

EXCAVATIONS AT ELTHAM PALACE, 1975–9

HUMPHREY WOODS

SUMMARY

The earliest structure on the site was built of timber and belonged to the late Saxon period. There were two further phases of timber building before the earliest phase of stone building, a fortified manor house belonging to Antony Bek, Bishop of Durham: the Hall and Chapel of this establishment were found during the excavations. In 1305 Bek granted the reversion of the property to Edward, Prince of Wales. Four phases of building were identified during the subsequent life of the site as a royal palace between 1311 and the Civil War, when it was demolished. These years saw the construction by Edward IV of a range of apartments bordering the moat at the west side and the replacement of Bek's chapel by one built for Henry VIII in 1518–28.

HISTORY OF THE PROPERTY OF ELTHAM

Before the Conquest Eltham (Alteham) was a property of Edward the Confessor. The Domesday entry begins as follows: 'Haimo holds Alteham of the bishop. It was assessed at one sulung. There is land for 12 ploughs. In demesne are 2 ploughs, and 42 villeins with 12 bordars have 11 ploughs. There are 9 serfs and 22 acres of meadow. Wood for 50 pigs . . .' Haimo was Sheriff of Kent, and he held Eltham on behalf of Odo, Bishop of Bayeux and Earl of Kent.

After the exile of Odo in 1088 the estate became part of the honour of Gloucester upon the marriage of Haimo's niece to Robert Fitz Roy, Earl of Gloucester. The Fitz Roy line failed for want of a male heir and in 1216 Eltham passed to Gilbert de Clare, the son of Richard de Clare by Amicia, youngest daughter of William Fitz Roy. In 1278 Gilbert de Clare granted the Eltham estate to John de Vesci, and in 1295 his heir, William, conveyed the manor in fee to Antony Bek, Bishop of Durham.

In the words of John of Graystones, a contemporary chronicler, Bishop Bek 'curiosissime aedificavit Manerium de Eltham' ('most curiously built the manor of Eltham'), but in 1305 the bishop

granted the reversion of the property together with the newly built manor house to Edward Prince of Wales, son of Edward I (Strong 1958). From 1311 onwards Eltham was a royal palace and expenditure on it is thoroughly documented in the royal exchequer accounts, now preserved in the Public Record Office (Brown *et al.* 1963, 930–7; 1980, 78–86).

During the Commonwealth era following the Civil War the manor and palace of Eltham was sold to Colonel Nathaniel Rich for £2,754. Colonel Rich razed all the buildings to the ground, with the exception of the great hall built by Edward IV. In 1931 Stephen Courtauld leased the site, restored the Hall and built the present house, the drive of which borders the area excavated in 1975–9. The Courtauld House is now occupied by the Ministry of Defence: the Great Hall and moat walls are in the care of the Department of the Environment.

PREVIOUS EXCAVATIONS AT ELTHAM PALACE

Excavations at Eltham Palace were first begun by the late Dr Donald Strong and Mr Maurice Craig in 1952 for the (then) Ministry of Works. These excavations

concentrated on the two perimeter walls on the western side of the Great Court: the moat-retaining wall built *c.* 1300 by Antony Bek, with its corner towers at each end, and the later retaining wall built 5.3m further west by Edward II's queen, Isabella. These investigations were concluded in 1953. A little further work was done in 1957 by Mr Peter Curnow, who located the eastern face of Bek's retaining wall and established its width.

The only records of these excavations to have survived Dr Strong's early death are a number of photographs and two drawings. However, a plan of the excavations was published in *The History of the King's Works* (Brown *et al.* 1963, 932, Fig. 70) and the wall footings have been consolidated and put on permanent display to the public. During the preparation of

this report the author attempted to integrate the information contained in this archive into an overall interpretation of the building sequence in the Great Court, but unfortunately this proved impossible. Nevertheless, during the excavations described below all the footings excavated by Dr Strong and Mr Craig were resurveyed, together with those excavated by the author, and drawn up at a scale of 1:50 on a single plan. This drawing is available for consultation at the offices of the Inspectorate of Ancient Monuments, Fortress House, 23 Savile Row, London W1X 2HE.

In 1975 the present writer was invited to continue excavations in the Great Court (Fig. 1). The work was undertaken in four seasons: 15 December 1975 to 4 April 1976; 4 January 1977 to 4 March



Plate 1. Eltham Palace: The beam slots, D258 and D269, representing one corner of the late 11th-century timber building sealed beneath the Henrican chaplain's house (Photo: Derek Craig).



