

DOCUMENTARY EVIDENCE FOR MEDIEVAL CERAMIC ROOFING MATERIALS

AND ITS ARCHAEOLOGICAL IMPLICATIONS: SOME THOUGHTS

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Summary

The study of medieval roof coverings has received little attention in the past. The work of the late Gerald Dunning on a wide range of ceramic ornamental roof furniture (Appendix 1) and L. F. Salzman's study of medieval roofs scattered throughout his monumental documentary survey of medieval building practices and materials (Salzman 1967, 100, 210-22, 233-35) remain outstanding. This paper examines the enormous potential of the documentary evidence for medieval ceramic coverings and fittings and the implications which it has for interpreting and understanding the archaeological evidence.

Documentary sources

Helpful documentary sources are varied, but three classes are of more use than others: various types of manorial accounts, containing the costs of constructing and repairing manorial buildings; monastic obediatory accounts, where the respective obediatory official records the costs of repairs on property under his care; and churchwardens' accounts, which record (amongst other things) the repair of church property. Each has their own value. Manorial accounts, the most useful source, are subdivided for ease of accounting. Two sections contain useful building evidence, 'costs of the [manorial] buildings'. Sections vary not only between manors but also between yearly accounts, depending on the size of the manor (and hence the expenditure) and special circumstances, such as a large new building which might be accounted for separately. Where a number of items were needed for one piece of work, such as the construction of a fishpond, mill dam or windmill, the items would be generally accounted for in the order in which they were used. Accounts, therefore, provided not only the materials and components of a roof (except where payment is made by contract) but inadvertently record the sequence of construction. While the main housebody is usually contracted out, and the single payment to either a carpenter or mason is recorded, the manor put the roof cover in position: the materials and sequence is generally: laths, lath nails, moss (for bedding the tiles), the roof covering (e.g. stone slates, wooden shingles, ceramic tiles, thatch or turf), variously termed ridge tiles (crests, ridgings etc), and lastly lime and payment to a slater, roofer or plasterer for pointing the ridge tiles and roof cover. Variations occur both regionally and with the material used for the cover: ceramic ridge tiles were bedded in mortar but not the thatch roof which they sat on; in some regions 'red earth' was used in the mortar to fix the ridge tiles (Salzman 1967, 152; Mellows 1954, *et passim*); while in some areas, the moss used for bedding the tiles is the last item accounted for, suggesting that it may have been used as a packing agent rather than as a bed for the tiles to rest on.

Accounts for commercial tileries can reveal a wealth of detail of relevance to the archaeologist: the layout of the tilerie; the construction of the kilns and the way in which they were fired; the range of tiles made; and the equipment and tools bought revealing the manufacturing techniques used (see Salzman 1923, 173-83; Drury 1981, 130-39). The increase throughout the Middle Ages of municipal and governmental control over tile making and brick manufacture, resulting in the statutory legislation of 1477, provides illuminating insights and details. The Worcester regulations in 1467, for example, ordered, amongst other things, that each tiler in the town should mark or stamp their work so that perpetrators of defective tiles could be traced (Toulman-Smith 1870, 399), an act which is seen on tiles excavated from Worcester (Carver 1980, 213, fig. 62). The identification of products of the same person clearly has major archaeological implications, although, as we shall see below, tiles could remain on the same roof for a number of centuries, they were stockpiled for future use and could be re-used from demolished buildings.

Accounts across the country covering or repairing a roof record a variety of different terms for the tiles used. Many of these are varying dialect terms for the same form of tile, such as crests, ridgings and hollow-tile describing ridge tiles. Terminology does create its own problems of uncertainty. It is unclear, for example, whether the vernacular term *crest* refers to plain ridge tiles or to ridge tiles with the common cocks-comb of applied decoration on the top, for building and repair accounts refer to the ridge of the building as the crest. One feature is very clear. Accounts for the output of commercial tileries and building and repair accounts show that gutter tiles were commonly used. This term can probably be equated with curved tiles that are very similar to plain ridge tiles, but have much shorter sides (which are usually at right angles to each other), their smooth surface is on the inner concave side, which is also usually glazed. Small pieces might be difficult to separate from ridge tiles, but they are much more common than the few published examples might suggest. They probably served two functions. Firstly as a seal under the tiles down the junction of two roofs at right-angles to each other, with the weight of the overlapping tiles on either side keeping them in position (no example with a suspension hole has been identified yet). Secondly, accounts occasionally associate gutter tiles with the eaves of a building. It is probably this use as a collector of water, as in modern guttering, which gave the tiles their name, suggesting that this was their most common use.

Evidence for use

A combination of documentary and archaeological evidence can provide vital clues as to how the tiles were supported, how the roof was sealed and even the type of roof structure upon which the tiles lay. Archaeological evidence shows that two basic types of hanging fixtures occurred, nibs formed either by pressing out part of the tile along the top edge or moulding them, and holes bored through the tiles before firing. Both types can occur singly or at each corner of the tile. Holed tiles were supported by either oak pins or iron nails. It seems likely that a systematic survey of manorial accounts across the country for the purchase of tile pins where ceramic tiles are being used would reveal whether their occurrence is regional or chronological, or, as seems more likely, a combination of both.

Unlike stone tiles, whose hanging holes were bored on site (Salzman 1967, 234), ceramic tiles came ready made. Occasionally secondary holes are found in pottery tiles and groups of tiles can contain tiles with holes in different positions along the top edge. It is possible that these were created where the close spacing of coupled rafters interfered with the laying of tiles with standard central or side hanging holes, where the hanging fixture of the tile overlay the rafter position on the lath. Such a problem is unlikely to occur with nibbed tiles because the nib penetrated from the surface of the tile far less than either an iron nail or wooden peg would. The presence of a group of contemporary tiles, where it could be shown that they were from the same roof (see below), with a variety of primary or secondary fixing positions along the top of the tile could suggest the form of roof structure which the tiles covered.



Fig. 1. Original laths, plaster roof and stone slates (removed) revealed during repairs to the roof of the late medieval Charlston Hall (West Yorkshire) in 1987. The absence of another set of lath nail holes shows that the surviving laths are the original ones. The exposed lower backs of the stone tiles were covered with plaster from the plastering between the rafters, forming a kind of ceiling. Similar evidence has been noted on ceramic tiles (photo: S. Moorhouse)

Accounts show that pointing on roofs was both widespread and a common practice. Roofers and slaters are frequently paid, along with the costs of buying lime for the work. It has been assumed that the mortar was used for back-pointing the tiles inside the building, a technique frowned upon in recent centuries, for it prevents the roof and building from breathing by allowing air in through the gaps in the tiles. In some cases where quantities of lime purchased and the length of roof required or laid is given (usually in rods or perches), the amount of mortar is far in excess of that needed for back-pointing the given length of roof. It seems likely that the whole of the inside surface of the laths between the rafters is being coated to produce a form of ceiling. This suggestion could be supported by the occasional purchase in accounts of two lots of lime; traditional plastering of a surface usually has two coats, one as a filler and a much finer solution as a surface finish - a technique still employed by modern plasterers. The antiquity of the plastering on a standing building could be suggested by examining the number of lath replacements on the rafters. At Sharlston Hall (West Yorkshire), a late medieval timber framed building, such a plastered ceiling has been identified under the tiles and between the rafters. Here the plastering could be confirmed as being contemporary with the medieval frame of the building because there were no secondary nail positions for earlier laths on the rafters, suggesting that the existing laths were the original ones to the building, and hence the ceiling also probably original. In addition, the plaster had set against the existing roof cover of stone slates, suggesting that the majority of the surviving slates were also original (Fig. 1).

