADWELL DOCK, LONDON.

Exc. NPR.

S*.

Unstratified from the site of a late Roman signal station.

? Lost.

17. THAMES EXCHANGE BUILDINGS, LONDON (provincial capital).

Exc. NPR.

S*.

Small abraded fragment.

Museum of London (TEX88).

18. UNPROVENANCED.

Ucd. NPR.

S*.

British Museum (Lowther Collection P 1973 4-3 82).

19. LEADENHALL COURT / Gracechurch Street, LONDON (provincial capital).

Exc. NPR.

S*.

From Phase 51, north; dated AD 180-230.

Museum of London (LCT84).

20. GPO, MIDDLE AREA, NEWGATE STREET, LONDON (provincial capital).

Exc. NPR.

S*.

Museum of London (POM79).

21. 1-7 WHITTINGTON AVENUE, LONDON (provincial capital).

Exc. NPR.

S*.

Museum of London (WIV88).

22. CALVERTS BUILDINGS (15-23 Southwark Street), SOUTHWARK, London (provincial capital).

Exc. NPR.

SS*.

One lost tile and five unidentifiable fragments.

Museum of London (CB80).

23. WATLING COURT / 41-53 Cannon Street, LONDON (provincial capital).

Exc. NPR.

S*.

Very small fragment, too small to identify the die type.

From a post-Roman context.

Museum of London (WAT78).

24. WINCHESTER PALACE, SOUTHWARK (provincial capital).

Exc. NPR.

SS.

Four small mortar covered fragments, which are probably keyed with the same dies as were used on other tiles from this site.

Museum of London (WP83).

25. CHILGROVE, SUSSEX (villa).

Exc. Down 1979, Pl. 15.

S.

A tessera in the floor of Room 1A in building 1 at the Chilgrove 2 villa seems to have been cut from a relief-patterned tile. It is visible on the left edge of the illustration.

? In situ Chilgrove 2 villa.

Appendix: additional London examples

This section lists all relief-patterned tiles which were found in London during 1991–1993. Some were recovered from current fieldwork whilst others were discovered during the analysis of tile from earlier excavations. The sites concerned are listed below, together with the dies which are present. Only one die has not been found in London before. This is die 106 (exp. 2), previously known only from St Albans.

The only recent London examples not included in the appendix are those from Guildhall Yard (Museum of London site code GYE92). As relief-patterned tiles from an earlier excavation on the same site (GAG87) are included in the main corpus it was decided to list the later examples from the same site in the main corpus as well. The catalogue entries for each die listed below follow on numerically from those in the main corpus catalogue. These are listed below by Museum of London site code (in brackets after the name). The letter 'U' denotes tiles where the die type is uncertain. U1 are of 'W-chevron' design, U5 of 'diamond and lattice' design and U9 of 'plain chevron' design.

23–25 Austin Friars (AST87). Die: 3, 4, 9, 11, 12, 58, 70, 116.

Bermondsey Abbey, Southwark (BA84). Die: 58

74–80 Cheapside/ 12 Pancras Lane (CID90). Die: 60

12–15 Finsbury Circus (FIB88). Die: 35

Christchurch Greyfriars/Newgate Street (GF73 and CHR76). Die: 5A, U5

Pinnars Hall, Great Winchester Street (GWS89). U1 (Die 66 or 78)

Harp Lane, Lower Thames Street (HL74). Die: 3

Albion House, 34–35 Leadenhall (LDL88). Die: 4

145–6 Leadenhall Street (LEN89). Die: 28

78–9 Leadenhall Street (LHN89). Die: 10, 18

52–62 London Wall/20–56 Copthall Avenue (LOW88). Die: 12, 13, 23, 24, 29, 33, 36(?), 71, 106, 116, U5, U9, U

44–6 Ludgate Hill/1–5 Old Bailey (LH74). Die: 69

35–45 New Broad Street (NEB87). Die: 28

19–25 Old Bailey (OBA88). Die: 28

25–33 Ludgate Hill/1–3 Pilgrim Street/56–66 Carter Lane (PIC87). Die: 24

Ludgate Hill Car Parks / Pilgrim Street / Waithman Street / Blackfriars Lane/ Apothecaries Lane (PWB88). Die: 23, 12

55 Gracechurch Street (RAC89). Die: 3, 65, 85

25–41 St. Mary Axe (SAY88). Die: 16A.