Plate 2. Eltham Palace: The late 12th-century structure, D163, defined by stake holes for supporting the turf walls, sealed beneath the Henrican chaplain's house (Photo: Derek Craig).

1977; 14 November 1977 to 14 February 1978; and 1 October to 21 December 1979. A detailed account of these excavations, of which this report is only a summary, has been deposited with the finds in the Museum of London. Further copies are held by the National Monuments Record and the Inspectorate of Ancient Monuments at 23 Savile Row, London W1X 2HE.

THE 1975–9 EXCAVATIONS

1. THE PRE-BEK SEQUENCE

The earliest structure to be found was represented by two beam slots (D258 and D269) exposed in the extreme north-eastern part of the area excavated (Pl. 1). These clearly formed one corner of a timber building, but

the dimensions and purpose of the building could not be ascertained. It can be dated to the late 11th century on the basis of the pottery recovered from beam slot D258.

Although it is known from Domesday Book that Eltham (Alteham) was a property of Edward the Confessor before the Conquest, when it was held by Alfwood (Aluuold), the pottery suggests a date later than the Confessor's reign. However, it must be said that few closely-dated groups of 11th-century pottery have been recovered from excavations in West Kent, and this attribution to the late 11th century must therefore be regarded as provisional. On balance it seems probable that the structure was one of the buildings of the manor when Haimo, the Sheriff of Kent, held it on behalf of Odo, Bishop of Bayeux and Earl of Kent.

The next structure was a sub-rectangular building (D163) with walls of turf supported by upright stakes (Pl. 2). This dated from the late 12th century. It had only a short life, for its filling yielded pottery of the early 13th century.

This filling was cut by a pit (D159) for one of the posts of what must have been a very large building, possibly a barn. Only one of these posts had stood within the area of excavation. When the building went out of use this post-pit was re-used as a rubbish pit. The pottery which was recovered from this rubbish-pit was of the early 13th century, suggesting that this structure, too, had only a short life. After this building had been taken down, the area was cultivated, and a thick layer of soil mixed with ash and charcoal (layer D124) accumulated over its site. A considerable quantity of pottery was recovered from this soil, suggesting a date in the period AD 1250–1280.

Overlying this layer of cultivated soil, and cut by the later construction trenches of Bishop Bek's cellar, was a layer of blue West Country roof-slates, many of which still retained their peg-holes. The slates presumably came from buildings which had been taken down immediately prior to the building of Bek's manor house. These buildings may have been the home of John de Vesci, to whom the Eltham estate was granted by Gilbert de Clare in AD 1278. It can be presumed that they lay immediately to the north of the limit of excavation.

In 1295 John de Vesci's heir, William, conveyed the manor of Eltham in fee to Antony Bek, Bishop of Durham, and it was Bek who constructed the substantial stone manor house described below.

2. BISHOP BEK'S MANOR HOUSE (Masonry Phase I—see Fig. 2)

A plan of the excavations conducted between 1952 and 1957 has been published in *The History of the King's Works* (Brown *et al.* 1963, Fig. 70). These revealed the western perimeter wall of Bishop Bek's manor complex, together with the towers at its north-west and south-west corners. The excavations carried out by the present author exposed two

large structures lying to the east of this perimeter wall; a building with a barrel-vaulted cellar (probably a chapel) and a hall. Almost the whole of the cellared building lay within the area of excavation. However, its south-east corner, like the north-east corner of the hall, was covered by the circular drive of the Courtauld mansion and could not be investigated. The south wall of the hall lay below the Great Hall built by Edward IV and for this reason it, too, could not be investigated.

The Cellared Building

The cellar was 19.7m long by 7.2m wide. The east wall had been destroyed during later building works; a stub of the destroyed wall was found protruding from the buttress at the north-east corner of the building. The north