While the weight of the overlapping flat tiles would keep the roof cover in position, this was not the case with ceramic ridge tiles. The most common method was to set the tile in a bed of mortar on the ridge. The purchase of small numbers of ridge tiles, presumably for replacement, is common in accounts, and probably reflect their vulnerable position on the ridge line. The quantity of bedding-mortar required can be seen where the tiles and lime for the mortar are bought, as occurs at Thorner (West Yorkshire) in 1350/51 when half a quart of lime was bought for 30 tiles 'called *Riginges*' to repair various buildings in the manor (Leeds City Archives/MX/Manorial/Thorner/Accounts 1350/51).

The various methods of hanging, laying and pointing the tiles may be left upon the tile surface either as localised areas of mortar cover or erosion marks where exposed surfaces are more worn than those which were covered. The underside of excavated flat tiles show a variety of different areas covered by mortar. The top edge of tiles can also be mortared, showing them to have been back-pointed when in position. The plastered backs of tiles, or 'ceilings' as suggested in the documents could be detected by negative bands of absent mortar where the laths had protected the tile. An unusual feature of flat tiles in many areas is that the roughened sand-bedded side is clearly the upper surface, for the nibs project from the smoothed side. The purpose of this method of manufacture is uncertain, for the porous roughened side would tend to absorb the rain water more than the smooth side, and the mortar used on the back of the tiles for whatever purpose would find less adhesion than if it were sticking to the roughened side.

Ridge tiles are also set in different positions. Most tiles are usually mortared underneath, the roughened sand-moulded underside providing a useful bonding surface for the mortar. End mortaring is common, showing that the tiles were placed end to end. Ridge tiles from the Austin Friary at Leicester have mortar on the top of one end only (Allin 1981, 53), showing

that the tiles were overlapping each other when in position. This would create a distant decorative effect, a tiling effect which Rosy Woodlands has shown is still common on modern roofs in Leicester (pers. comm.). The ends of the Austin Friary tiles which had mortar on them were deliberately left free of glaze, which covers the remainder of the tile. It would have been very difficult for the mortar to bond onto a shiny glazed surface, suggesting that the tile makers were aware of how the tiles were to be laid.

Archaeological implications of the documentary evidence

The documents provide many cautionary warnings for interpreting the archaeological evidence for tiles. Some of this has already been examined, where it can help understand how the tiles were laid on the roof. More importantly, though, the documents can suggest how the tiles on a roof came to be used together and hence highlight the significance of tiles in archaeological deposits.

Perhaps the most significant point is that both manorial, monastic and churchwardens' accounts paint the same picture for both secular and religious buildings: roofs were being constantly patched and repaired on both the flat covering and more especially on the more exposed ridge line. Both flat and ridge tiles are bought in varying quantities annually in most long runs of accounts. Occasionally individual purchases are recorded, showing the number of repairs throughout the year, but much more often, the total cost, numbers and types of tiles are given for the whole year. Ridge tiles are recorded more frequently than might be imagined, but this probably reflects the more exposed position of the ridge and the more likelihood for ridge tiles to be dislodged by heavy winds. Perhaps the overlapping of ridge tiles as at Leicester and elsewhere has a dual role, in that it not only looks decorative from a distance but also provides firm fixing from the adjacent overlapping tile.

The constant damage to roof coverings meant that tiles were often stockpiled, anticipating the inevitable. This is clear from the documents in a number of different ways. Most frequently tiles are bought against repair and remain in the store at audit. A typical entry occurs in the Petworth (Sussex) accounts for 1349, when 1100 tiles (*tegulis*) and 55 hip tiles (*hupes*) were bought 'which remain for the store of the manor' (Salzman 1955, 34). An unusual instance occurs in the sale of the moveable property following the death of John Greene, late rector of Castle Combe (Somerset) in 1439. One purchase was an unspecified number of tiles (*tegulis*) for 5s., probably a reserve stock of tiles for future repairs, the price suggesting a considerable number (Scrope 1852, 227). Such piles of tiles are often seen around farms today, or stacked in the corner of churchyards. They have also been attested archaeology in the medieval period. A group of at least 30 flat tiles were stacked beneath the external stair of the hall on the manor complex at Whaddon (Buckinghamshire), a site abandoned during the 14th century (Griffiths 1979, 65; Fig. 2 and 3).

Documentary sources can reveal another cautionary tale - the re-use of tiles. The re-use of timber in surviving medieval buildings is well known, and is occasionally met within the written sources. At Thorner (West Yorkshire) in 1356/57 a carpenter was paid for dismantling the timber of an old house and 'with that and other timber of the lord' make another house elsewhere in the village (Leeds City Archives/MX/Manorial/Accounts 1356/57). Salzman gives a number of examples of buildings being dismantled, moved some distance and then re-erected, including a hall and two chambers roofed with tiles bought at Wimbledon and moved to Shene (Salzman 1967, 198-200). An abandoned or redundant site, as today, was often seen as a ready-made quarry



Fig. 2. Stack of ceramic tiles from behind the base of the staircase of the 14th century hall at Whaddon (Bucks). This and similar stacks excavated elsewhere are either tiles kept handy for quick repair work or stock piled during the dismantling of the building, in this case during the later Middle Ages. See Griffiths 1979 (photo: S. Moorhouse)

