

THE MEDIEVAL FLOOR TILES OF GLASTONBURY ABBEY

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Floor tiles were laid at Glastonbury Abbey from at least the late eleventh century but the surviving collection commences at the mid-thirteenth century. The thirteenth century was a flourishing renaissance period for Glastonbury and tiles were no exception, two kiln sites being identified within the Glastonbury area, the latter one probably continuing production until the mid-fifteenth century. There was a revival in the late-fifteenth to early-sixteenth century, but using products from a kiln to the south-west in the area of Nether Stowey.

Glastonbury was one of the pre-eminent abbeys in the country and given the periods of extreme wealth it enjoyed, it doubtless had the earliest, latest and largest collection of tiles in the county, if not the south-west. The collection that exists today is a very small fraction of the original total, perhaps less than 3 per cent, but nevertheless gives a good impression of the range of designs that existed.

Two small tiled areas remaining in the north transept were uncovered in 1909 and 1921 but reset in concrete. These tiles are mainly from group 3 but the existence of one fragment from group 4 casts some doubt on whether these are *in situ* or reset.

A large section of pavement, 2.4m by 1.8m, was uncovered in the north transept in the early-nineteenth century but this had disappeared within a century. No tiles have been recorded *in situ* in excavation reports, although tile bedding matrices are indicated, for example in the abbot's hall, which confirms that tiles were not just confined to the church and areas of ecclesiastical importance.

The 1927 excavations revealed that the earliest known floor, possibly dating to the seventh century, was of red plaster. A later floor was of blue lias slabs. The earliest tiles were attributed to Thurstin, abbot from 1077-1096. These were of red clay with white inlay inset in a semi circular pattern. According to Wedlake, who roughly recorded them, the three fragments were of varying size 305-440 mm in length, 140-299 mm in width and 50 mm thick. They were laid in the nave of the early church and formed a central tiled strip about 2m wide, flanked by stone paving. None of these are now at the abbey.

METHODOLOGY

The majority of the 6,700 tiles and tile fragments are held in store with some on display and a few *in situ* in the church. All the tiles were examined and sorted, with details such as glaze, keying and dimensions being recorded, together with notes on manufacturing and firing details where appropriate.

A total of 142 designs have been identified and are described below, with drawings of each design (*Scale 1:4*). Classification into groups was assisted by chemical analysis of the fabric as well as through similarity of features, dimensions and manufacturing detail. Some designs are represented by only a single fragment, which may be due to the limited number laid of that particular design, possible destruction during one of the historic site clearances or limited retention by early excavators.

Chemical analysis was undertaken by Michael Hughes using inductively-coupled plasma atomic emission spectrometry (Appendix). Fabric analysis was undertaken by Roger Taylor.

TILE CLASSIFICATION

Group 1

Designs 1-19

The earliest surviving group of tiles were made at Glastonbury at a site which was probably quite close to the abbey. The fabric of these tiles is thick, with many creamy limestone inclusions. The inlay is also thick, up to 3mm, and in some instances has been mixed with body clay to give a creamy-pink colour. A dump of tiles of this fabric was found in nearby Silver Street during excavations in 1982, the presence of wasters indicating that the kiln must have been located in the vicinity. Only one waster has survived in the collection and it is of this fabric type; the absence of wasters from other groups implies either that these tiles were brought in from a greater distance, or that any wasters were discarded at the time of laying or by excavators.

Group 1 is divided into three categories determined by size. Group 1a consists of large rectangular step tiles which have either a rebate or a bevel showing that both methods of effecting the junction between tread and riser were in use. These tiles are generally over 30mm thick and have multiple keying scoops on the reverse. The mounted rider tile is a very rare example where the enhanced detail of mail, horse's hooves and emphasis of bridle, stirrup and rider's foot has been incised after the inlay had been inserted but before the glaze was applied. The only other examples displaying this time consuming emphasis on detail are on step tiles from Clarendon Palace, where the tiler may have worked previously.