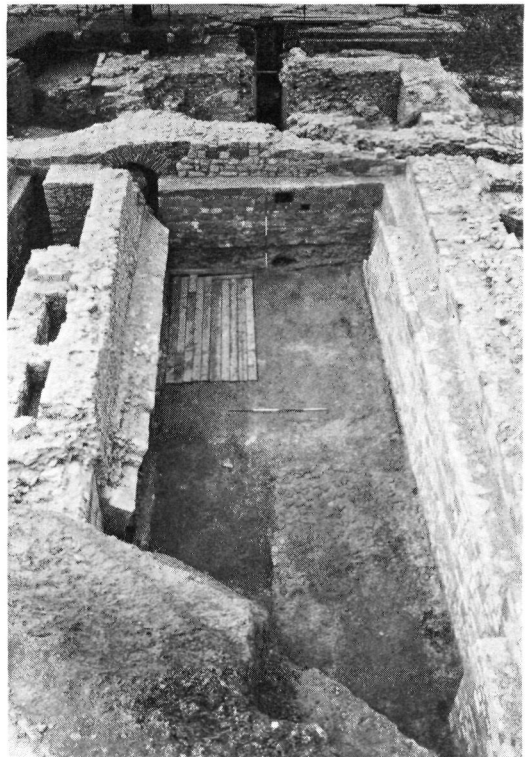


Plate 3. Eltham Palace: Overall view from the east of Bishop Bek's cellar, with the gable wall of Henry VIII's chapel obscuring the view of its west end, and the north wall of Henry's chapel encasing Bek's north wall
(Photo: Derek Craig).

wall had been incorporated into the footing of a later phase. The west and south walls were undamaged.

The west wall (feature A8) is illustrated in Fig. 3, though the doorway shown in this figure is not primary. The two relieving arches had been dug into natural sand below the level of the cellar floor and their construction trenches were investigated only as far as the water table allowed. The wall was constructed of Kentish ragstone. On either side of the cellar was the springing, also of rag, for a chalk barrel vault, the outline of which survived on the inner face of the west wall. This vault would seem to have terminated some 5.3m from the east end of the cellar, since in the south wall at least the springing was replaced at this point by a vertical wall 2m

high (Pl. 4 and Fig. 2). Unfortunately only a 1.9m stretch of this could be exposed as the remainder lay under the circular driveway of the Courtauld mansion.

On the north side of the cellar three buttresses projected from the outer face of the wall. The central buttress was bonded into the wall and would seem to have been part of the original structure, as were the corner buttresses. The buttresses to either side of this central buttress were butt-jointed onto the wall and may thus have been later additions. The central buttress against the south wall would appear to have been original. To the west a second buttress was added, as on the north wall.

The design of the building would seem to have been modified during building. An extra