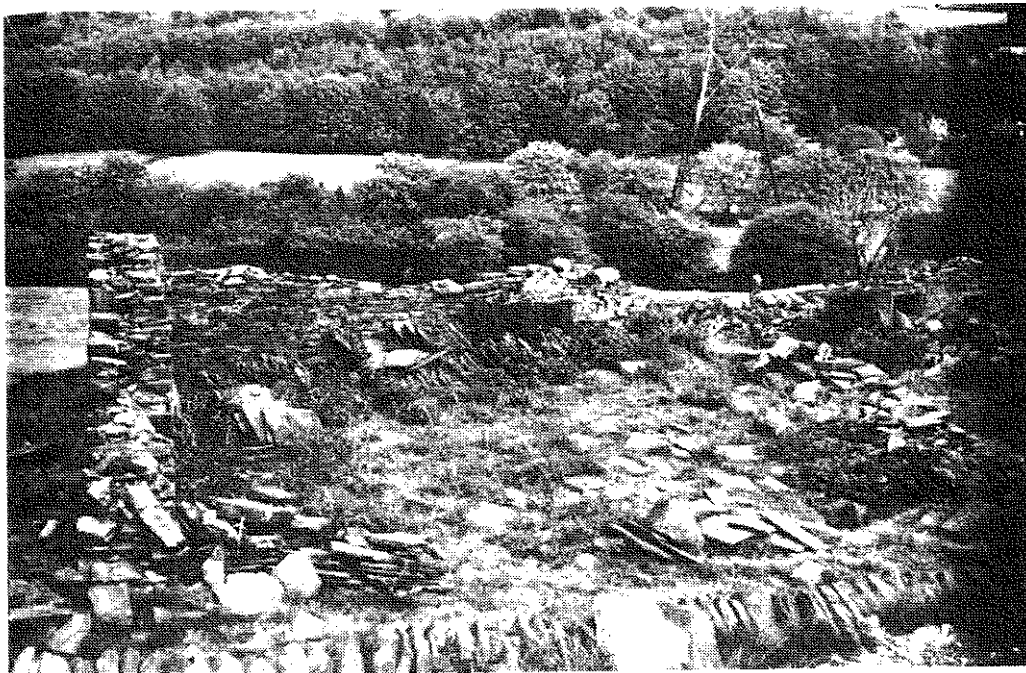


Fig. 3. Stack of stone slates in the corner of a ruined building at Cold Well, Southowram (West Yorkshire), a farm abandoned in the 1950s. Piles of stone or ceramic tiles are the first thing to be removed from abandoned or ruined buildings for re-use elsewhere and are often found today in the corners of buildings. The documents suggest that the re-use of particularly ceramic tiles was common practise during the Middle Ages (photo: S. Moorhouse, 1987)

for a variety of re-usable materials, including tiles. The Tattershall Castle building accounts for 1435 record the costs of dismantling buildings and carrying 13 cartloads of timber, 6 doors and 10 shutters from the abbey at Revesby, seven miles to the east, including 11,360 *tegulis*. Salzman (1967, 200) translates *tegulis* as tiles and gives the quantity as 40,360, while Simpson (1960, 50) calls them, perhaps more correctly in the context of the document, bricks and gives the quantity as 11,360. Whether bricks or tiles in this instance, both were re-used from dismantled buildings often many miles away. Occasionally, tiles are specifically recorded as being taken down for re-use. The churchwarden's accounts for St Michael's in Bath in 1420 record the wages of two people, one for taking tiles down from a church-owned building in Bath, and the other for carrying and cleaning the tiles (Pearson 1878, 26). This practice, as commonsense might suggest, was probably much more widespread than is indicated in account rolls. It is fortunate that it is recorded at all, for it is often only mentioned, as in the Bath case, through the wages of the person taking down the tiles. More often it was probably carried out by one of the manorial *famuli* or workers, and as such no payment would be made and no cost recorded in the account rolls.

Further problems could be caused by the purchase of different types or sizes of tiles for the same roof from different centres. There are many instances of tiles being bought from different tilers for the same building, but only occasionally are the sources of manufacture of the tiles given. The well known example of the repair of the roof of the Royal Hall in Banstead (Sussex) in 1372/73 shows that flat tiles came from Ashstead and Reigate, while two ornamental equestrian finials were bought from a potter at Cheam (Moorhouse 1981, 109, fig. 89; Fig. 4).

Despite the absence of direct references to ornamental roof furniture in the documents, the unit price of ceramic ridge tiles may reveal their presence. During the 14th century the cost of the variously termed ridge tile was between a $\frac{1}{2}$ d. and $\frac{1}{2}$ d. each, the average price rising predictably in the following century. A number of purchases include ridge tiles that were appreciably more expensive. At Carisbrook Castle in 1353 *crestis luteis* were just over 1 $\frac{1}{2}$ d. each, at Moor End in 1366 *crestes de figulo* were 1 $\frac{1}{2}$ d. each, while *kresttys of tyyl* for King's Hall in 1432 cost just over 2d. (Salzman 1967, 231). Significantly these three references describe 'crests', and probably refer to the characteristic 'cox-comb' type of decoration found on ridge tiles in various forms over much of the country, or even the more elaborate types of plate finials which are common in some regions (e.g. Dunning 1975c, 193, fig. 214).

From the itemised costs for a new building it is occasionally possible to suggest the length of the building by the number of ridge tiles purchased, and even the type of roof structure by the different types of cresting used. A typical example is the cost for erecting a new barn on the Bishop of Winchester's manor of Ivinghoe (Buckinghamshire) in 1309/10. Three different types or sizes of flat tile were bought, all different quantities, at 2s.4d., 2s.8d., and 3s. the thousand. It is possible that different sizes were involved for two types of wooden tile pegs also were bought, at 1 $\frac{1}{2}$ d. and 2d. the thousand. The ridge lines were covered by 700 hip tiles (*hupetighels*) and ridge tiles at 2s.4d. the hundred, and a further 50 of each for 18d., that is 3s. the hundred (Titow 1969, 204-5). The difference between the commonly-occurring ridge tiles and hip tiles in the documents is not made clear. In the flesh, ridge tiles are rectangular in plan with a curved section, to sit astride the ridge line, while hip tiles are triangular in plan with a curved section and interpreted as resting on the hip line of a roof. The same costs for both types as seen here and elsewhere suggests other uses. The low unit