2 Seething Lane (SEA88). Die: 12.

1–4 Great Tower Street (TWR89). Die: 29, 35, 71.

Bull Wharf/67 Upper Thames Street (UPT90). Die: 28, 40, 65

Fleet Valley Project (Holborn Viaduct Station to Blackfriars) (VAL88). Die: 4, 5A, 9, 42, 101

Cannon Street, Bracken House ('Financial Times' Building) (WFG35). Die: 42, 65.

Bread Street/20–21 Cannon Street (WFG36). Die: 28.

Cheapside, Honey Lane (WFG40). Die: 40

Die 3

28. HARP LANE, LOWER THAMES STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (HL74).

29. 55 GRACECHURCH STREET, LONDON (provincial capital).

Exc. NPR.

SS.*

Museum of London (RAC89).

30. 23–25 AUSTIN FRIARS, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (AST87).

Die 4

31. ALBION HOUSE / 34–35 LEADENHALL, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (LDL88).

32. 23–25 AUSTIN FRIARS, LONDON (provincial capital).
Exc. NPR.
SS.*.
Museum of London (AST87).

33. FLEET VALLEY PROJECT (Holborn Viaduct Station to Blackfriars), LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (VAL88).

Die 5A

15. CHRISTCHURCH GREYFRIARS / NEWGATE STREET, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (GF73).

16. FLEET VALLEY PROJECT (Holborn Viaduct Station to Blackfriars), LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (VAL88).

Die 9

24. FLEET VALLEY PROJECT (Holborn Viaduct Station to Blackfriars), LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (VAL88).

Die 10

13. 78–79 LEADENHALL STREET, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (LHN89).

Die 11

14. 23–25 AUSTIN FRIARS, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (AST87).

Die 12

32. 2 SEETHING LANE, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (SEA88).

33. 52–62 LONDON WALL / 20–56 COPTHALL AVENUE, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (LOW88).

34. 23–25 AUSTIN FRIARS, LONDON (provincial capital).
Exc. NPR.
SS.*.
One specimen reused as a tessera.
Museum of London (AST87).

35. LUDGATE HILL Car Parks / PILGRIM STREET / WAITHMAN STREET / BLACKFRIARS LANE / APOTHECARIES LANE, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (PWB88).

Die 13

23. 52–62 LONDON WALL / 20–56 COPTHALL AVENUE, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (LOW88).

Die 16A

12. 25–41 ST. MARY AXE, LONDON (provincial capital).
Exc. NPR.
SS.*.
Museum of London (SAY88).

Die 18

6. 78–9 LEADENHALL STREET, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (LHN89).

Die 23

16. 52–62 LONDON WALL / 20–56 COPTHALL AVENUE, LONDON (provincial capital).
Exc. NPR.
SS.*.
Museum of London (LOW88).

17. LUDGATE HILL Car Parks / PILGRIM STREET / WAITHMAN STREET / BLACKFRIARS LANE / APOTHECARIES LANE, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (PWB88).

Die 24

9. 52–62 LONDON WALL / 20–56 COPTHALL AVENUE, LONDON (provincial capital).
Exc. NPR.
SS.*.
Museum of London (LOW88).

10. 25–33 LUDGATE HILL / 1–3 PILGRIM STREET
/ 56–66 CARTER
LANE, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (PIC88).

Die 28

10. 19–25 OLD BAILEY, LONDON (provincial capital).
Exc. NPR.
SS.*.
Museum of London (OBA88).

11. 145–6 LEADENHALL STREET, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (LEN89).

+12. 35–45 NEW BROAD STREET, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (NEB87).

13. BULL WHARF, 16–20 Queenhithe / 67 Upper Thames St., LONDON (provincial capital).
Exc. NPR.
SS*.
Museum of London (UPT90).