Group 1b contains designs associated with borders. The small square inlaid tile may have been used either at intersections of border tiles or randomly as part of a border with plain square tiles. Both layouts appear at Wells, in the Lady Chapel square tiles inlaid with six foils are found at intersections of border tiles which are inlaid with rings within parallel lines.

The regular square tiles of group 1c, although still thick at 28-31mm, are unkeyed. These also feature designs which originate from Clarendon Palace kiln 1 which had been active twenty years previously in the 1230s. According to Bond's guidebook, Michael of Amesbury, abbot from 1235-1253, "brought the establishment out of poverty into prosperity". The choir and the north transept were completed under his tenure. He was buried in the transept and the height difference of 1m from the nave would have required steps making this a possible location for the step tiles. Two small patches of tiles which are thought to be *in situ* in the north transept are not from this group but from the later group 3, some twenty years after the completion of the transept. The presence of a group 4 fragment may indicate that the tiles have been reset. A date of c 1250 for group 1 is likely.

The exact location of this early Glastonbury kiln site and the reasons for its demise are unknown. The noxious fumes of glaze production might have led to banishment of new kilns well beyond the abbey environment, or possibly the high quality of the clay at another site in the Glastonbury area led to a later kiln being established there, or distribution from an out-of-town site might have been easier. None of the stamps are re-used in later groups which suggests a slight hiatus after group 1 and the possibility that the later kiln was a completely new enterprise rather than one that had just relocated. The juxtaposition of group 1 tiles with fragments from group 4 in the Silver Street excavations relates to their use as foundation material for a thirteenth or fourteenth century building.

Group 2

Designs 20-25

These few fragments are from a circular pavement design similar to that which can be seen in two forms in the parish church at Muchelney, taken there from the abbey in the late nineteenth century. A visual comparison with a fragment from Muchelney Abbey shows that the fabric at Muchelney is less well prepared and the fragment is thinner, implying a different production to those at Glastonbury. A different stamp has also been used for the dragon framing tile, although as the stamp must have been susceptible to breakage because of its shape, the use of a different stamp may not necessarily indicate a different kiln site.

Although group 2 has characteristics in common with groups 3 and 4, such as similar preparation and keying, ICPS analysis indicates that this fabric is quite distinct indicating a separate source of clay, although still in the Glastonbury area. Fragments were also found at Beckery Chapel

which was extensively restored by John of Taunton who became abbot in 1274, which suggests a date c 1275.

Group 3

Designs 26-32

These are large heraldic tiles which survive only in very fragmentary form. The three forms in group 3a were also found at Cleeve Abbey, Bridgwater Friary, Gloucester Cathedral and Wells Cathedral. These are high quality tiles using well executed stamps and well prepared fabric and glazes, commissioned to celebrate the marriage of Edmund of Cornwall to Margaret de Clare in 1272.

Tiles in group 3b are probably copies of these designs, has reversed heraldry and is a happy-looking lion, probably intended for the arms of England.

Tiles in group 3c are well made and apparently from the same kiln site. Smaller than the England, Clare and Cornwall types but larger than regular sized tiles, these must have had a limited production as they would not easily be accommodated in a design with regular-sized tiles.

The refectory at Cleeve Abbey probably gives a good indication for the layout of the larger tiles. Here a limited quantity, roughly one-quarter of the pavement, was laid in a significant position at the dais end with a larger area of pavement made up of regular sized tiles leading up to it.

Group 4

Designs 33-71

This group has the same characteristics as the large heraldic group; the fabric is fine and well prepared, burnished scoops are deeply cut with a sharp pointed knife and analysis confirms that they are from the same kiln site. The heraldry of the large tiles in group 3 is repeated and combined with others having royal connections such as the *checky* shield of de Warenne. This shield also appears on the refectory pavement at Cleeve Abbey and the same stamp is used. The quality of the stamps is variable, from the inexpert to the exceptional. This suggests that some of the heraldic stamps were commissioned, perhaps at a slightly later time, but were certainly not produced by the same craftsmen who executed the principal designs.