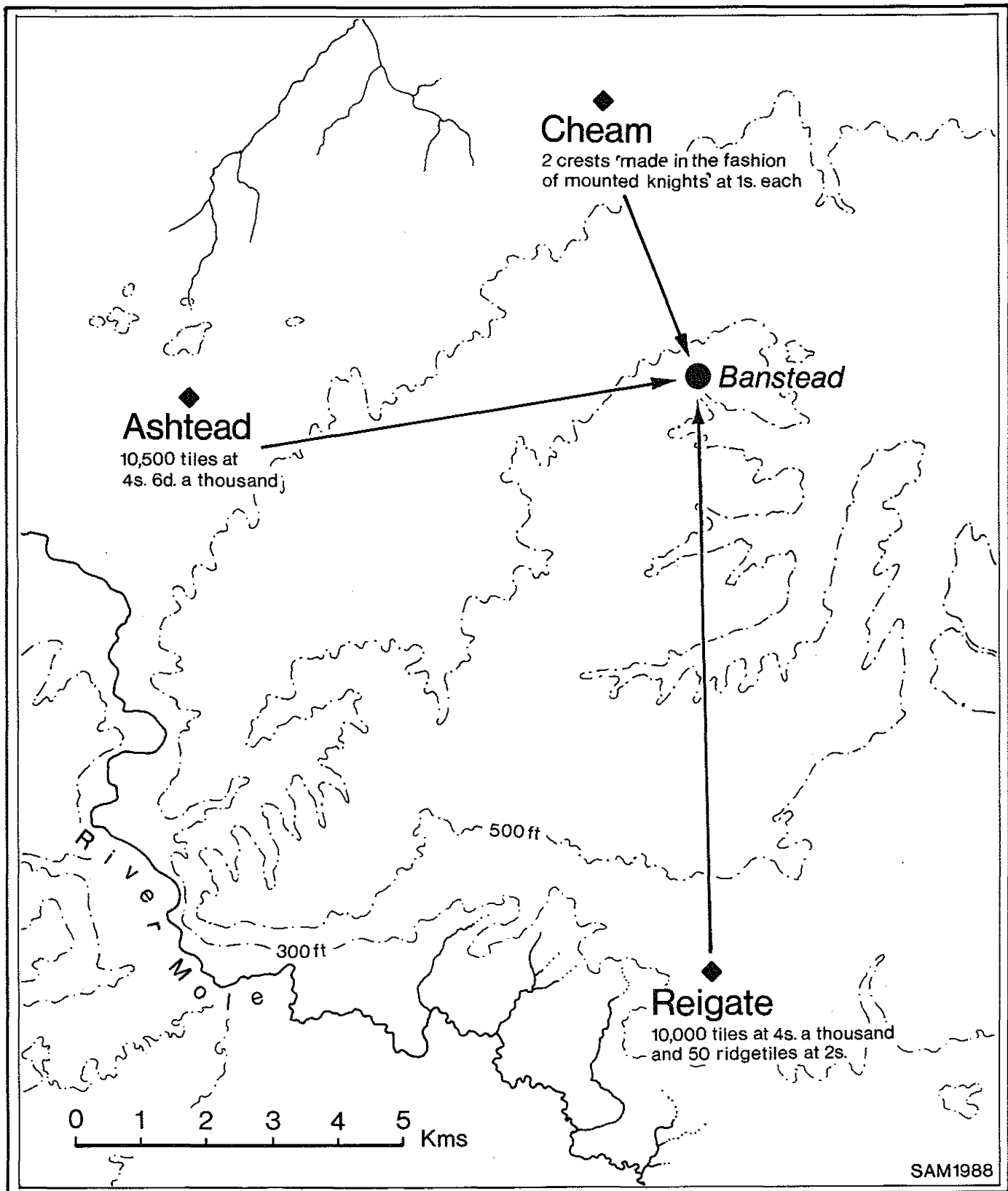


Fig. 4. Sources of tiles for use on the roof of the rebuilt hall at Banstead (Sussex) in 1372-73 (see text). Similar purchases of tiles from different centres for the same roof suggest contemporary tiles on the same building could look visually and stylistically very different.

costs suggests that the smaller number of crest tiles were not necessarily more ornamental, but possibly served a different purpose. What is clear is that, like flat tiles, different ridge tiles possibly from different centres could be found on the same roof.

Manorial accounts frequently show that contemporary buildings within the same manor complex were roofed with different materials. While a number of factors might dictate the form of roof cover, such as function, status, availability of raw materials and even fashion, the use of the building which the tiles covered probably played the greatest part. The varying roofing materials on buildings of different status in the same complex is reflected in the eastern Pennines, a strong stone-slate roofing area. The 14th century manorial accounts for Methley (West Yorkshire) show that the hall, chamber and chapel were roofed with stone slates, while the agricultural buildings in the manor complex were covered with thatch or shingles (Marriott and Yarwood forthcoming). It is also clear from accounts that bakehouses and ovens were invariably covered with either stone slates or ceramic tiles, clearly a preventative measure against fire, while abundant documentary evidence, now being supported archaeologically, shows that peasants were covering their houses with stone slates (Moorhouse 1981b, 810; Dyer 1986, 41).

Ceramic tiles are usually associated with houses, farm buildings and churches, but a wide range of other less obvious structures were covered with tiles. Of the many that could be given, those found within the garden are perhaps the most numerous, ranging from summer houses to garden sheds. At Highclare (Hampshire) in 1398, a new shelter and covered way in the large garden there required 23,000 plain tiles and 250 ridge tiles to cover it, which John Harvey has estimated represents an open-sided passage 280ft long (Harvey 1981, 88). One now seemingly unusual use of tiles, but common practice in the Middle Ages, was as a coping along the tops of walls. This protected the wall from the elements, rain, frost and hence disrepair. Stone, thatch, sods and tiles are all documented. Tiles are not uncommon. At Silkstead (Hampshire) in 1276 pegs (for the tiles) were bought for roofing the wall around the herber in the garden there (Harvey 1981, 110). References to the construction or repair of walls at St Swithin's Priory, Winchester, are typical of those areas where ceramic wall copings were common. In 1536-37, amongst other things, £2 2s. was spent on tiles, crests and tilepins for the Sacrist's garden wall; in 1311/12 18s. was spent on roofing 'hospital walls'; and the Hordarian's roll for 1382 gives details of building a wall between the kitchen garden and the Hordarian's little green close (*le Prail*), for which 400 tiles at 3s.2d. and 17 crests at 12³/₄d. were purchased (Kitchen 1892, 111, 139, 281). Churchwarden's accounts show that in some regions churchyards were coped with tiles, as at Tilney (Norfolk) in 1531 when a tiler was paid for repairing with 300 tiles the stile and wall there (Stallard 1922, 140), while, more explicitly, at Walberswick (Suffolk) in 1496, 2s.4d. was spent on an unspecified number of tiles 'for covering (*kurying*) of the [garden]wall' (Lewis 1947, 77) (Fig. 5 and 6).

The use of flat tiles for other than roofing

As with the form of pottery vessels (Moorhouse 1978; Moorhouse 1981, 114-119), the flat form of a roof tile lent itself to a wide range of uses other than that for which it was originally made, on the roof. The selling off of tile waste is well documented, for example at the Vicar's Choral tiler in York and at Penn (Buckinghamshire), while accounts show that tile waste was used in the filling of building foundations, as hardcore for building works and as backing for wharves (Moorhouse 1981a, 107). Tiles were even ground up