14. BREAD STREET / 20–21 CANNON STREET, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (WFG36).

Die 29

+7. 1–4 GREAT TOWER STREET, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (TWR89).

8. 52–62 LONDON WALL / 20–56 COPTHALL AVENUE, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (LOW88).

Die 33

+5. 52–62 LONDON WALL / 20–56 COPTHALL AVENUE, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (LOW88).

Die 35

11. 12–15 FINSBURY CIRCUS, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (FIB88).

12. 1–4 GREAT TOWER STREET, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (TWR89).

Die 36

10. 52–62 LONDON WALL / 20–56 COPTHALL AVENUE, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (LOW88).

Die 40

7. BULL WHARF, 16–20 Queenhithe / 67 Upper Thames St., LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (UPT90).

8. CHEAPSIDE / HONEY LANE, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (WFG40).

Die 42

9. CANNON STREET, Bracken House ('Financial Times' Building), LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (WFG35).

10. FLEET VALLEY PROJECT (Holborn Viaduct Station to Blackfriars), LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (VAL88).

Die 58

12. BERMONDSEY ABBEY, SOUTHWARK, LONDON (provincial capital).
Exc. NPR.
SS.*.
Museum of London (BA84).

13. 23–25 AUSTIN FRIARS, LONDON (provincial capital).
Exc. NPR.

SS.*.

Museum of London (AST87).

Die 60

3. 74–80 CHEAPSIDE / 12 Pancras Lane, LONDON (provincial capital)

Exc. NPR.

S.*.

Museum of London (CID90).

Die 65

6. 55 GRACECHURCH STREET, LONDON (provincial capital).

Exc. NPR.

SS.*.

Museum of London (RAC89).

7. BULL WHARF, 16–20 Queenhithe / 67 Upper Thames St., LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (UPT90).

8. CANNON STREET, Bracken House ('Financial Times' Building), LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (WFG35)

Die 69

8. 44–46 LUDGATE HILL / 1–5 OLD BAILEY, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (LH74).

Die 70

3. 23–25 AUSTIN FRIARS, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (AST87).

Die 71

7. 52–62 LONDON WALL / 20–56 COPTHALL AVENUE, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (LOW88).

8. 1–4 GREAT TOWER STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (TWR89).

Die 85

15. 55 GRACECHURCH STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (RAC89).

Die 101

4. FLEET VALLEY PROJECT (Holborn Viaduct Station to Blackfriars), LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (VAL88).

Die 106

2. 52–62 LONDON WALL / 20–56 COPTHALL AVENUE, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (LOW88).

Die 116

8. 52–62 LONDON WALL / 20–56 COPTHALL AVENUE, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (LOW88).

9. 23–25 AUSTIN FRIARS, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (AST87).

Die 118

4. 49 MOORGATE / 72–73 COLEMAN STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

Museum of London (MOG86).

W-CHEVRON (Lowther's Group 1)

10. PINNERS HALL / GREAT WINCHESTER STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

Either die 66 or 78.

Museum of London (GWS89).

DIAMOND AND LATTICE (Lowther's Group 5)

23. CHRISTCHURCH GREYFRIARS / NEWGATE STREET, LONDON (provincial capital).

Exc. NPR.

S.*.

From a post-Roman context. The specimen is a brick keyed with what may be either die 16 or die 108.

Museum of London (CHR76).

24. 52–62 LONDON WALL / 20–56 COPTHALL AVENUE, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (LOW88).

PLAIN CHEVRON (Lowther's Group 9)

18. 52–62 LONDON WALL / 20–56 COPTHALL AVENUE, LONDON (provincial capital).
Exc. NPR.
SS.*.
Museum of London (LOW88).

OTHERS / UNKNOWN.

25. 1–4 GREAT TOWER STREET, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (TWR89).

26. 52–62 LONDON WALL / 20–56 COPTHALL AVENUE, LONDON (provincial capital).
Exc. NPR.
S.*.
Museum of London (LOW88).

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