The non heraldic stamps feature designs which derive from Clarendon Palace and the slightly later Nash Hill kilns but not always as direct imitation. Most are individual designs but some were intended to be laid as four-tile sets of the same design, notably the intricate window and canopy. The same fabric and designs appear at Cleeve Abbey, some from the same stamp while some have the same design but a different stamp. This, combined with the known distribution of tiles with these designs and this fabric, implies a large and well organised industry, though it probably only existed for a relatively short period. Tiles of this type are found at Cleeve Abbey, Bridgwater Friary, Gloucester Cathedral, Gloucester Blackfriars, Wells Cathedral and across the Severn at Tintern Abbey, Raglan Castle and Chepstow Castle. This is shown as group 9 in J M Lewis's 'The Medieval Tiles of Wales'.

The wide distribution has in the past led to the suggestion that the kiln site was located in Gloucestershire using the Severn as the chief transport system, but ICPS analysis by Michael Hughes has clearly demonstrated a source close to Glastonbury, which would still have had relatively accessible routes to these other sites.

Links between Glastonbury and Wells with Welsh sites such as Llandaff and Margam Abbeys have been demonstrated with the same masons working in Somerset and Wales. It is interesting to see that with tiles it is a shared commodity and not a shared expertise, in that the tilers did not set up a new kiln site closer to the Welsh markets. This again points to a very short period of time during which tiles of this group were produced.

The dating of this group is a little problematic. The tiles were obviously made to commemorate the 1272 marriage which was a highly significant alliance but the revival of Glastonbury Abbey and its corresponding demand for tiles did not begin until two years later in 1274 when John of Taunton became abbot. It would at first sight seem imprudent to have set up a new tile kiln site before a promising local market had been established. However, soon after Edward I's accession in 1272 the then abbot of Glastonbury, Robert of Petherton, alerted the king to the matter of royal patronage as opposed to that of the Bishop of Wells, with whom the abbey had had precarious relations. The matter was eventually settled by the appointment of Robert Burnell to the bishopric of Wells which became vacant at the death of the disputing bishop Button. Burnell was a

close friend of Edward but it was probably already a foregone conclusion in 1272 that Edward would eventually become patron and that work on the abbey would resume. In view of this a kiln site in Glastonbury in production c 1272 may not seem so improbable although John of Taunton did not become abbot until 1274.

Group 5

Designs 72-75

This group is also part of the repertoire of the kiln site which produced groups 3 and 4. Its products have well prepared fabric with deep scoop keys, some of which are burnished. The size of the tiles suggest that these were used as step tiles although they are not as thick as those in group 1. The sharpness of the stamps and the intricacy of the designs indicate that they were produced by highly skilled craftsmen, but these tiles appear to be unique to Glastonbury, produced c 1275.

Group 6

Designs 76-77

Chemical analysis indicates a similar well prepared fabric to groups 3 – 5, but there are differences in manufacture. The tiles have a steep bevel and are only 17mm thick. The only other site with these designs is Witham Friary. This may suggest a period of contraction in the industry. No specific date is indicated.

Group 7

Designs 78-125

This is a large group with a diverse repertoire of designs but ICPS analysis reveals a common production site in the Glastonbury area. To economise on white clay and possibly to increase the rate of production, the tiles of this group have slip rather than inlay to create the contrast with the body clay. There are variations within the group, group 7a contains heraldic, geometric and stylised foliage designs. Some tiles are well made while others are less so, but both levels of expertise use the same stamp and use identical keying techniques. The number and shape of keying scoops varies even within the same design. The inference is one of varying expertise among the tile makers, which is also reflected in the quality of the stamps. One particularly poor example is which appears to be an attempt at the arms of Edward III or the Black Prince so could be dated c 1340 onwards. The Trivet tile may refer to Sir Thomas Trevet, one time steward to the abbot of Glastonbury and justice itinerant, who died in 1281. There are also representations of Cornwall and de Clare so it would not seem improbable that production followed directly on from the fine fabric groups and continued for nearly a century. This is not unlikely for an established industry where the market could sustain demand, the Nash Hill site in Wiltshire is thought to have been producing tiles until the late fourteenth century, which would give a working span of about 150 years. The large number of heraldic designs suggests a continuing market rather than a specific period of manufacture.