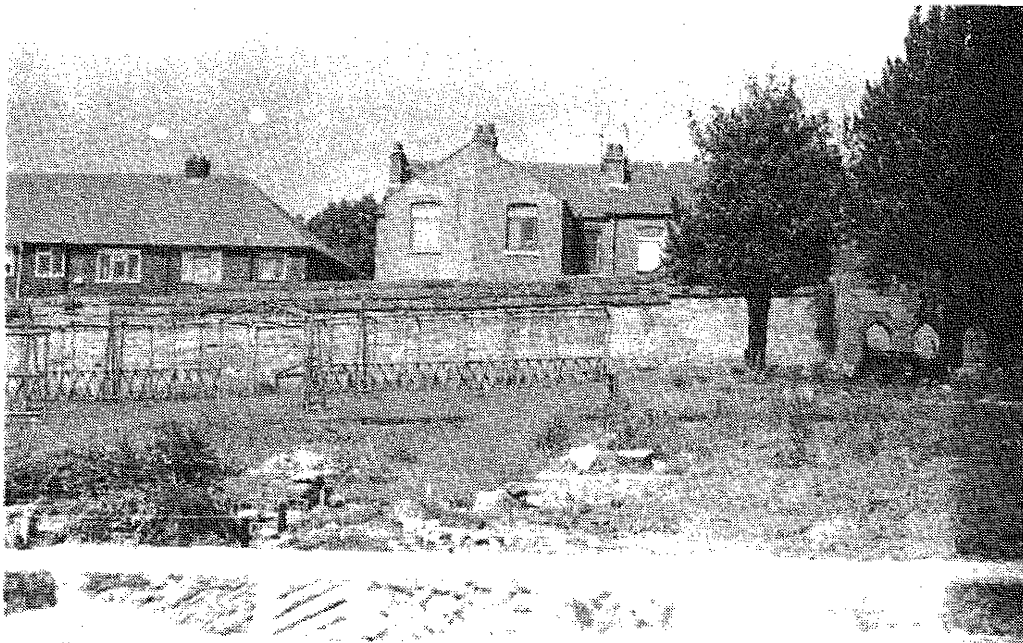


Fig. 5. Late medieval stone precinct wall to St Anne's Charterhouse, Coventry. The stone coping imitates the overlapping appearance of stone or ceramic tiles (photo: S. Moorhouse)



Fig. 6. Ceramic flat tiles and ridge tiles capping walls in modern Brugge. Account rolls suggest that similarly-looking wall tops must have been commonplace in central and southern England during the Middle Ages (photo: S. Moorhouse)

and the powder used as an ingredient in cement (Salzman 1967, 154). As saleable tiles they were ideal end-set for making hearths, occasionally met with in the documents but a common form of hearth structure on excavated sites - they even formed the fire-resistant base for hearths on board ship (Moorhouse 1981a, 120, n.8).

Excavated medieval garden sites have shown that length-ways edge set tiles formed the edges to raised garden beds as at Charterhouse, Coventry, a likely use for unspecified tiles bought by the gardener in a number of monastic obedientiary accounts. Staying with the garden, Palladius' *de re rustice*, a 4th century horticultural treatise translated into Middle English during the Middle Ages, gives one method of growing saplings as laying the roots between two tiles and covering them with clay (Lodge 1873, 95, 1. 959-61).

Perhaps the most common non-roofing use of flat tiles was as broken pieces. Their purpose was intentional and varied. Various types of recipes show that perhaps the most common use for 'tile-sherds' was as a lid for pots heated in ovens, enclosed in embers or buried in the ground; sometimes a sealing agent is described, which may still survive attached to the tile, from which it may be possible to work out the diameter of pot which it covered! (Moorhouse 1978, 14-15). Recipes often describe 'tile-sherds' as palettes for mixing ingredients, showing that pieces of broken tile with residue on their edges may be artefacts in their own right (Moorhouse 1978, 14). They were even used as a base for laying poison down for foxes and wolves (Power 1928, 213).

Some of these deliberate uses may have resulted in shaped tile pieces, like the circular discs occasionally found, some of which may be the tile covers for pots mentioned in recipes. The documents hint at a few of what were probably many less obvious uses of tiles. Some of these uses will probably be detected by closer examination of tile pieces and in particular more detailed recording of tiles found on site, a point to which we will return below.

Ornamental ceramic roof furniture

The dichotomy between the documentary and archaeological evidence is seen no more clearly than in the evidence for pottery roof furniture. One of the late Gerald Dunning's greatest contributions to the study of medieval pottery was in the recognition of a wide variety of functional and ornamental pottery roof furniture (see Appendix 1). The pieces published by Gerald Dunning provide a relatively few complete profiles from a much wider range of shapes which are known only from small fragments. Most sites of seignorial status upwards have produced pieces of ornamental roof furniture, but because of the extremely extensive range of shapes much of it has gone undetected, because of the small pieces and the uncertainty of the form from which it comes, and hence little of that which is known is in print. Whilst basic types were defined by Gerald Dunning, most pieces are shape-wise and stylistically individual pieces, suggesting that many may have been special orders. Indeed, the meagre documentary evidence for ornamental roof furniture suggests the same (see below).

Recent work on pottery roof furniture, has shown that in most cases the distribution maps produced by Gerald Dunning were a reflection of the area in which he worked (the Midlands and south of England) than a true distribution of the pieces concerned. Distinctive, highly developed traditions of pottery roof furniture are now known from northern England, particularly in York, Beverley, Lincoln and Chester (Moorhouse 1983; Moorhouse forthcoming).

The distribution of chimney pots published in 1977 (Dunning 1977,) still holds good. While many more examples are now known from southern England, they fall into the basic types as defined and, despite the very strong ornamental pottery roof traditions now being recognised in the north, no undisputed ceramic chimney pot has been recognised there.

If evidence for ornamental pottery roof furniture was left solely to documentary sources, then it might be assumed that decorative fictile art was very rare. Few direct references have been found. The most informative occurs amongst other materials for the re-roofing of the Royal Hall at Banstead in 1372/73 (Moorhouse 1981a, 107; 109, fig. 89), when 2s. was paid to John Pottere of Cheam 'for two crests made in the fashion of mounted knights'. Many other references are implied, but probably do refer to pottery roof furniture, like the king, costing 18d. 'bought for putting upon the king's hall' at Kempton (Middlesex) in 1250 (Brown, Colvin and Taylor 1963, 966), or the ridge tile carrying a figure of St Paul listed amongst the building materials of 229 High Street, Exeter in 1394/5 (Allan 1984, 227). The costs of the four earthenware pots, at 1s.2d. each, 'for the smoke-vents' bought for the barn and hall in the park at Hadleigh (Essex) in 1363 (Salzman 1967, 100, 221) suggest that they were detached ornamental ventilators rather than chimney pots. The Banstead and Kempton tiles suggest special orders to potters, complementing the individuality of many of the ornamental roof furniture pieces from excavations. It is probable that many other references to pottery roof furniture lie hidden in general references to louvers (*lodium, fumatorium*) in accounts. Indeed, this apparent absence from the documents might be misleading, in that they were such an accepted form of decorating a roof, as suggested by the excavated finds, that only the more outlandish or decorative pieces were specially mentioned. The apparently large figures suggested at Kempton, Exeter and elsewhere are not matched by actual tiles. they are common on the continent (e.g. Verhaeghe 1986), but in this country are restricted to the occasional fragment, like the mitre from Coventry (Coventry City Museum, Shelton Collection), probably the peak from the hat of a large finial figure of a bishop.

Despite the most common form of louver being made of wood, with venetian blind-type moveable sides worked by cords, they were made and set on the roof by both tilers and carpenters. Problems encountered between the two sets of craftsmen in York over who constructed louvers was settled in 1425, when it was agreed that the tilers could construct wooden louvers (Salzman 1967, 221). It is thus uncertain that references to tilers fitting louvers implies that they were made of pottery. A typical example occurs in the churchwarden's accounts of St Michael's, Bath, in 1466, when a contract price of 15d. was paid to a tiler for making 2 *lovres*, with their supporting beams (*les brackys*) and pointing them with lime (Pearson 1878, 63). Similarly, the 5s. paid for an unspecified number of *lovres* bought from John Sampole, the earliest recorded freeman tiler in York, in 1357 (Moorhouse 1981a, 108), does not imply that they were of pottery. Equally, though, it is likely that many pieces of pottery roof furniture lie hidden in such ambiguous references.