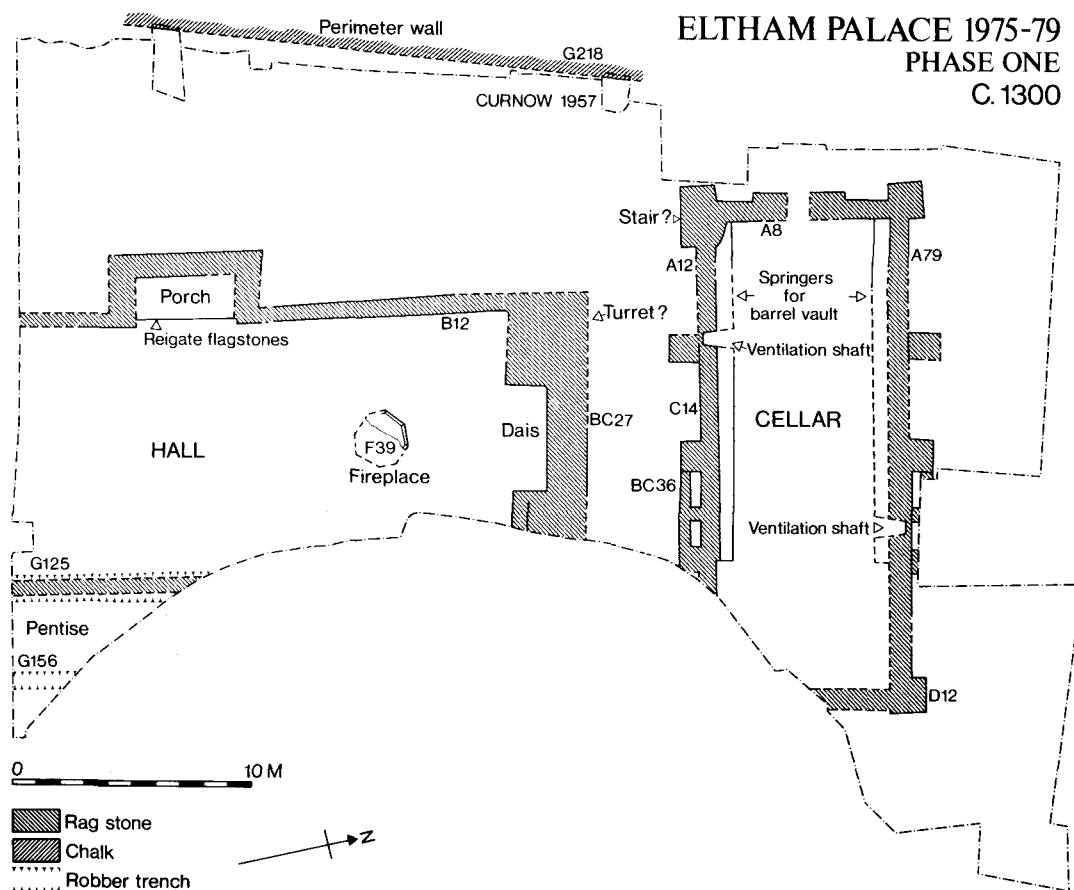


Fig. 2. Eltham Palace: Phase One.

footing or buttress (BC36) was constructed against the south wall to the east of the central buttress (Figs. 2 and 4). This was apparently built while work on the wall was still in progress, but after the central buttress had been started. A similar footing was added at the corresponding point on the north wall, though this could not be examined in detail owing to the presence of a pear tree growing directly above it.

Half-way along the south wall of the cellar, opposite the central buttress was a relieving arch similar to those in the west wall (Pl. 4). Further west, in the thickness of the same wall, was a ventilation shaft. The top of a second ventilation shaft was found in the north wall: unfortunately, it was largely obscured by the footing for Henry VIII's chapel, which here encased the wall of Bek's building.

In the westernmost part of the cellar the later infilling was excavated down to the underlying subsoil. The removal of the earliest infill exposed the line of a robbed-out drain running axially east-west along the cellar. The mouth of this drain was located below the sill of the altered doorway in the west wall of the cellar (Fig. 3). The capping stone of the drain, where it passed through the west wall, must thus represent the level of the primary floor of the cellar.

Immediately south of the cellar, and antedating its construction, was a layer of refuse containing pottery of the 1260s and 1270s and a penny of Henry III which should not have been lost later than the 1270s—the issue was in any case demonetized at the end of 1280.

The Hall

A detail plan of the hall is given in Fig. 5.



Plate 4. Eltham Palace: Detail of south wall of Bishop Bek's cellar, showing the change in vaulting (left) at the east end, the central relieving arch, and (next to the far ranging pole) the ventilation shaft (*Photo: Derek Craig*).

ELTHAM PALACE 1975-79

Elevation of west end of Cellar (east face) A8

A81 Phase III
Elevation of Relieving Arch
Situated against west side of Wall A8

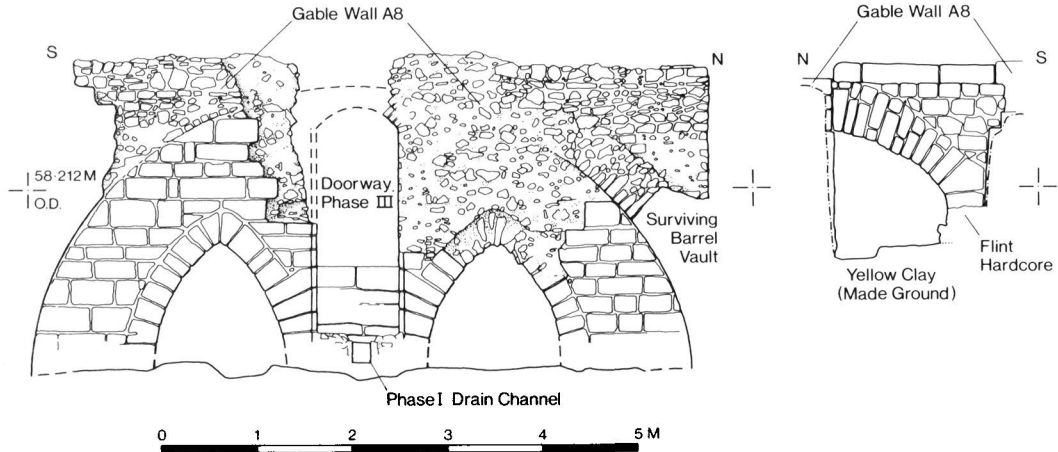


Fig. 3. Eltham Palace: Elevations of west end of Bishop Bek's cellar and relieving arch A81.