Group 7b have a naturalistic theme; the undulating stem with varying trefoils and its mirror image and stylised foliage on a border tile which is also found at Muchelney Abbey. These may belong to the later part of the period covered or even a little later. The lack of comparable material from other sites and dateable contexts may make this an artificial sub division.

The disappearance of this kiln site could be due to economics or circumstance or both. The market for groups 3 and 4 was extensive, though only for a relatively short period around the last quarter of the thirteenth century. Groups 3 to 5 were all made once John of Taunton became abbot with Edward I as his patron. These tiles may all have been laid in the church, possibly as part of a concerted effort in advance of the visit of Edward I and his queen for the translation of King Arthur's bones in 1278. Tiles of these groups were also laid at strategic pilgrim sites around Glastonbury. Groups 6 and 7 appear to have had a more limited market in geographical terms despite the longevity of production.

Glastonbury was on a secure financial footing from John of Taunton's time onwards and most of the abbots who followed him undertook some building works within the church or precinct so it is difficult to attribute tiles to any particular period. The last major builder of the medieval period was Walter de Monington, abbot from 1342-1374, whose works were completed by John of Chinnock.

The tailing off in major works must have greatly affected the tile industry. The Black Death would have had a corresponding impact on both the tile industry and its markets as it hit the area very hard, the granges of the abbey losing 55 per cent of their labour force.

There may have been a small scale continuation, perhaps in the stylised foliage designs, but the later groups suggest that all trace of the industry had disappeared by the time new tiles were required and had to be sourced from further away.

Group 8

Design 126

This fragment has been placed in a group of its own since it does not clearly fit in any of the other groups. It is narrower than other border types, it has no keying and the slip as background design would normally make it susceptible to speedy erosion although this one is clearly legible unlike other inscription tiles in the collection. The uneven sides show wood grain which suggests a 'butter pat' style of manufacture.

Group 9

Design 127-33

The designs of this group are indistinct as slip has been used as background, so the stamped area is shallow and has quickly eroded. The shape indicates that they were used as border tiles, presumably in association with plain tiles. Some of the foliate scroll tiles have a mitred end showing that they were used in the border as corner tiles.

These are very similar to tiles found at Cleeve Abbey, but although they come from the same region chemical analysis does not support an identical source of clay, and a kiln site east of the Quantocks is likely while the Cleeve tiles were made to the west.

That these tile designs have been found only at Cleeve and Glastonbury suggests a small and short lived production, although the caveat must be considered that worn tiles tend to be discarded so their distribution may have been greater than at first apparent. The move away from Glastonbury suggests that the kiln site there had completely disappeared so a date from the fifteenth century is probable.

Group 10

Designs 134-35

Chemical analysis shows that the fabric of group 10 is very similar to that of group 9 indicating a common origin. There are two designs, both representing stalks of wheat, and there are two stamps for each design. These designs have not been found at any other location, which suggests a specific commission for Glastonbury and quite a large one. The corner motifs suggest a date in the late fifteenth or early sixteenth century, and the designs may be an intended rebus for Richard Bere since beer was made from a combination of grains. His emblem on stonework is a cross between two beer flagons, as can be seen at St Benedict's Church in Glastonbury. Bere was abbot from 1493-1524, a polymath, he was a friend of Erasmus, a patron of scholars and was as energetic as John of Taunton on Glastonbury's behalf. According to Leland who recorded a visit in 1533, Bere had built the majority of the Edgar chapel, the Loretto chapel, excavated under the Lady chapel for the chapel of St. Joseph as well as carrying out remedial work such as supports for the central tower similar to the surviving scissor arch at Wells, described as "two arches like s. Andres Crosse, els it had fallen." Several secular building projects were undertaken including almshouses, lodgings for priests and lodgings for Henry VII who visited in 1497. The chapel of the almshouse and the royal chamber may well have had tiled floors.