The position of ornamental roof furniture as excavated also has its value. Documentary evidence shows that louvers and ventilators served different functions on a variety of buildings. The most obvious building was the great hall, directly above the central open hearth. An opening in the roof was essential in kitchens, to allow smoke to escape and allow fresh air

into the otherwise hot and steamy atmosphere. Many kitchens were square in plan, with a pyramidal roof whose apex was surmounted by a louver. A number of pottery ones have been found associated with kitchens, as at Great Easton, Essex (Dunning 1966), and Sandal Castle, West Yorkshire (Moorhouse 1983, 314, fig. 31, no. 29). Other buildings are likely to have pottery louvers or ventilators on their roofs. The reference to earthen pots for the smoke-vents of the barn at Hadleigh in 1363 implies that some use of the barn required it to be ventilated. Documentary evidence shows that kilns were built into barns, a feature now being attested archaeologically, for example on Dartmoor (Beresford 1979, 140-142, fig. 24) and at West Cotton, Northamptonshire (Windell 1987, 6, fig. 4). The other most likely building is the bath house, or stews, a form of cleansing more commonly practised during the Middle Ages than is perhaps appreciated. Rooms devoted to bathing and washing existed at even seignorial level, with earthen pots containing the water to be heated. When in use the steamy air would have to escape, and the most likely place is through a louver in the roof.

The presence or absence of smoke sooting within the louver might suggest what it had been used for. Those with carbon deposits on their interiors were clearly used to let smoke out of a building. A surprisingly large number of pottery louvers, however, are not sooted internally, suggesting that they were used as ventilators to allow air to circulate within rooms and buildings.

How were these large pottery ornaments secured to the roof? Depending on their size, louvers, ventilators and finials could be attached to conventional ridge tiles (for attached globular finials see Dunning 1968), or could be made separately to secure onto the roof by other means. The latter are the more variable in form. The small 'spinning top' finials (Carter 1977) and those of related form (Dunning 1967, 83, fig. 2) had tapered spikes which fitted into holes sometimes found in otherwise plain ridge tiles. More sophisticated and larger finials had usually open-ended lower parts which fitted into a cylindrical socket which was attached to the top of the ridge tiles, as in the finial from Wallingstones, Herefordshire (Dunning 1970b, 110, fig. 19), or the complete finial of different form from Eagle Street, Southampton (Dunning 1975c, 193, fig. 214, no. 1405, drawn upside down). The large detached louvers were secured into the roof structure. Surviving pieces show that their rim bases are solid, with some, like the Great Easton louver (Dunning 1966), having a large well-formed flange with a tapered collar beneath, suggesting that it fitted into some kind of hole, while others have rather simple crude and thick rims, like that from Nuneaton (Mayes and Scott 1984, 172, fig. 120a). The sheer weight of some of the large pottery louvers, standing up to a metre high, must have meant that they rested on supports within the structure of the roof in such a way that they were held firmly in position. Occasionally, these collar-supports are mentioned in the documents, as for repairs to a property belonging to St Michael's Bath, in 1466, when *les brackys*, or the supporting beams, and the lime for the mortaring formed part of the contract arrangement for a tiler to make 2 louvers (see above). The lime mortaring here introduces a feature which should be present on all detached roof furniture, and that is evidence for the pointing around the lower part of the ornament support. While the documents are not specific on this point, it seems likely that the join between the tile and the roof would be sealed, and the remains of this should be present around the lower part of the tiles.

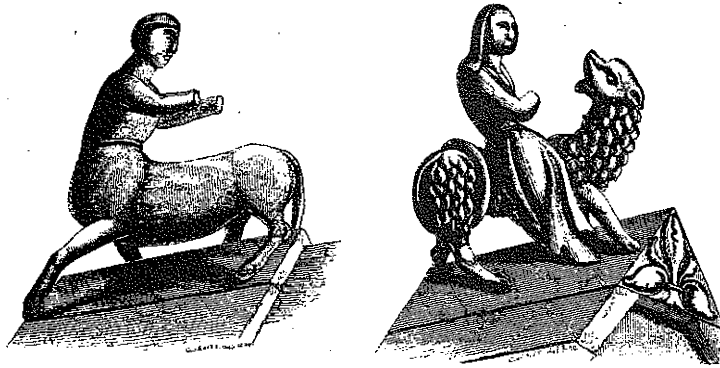
Who used ceramic roof fittings?

Pottery building materials used on the medieval roof were very much a social divider. The excavation of medieval peasant settlements has shown that where tiles are found suggesting that they were used on the roof, they are so few in number as to suggest that they did not cover the whole roof, and probably had some specialised purpose, such as a guard around the smoke vent to prevent the thatch catching fire (Beresford and Hurst 1971, 100). Tiles of all types are very much associated with the wealthy and land-owning classes, from the seignorial landlord upwards. Ornamental roof furniture is found in both town and country, with pieces coming from buildings of almost every use, whether they be in urban tenement, manorial site, monastic precinct, agricultural buildings or even churches. Their numbers and variety suggest that they were very much part of the building traditions of medieval Britain, and any building of any standing would not be complete without its pottery ornamentation on the ridge. There seems to have been little competition with more solid structures of stone or timber, for the shapes and ornamentation produced by the potter could not be matched in any other material. The elaborate three-tiered stone louver built at Hampton Court in 1535 (Salzman 1967, 219) is likely to adorn the most prestigious of roofs. Such sophisticated methods of ventilation would not only look out of place on most domestic buildings, but would be unnecessary. Pottery equivalents were just as effective, despite having permanently open apertures, yet were relatively cheap to replace, either through breakage or even a change in fashion. Building accounts make it clear that houses were clearly used as a means of expressing position and influence, and therefore their appearance and perhaps individuality was important. Does ornamental pottery roof furniture fall into this expression of individualism? It would certainly help to explain the sophistication and detail on some pieces, like the louver from the seignorial manor site at Great Easton, Essex (Dunning 1966), and the fact that although general types were made, no two pieces are identical (Fig. 7).