Like John of Taunton, Bere was aware of financial benefits to the abbey by association, as well as the new attractions he created he also disputed with the Archbishop of Canterbury over the relics of Saint Dunstan which both sites claimed to possess. He travelled extensively, going to Italy in 1503 to obtain support from the duke of Urbino for the dispensation allowing Katherine of Aragon to marry her brother-in-law, Henry VIII. His entourage at Glastonbury included a French poet, a harpist and a tapestry maker, indicating that his nature was artistic, so it is highly likely that he commissioned tiles.

Group 11
Designs 136-42

There are a small number of tiles which are decorated without the use of stamps. This decoration takes the form either of slip, apparently applied with a brush, or freehand incision. Without the restriction of stamps, sizes are variable both in depth and area which can be up to 224mm square. The keying is unusual, with both deep conical scoops and multiple oblique stabs made with a rod with a diamond shaped cross section, presumably some sort of punch. Similar tiles have been found at Muchelney Abbey and Huish Champflower Church and analysis has confirmed that they are from the Donyatt site, although not all from the same kiln. These tiles may originally have been more plentiful but they lack the appeal of inlaid tiles and were less wear-resistant so may have not been retained in any numbers.

Plain tiles

There are a number of plain tiles in the collection which seem to span all the kiln sites suggested by the inlaid tiles. The numbers are few but this is probably not an accurate reflection of the original layouts. Plain tiles were less likely to be retained as they were often reused as hardcore in later building works or discarded as lacking the aesthetic appeal of the patterned tiles. The abbot's hall, completed in the latter half of the fourteenth century, was paved with plain tiles from the kiln site associated with groups 3-7.

At the Dissolution the commissioners reported that the abbey owned "4 fair manor places belonging to the late abbot, the furthestmost but 3 miles distant", one of them being Sharpham, built by Richard Bere. With the abbey itself, its pilgrim chapels and manor houses, together with local churches and privately-owned manors, the potential number of sites that may have contained tiled pavements was enormous.

Following the Dissolution the abbey was acquired by Edward Seymour, Duke of Somerset, who stripped the roofs of lead and introduced a Flemish weaving community. After Somerset's execution this was driven into poverty and subsequently into enforced migration by the ascension of Mary to the throne, who was mindful to restore the abbey. Her death negated that and from then on the abbey became a source of reclaimed material with the destruction speeded up by eighteenth-century zealots. Tiles were found in the apse of the Edgar chapel in 1812-13 but records are scanty and the features revealed were removed. There is no evidence of re-use of tiles in floors of artisans' cottages as was found at Brook Street in Winchester but it is not improbable. The churches in Glastonbury had tiled pavements of their own and did not need to raid the defunct abbey.

Some tiles were reset in the summer-house at Edgarley Hall. These were not recorded and disappeared as souvenirs with the military presence during the second world war. This property, and the abbey, were owned by the Porch family in the nineteenth century.

CONCLUSION

The earliest surviving tiles date from the mid-thirteenth century although Wedlake reports having seen earlier tiles from the late-eleventh century. The vast majority of the tiles were made in Glastonbury, the early kiln site must have been near to the abbey as wasters were dumped as foundation material near the new precinct wall in the thirteenth or fourteenth century. This was followed by another kiln site in the Glastonbury area in the late-thirteenth century. This kiln not only produced tiles for Glastonbury Abbey, but also Wells Cathedral, Bridgwater Friary, Cleeve Abbey, Gloucester Cathedral and several Welsh sites. Production continued for at least a century at this site.

A resurgence of building in the late fifteenth to early sixteenth centuries led to a demand for tiles but this could no longer be met by a Glastonbury-based kiln. Instead, these tiles were sourced from east of the Quantocks.