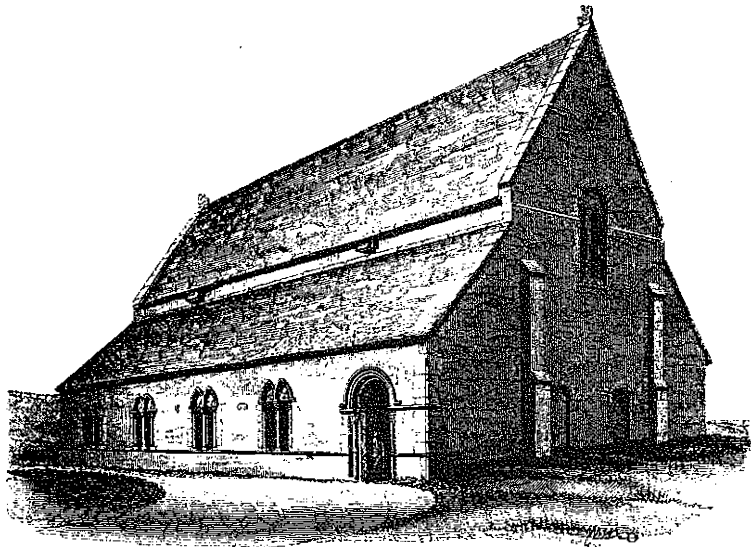
Site plotting of roofing materials

The plotting of roof furniture can play an important role in understanding and interpreting a site. It is likely that the breaking of ridge tiles gave rise to parts of the tile sliding down either side of the roof and the pieces ending up on opposite sides of the building, through either the initial damage to the tile, or, more likely, in trying to remove it during replacement. Sorting of the tile during post-excavation in bringing together pieces from the same tile can have the same result as bringing together sherds from the same vessel - it may help suggest that deposits and horizons from which the pieces came may be contemporary. This exercise has been carried out successfully at Lurk Lane, Beverley, where the dispersal of pieces from a number of ridge tiles confirmed contemporary deposits either side of a timber building and suggested the presence of two features as eaves drip gullies (Moorhouse 1986, 96; Moorhouse forthcoming; Fig. 8)

Combined with the documentary evidence, the plotting of tile scatters as excavated has enormous potential. The longevity of buildings with tiled roofs and their constant patching and repairing is likely to leave concentrations of broken tile below the eaves along each side of the building. This feature has been recognised many times archaeologically, and in some cases has



HIP KNOBS, OR GABLE CRESTS

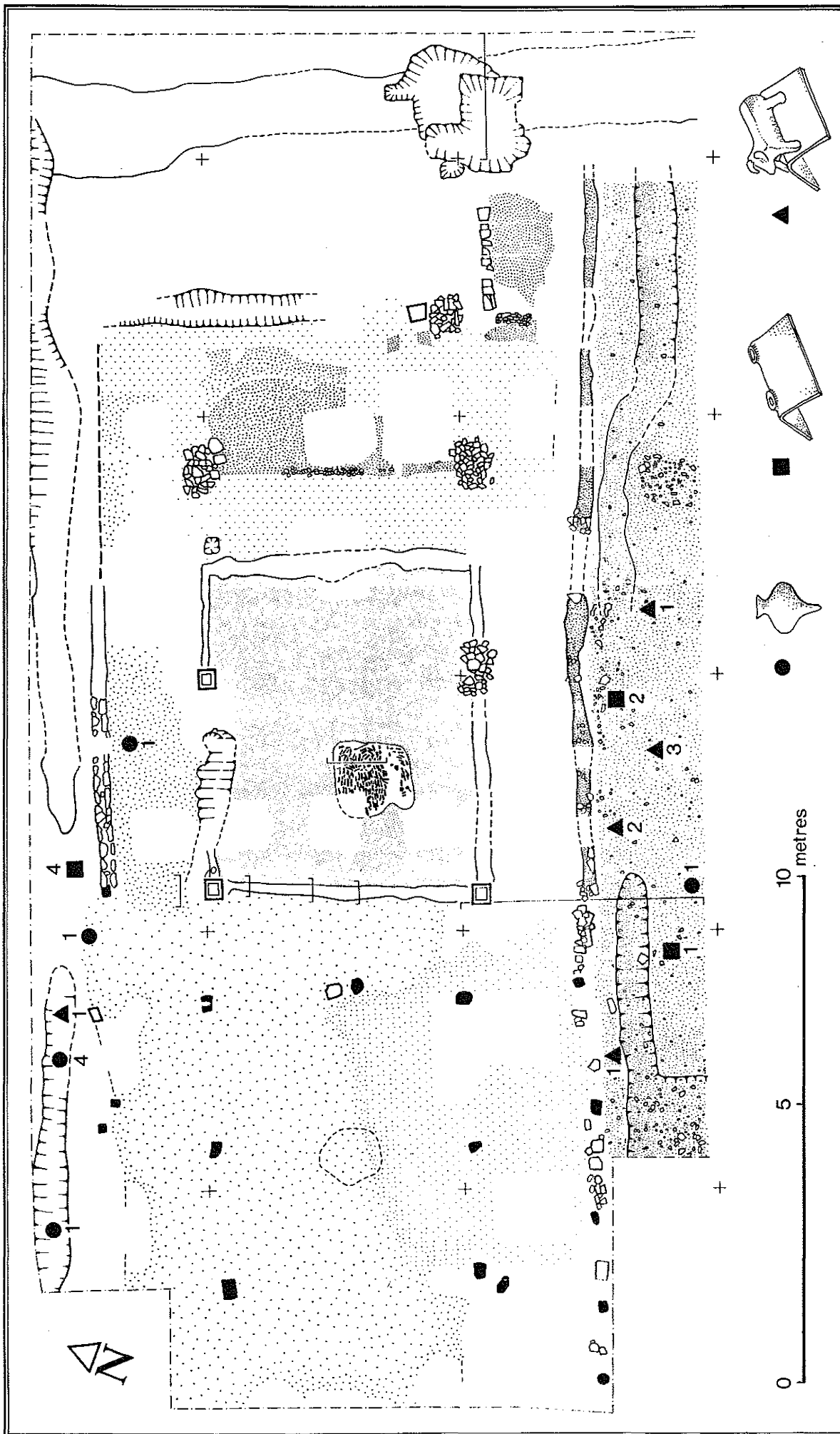


HALL OF OAKHAM CASTLE, RUTLANDSHIRE

South-east View.

Fig. 7. Twelfth-century stone roof finials from either gable of the relaid roof at Oakham Castle Hall (Rutland). These and later stone finials formed the inspiration for ceramic copies (from Hudson Turner 1851, pls between pp 28-29 and 30-31).

provided the only evidence for the building, where the structure rested on the surface and left no trace. It should be borne in mind, however, that the tiles present may represent broken pieces from many repairs carried out throughout the life of the building. Indeed, detailed analysis of some of these deposits has shown that the often small pieces come from separate tiles, suggesting that the smaller pieces were left where they fell, while the larger pieces were removed. Broken tiles are often found packed haphazardly into drains to form ready-made soakaways for the run-off water to percolate through. It is likely that many such lines of tiles found beneath the eaves of buildings were left there to serve this purpose.