APPENDIX

CHEMICAL ANALYSIS OF FLOOR TILES FROM GLASTONBURY ABBEY BY PLASMA SPECTROMETRY (ICPS)

M.J.HUGHES

Chemical analysis using inductively-coupled plasma atomic emission spectrometry (ICP-AES, or ICPS for short) of the fabric of ceramics gives a chemical fingerprint and thus information on its source, reflecting the clay from which it was made. Examples of all but one of the eleven tile groups found at Glastonbury have been analysed, and the results compared against each other and against analyses of tiles and pottery made at other known sites in the region. Detailed interpretation of the analyses was carried out with multivariate statistics, including Principal Components Analysis and Discriminant Analysis, which simultaneously consider the concentrations of many elements in each sample.

Groups 9 and 10 are clearly different chemically from the rest of the groups, and comparison with ICPS analyses from other sites including tiles from Cleeve Abbey suggests they were made in west Somerset in the 'Exmoor Quantocks' clay fabric, possibly associated with, or close to, Nether Stowey, to the east of the Quantocks. Cleeve Abbey is located in the geological area of the 'Exmoor-Quantocks' fabric group and some of the tiles from there previously analysed now appear to be local products, being closer chemically to pottery from Crowcombe, lying to the west of Quantocks. These two Glastonbury tile groups are each very compact chemically, suggesting each was part of a single batch prepared at the same time.

The remaining groups 1-7 seem to share very generally a similar clay chemistry, indicating they were all made of Lias clays, in contrast to the west Somerset clays. They have now been concluded by analysis to all be Glastonbury products, representing probably four *production groups*. Glastonbury tile groups 1-7 have the characteristic chemical features matching analyses of pottery and tile wasters found at Bovetown, about 100m east of the Abbey precinct, and of a tile waster similar to those found in the Silver Street area where a dump of tile wasters were found. The chemical evidence strongly points to local production for all the tile groups 1-7, though with the use of slightly different clays, probably a chronological feature of tile manufacture.

Groups 1a (exceptional depth tiles)/1c (thick tiles) were made of very similar clay to each other and are thought to have been made at Glastonbury of Lower Lias 'clay with limestone' in the Silver Street area: the wasters have a slight lime content in contrast to pottery made in the Bovetown kiln. Of the remaining Glastonbury groups, 3(large heraldic) /4(largest number of designs) and 7a(second largest group) /7b(naturalistic design) pair up, though all four are very similar chemically; while group 2 (mosaic) is slightly different. However, all five tile groups seem to share the same chemical pattern of the low-lime Bovetown pottery (Middle Lias clay without limestone).

Some of the previously analysed tiles from Cleeve Abbey which were thought to be Donyatt products are now seen to be divided into some which have the characteristic chemical features of south Somerset ceramics, probably Donyatt products, and other Cleeve tiles which are chemically similar to some Glastonbury tile groups. Six tiles from Cleeve Abbey are now seen to have been made at Glastonbury (L2037-2042), based on their chemical analysis, including only tiles in Cleeve tile groups 4 (large heraldic tiles from the frater pavement) and 5 (the remainder of the tiles from the frater pavement, distinguished as different only in size). Two tiles (L2037 and L2041) were most similar to group 1a (exceptional depth) tiles at Glastonbury and to the Silver Street waster tile analysed. Three (L2038-40) were most similar to Glastonbury tile group 7b (naturalistic designs) and one (L2041) was most similar to Glastonbury tile group 2 (mosaic). From this we can now conclude that some specific tiles found at Cleeve Abbey were produced at Glastonbury.

The pottery from the production site at Donyatt was chemically unlike any of the Glastonbury tiles in groups 1-10, suggesting that none of these were made in south Somerset, where Donyatt was a major pottery production centre. However four tiles from Glastonbury group 11 with multiple stab keying

and no stamps appeared to be products of two different Donyatt kilns. Five tiles analysed from Cleeve Abbey (L2043-7) were also similar in clay chemistry to pottery from Donyatt.

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