An indirect result of plotting tile scatters could suggest whether a building was deliberately dismantled or allowed to fall into decay naturally. Recent excavations at Kirkstall Abbey have shown that a 14th century timber building in the Guest House complex was tiled, by the accumulation of tile fragments along either side of the building beneath the eaves line. The interior of the building, which had an earthen floor, was, however, devoid of tiles, suggesting that the tiles had been taken down deliberately when it was abandoned, while the tiles along either side were from the numerous repairs throughout the life of the structure. The fact that the tiles had been removed from the roof suggests that they were to be used on another building.

The material used for the roof cover will dictate the structure and pitch of the roof. Heavy materials, like stone, slate, pottery and lead, would require a shallow pitch line, giving an obtuse angle to the ridge angle. Light materials, such as wooden shingles or thatch would be secure on a much steeper pitched roof with an acute angle to the ridge. The material covering the roof thus determines the slope of the roof sides and hence the angle of the ridge tile profile. The plotting of ridge tiles with markedly different angles to their cross-section might suggest the form of roof which the tiles surmounted, in the absence of surviving roof covering materials. The difficulty is that ridge tile profiles are notoriously inconsistent and no general attempt seems to have been made at consistency; there are many examples of ridge tiles where the ornamental crest along the top is at an angle to the centreline of the tile section.

Summing up

These thoughts are not the outcome of detailed systematic study of the documentary sources, but impressions gathered from the written sources whilst searching them for other things. The tiles themselves have only been mentioned in passing where they are either relevant to the documentary evidence, or there is conflict between the two. Thanks to the firm foundations laid by Gerald Dunning, the types of ceramic tiles in use on medieval buildings, their regional distributions and development are becoming clear; the growing evidence for the regional styles of crested ridge ornament, for example, has not been covered here, while the seemingly regional methods by which flat tiles were hung on the laths has only been touched upon.

Medieval ceramic roof fittings have been neglected in the past. Tiles, like pottery vessels, if looked at in the context of the site on which they were excavated, and along with the documentary evidence for their use, can provide a unique and essential source of information for site interpretation. The documents can provide an equally unique insight into the relevance

Fig. 8. Distribution of sherds from three pieces of pottery roof furniture, from Phase 7a at Lurk Lane, Beverley. Many other pottery ridge pieces have similar distributions, either side of the building but not from within it, suggesting that the roof furniture and ridge tiles broke while in use, and the pieces fell down either ridge line into the eaves drip gully, where most pieces were found. The distribution of sherds from the roof furniture on the site helped assist in the site phasing, and linked together contemporary, though archaeologically divorced features.

of groups of tiles as excavated and the varying forces which brought the tiles together in the ground: the frequent repair of roofs throughout the life of the building on which the tiles lay; the stockpiling of tiles for future use; the re-use of tiles, sometimes on a site many miles away; different roofing materials used in contemporary buildings in the same complex; and tiles from the same roof bought from a number of different centres all affect our understanding of tile assemblages in archaeological deposits. Equally, like pottery vessels, flat tiles were a utilitarian object and their form and material lended themselves to many often bizarre uses away from the roof, for which the documents can provide only glimpses.

Much of the value of tiles comes from how they are distributed on a site. These range from the position of functional and ornamental roof furniture for suggesting the use of a building, to the scatter of tiles as excavated to show building plans, or even whether the building was deliberately dismantled or allowed to decay. The dispersal of pieces from the same ridge tile can have more positive results than scattered sherds from domestic vessels for suggesting contemporary, but archaeologically divorced horizons.

Like pottery, much useful information can come from the quantitative analysis of the tile, whether this be based on fabric, forms, types of crests and their fixings, or the different types of hanging fixtures found on flat tiles (whether the nail holes are bored, punched, square or circular, or even moulded nibs, as at Hull and Beverley). Clearly, such detailed analysis has to depend on the quality of the site evidence. One major problem for single tile quantification is that flat tiles are far less diagnostic than scattered pieces from the same ridge tile, ornamental roof furniture or pottery vessel.

Finally, when all the information has been assessed and used to interpret the site, it is of little value if it is not presented to its best advantage. New terminology is beginning to appear in print to describe parts of roof fittings for which Gerald Dunning had designed perfectly adequate terms, and used them (nearly always!) consistently throughout his reports. Hopefully this difficulty will be minimised when the MPRG Glossary appears. One of the most problematical areas is in the drawing of ornamental roof furniture. Illustrations of roof fittings are now appearing which differ from the well-thought-out style and very high standards of presentation set by Gerald Dunning. The distinguishing of thrown and applied pieces in section (not always shown on some of GCD's early drawings), the sequence of putting together often complicated shapes, the light hatching of the interiors of vents and openings when seen in either elevation or plan, and the reconstruction of obvious lines to make the surviving pieces more intelligible as a drawing are all important. Consistency in presentation is essential if pieces are to be readily compared between reports produced by different people. We can do no better than try and emulate a master like Gerald Dunning, who was not only knowledgeable academically but was also a brilliant illustrator of archaeological finds.

Recent work has shown the potential of pottery vessels for helping to understand the site on which it is found (Moorhouse 1986; Moorhouse 1987). It is probable that similar approaches with ceramic roof fittings will have an even greater impact as a unique tool for site interpretation.

Note. This article is an expanded version of papers given at two regional group meetings on medieval building materials: the North West MPG meeting on 5 April 1986 and the West Midlands MPG meeting on 13 June 1987.

Appendix 1

Amongst Gerald Dunning's 312 publications there are thirty-seven papers which either report or discuss medieval pottery roof fittings. These can be found through a useful index of his writings by Vera Evison and John Hurst (Evison, Hodges and Hurst 1974, 17, 'Medieval roof fittings'), and in a further cyclostyled list circulated by John Hurst in 1980, nos 286, 287, 291, 295, 298 and 301. Most of the publications are notes in excavation reports on single pieces, but many place the pieces or elements of them in their wider setting of roof fittings. Typical is the note on the single piece of detached louver from Budbury (Wiltshire), where the form of aperture is discussed (Dunning 1970c). Gerald Dunning's developing ideas on roof fittings are evident throughout the particularly later papers, while some contain useful collections of illustrations. As a general index to the papers, therefore, the list below provides references to those which give the latest discussion and the best range of illustrations of that type of tile, arranged by type of tile fitting and with the first reference being the most recent general discussion of the type. It should be borne in mind, however, that many of the distribution maps are now out of date, particularly for the north of England, and the types of ornamental roof fittings in particular are much more varied in shape and more regional in character than was originally thought (see text above).

GENERAL	Dunning 1975c; Dunning 1967
CRESTS	Dunning 1975b (now out of date)
CHIMNEY POTS	Dunning 1977; Dunning 1961; Dunning 1970a
FINIALS	
Anthropomorphic	Dunning 1961, 79, fig. 5.1
Zoomorphic	Dunning 1975a
Equestrian	Dunning 1974; Dunning 1979
Attached globular	Dunning 1968
'Spinning top'	Carter 1977, 298-301 (based on notes supplied by GCD)
LOUVERS/VENTILATORS	Dunning 1966; Dunning 1970; Dunning 1972
SIDE VENTILATOR TILES	Dunning 1971/72

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