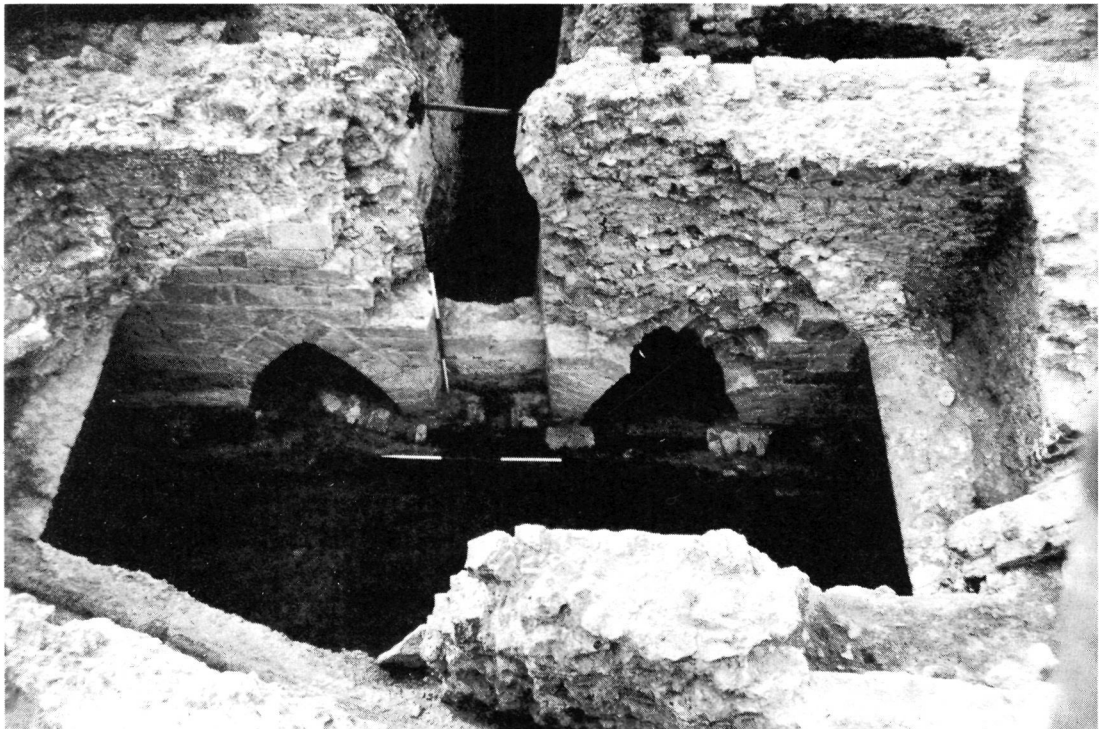


Plate 5. Eltham Palace: West end of Bishop Bek's cellar, showing the springers of the barrel vault, and the relieving arches. The doorway and brick drains are not primary (*Photo: Jenny Tinker*).

ELTHAM PALACE 1975-79

Section from north gable of Bishop Bek's Great Hall to south wall of cellar

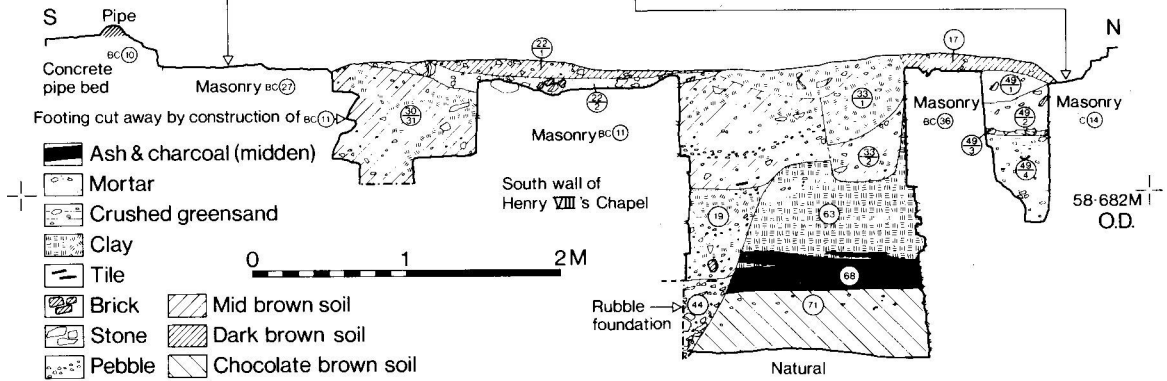
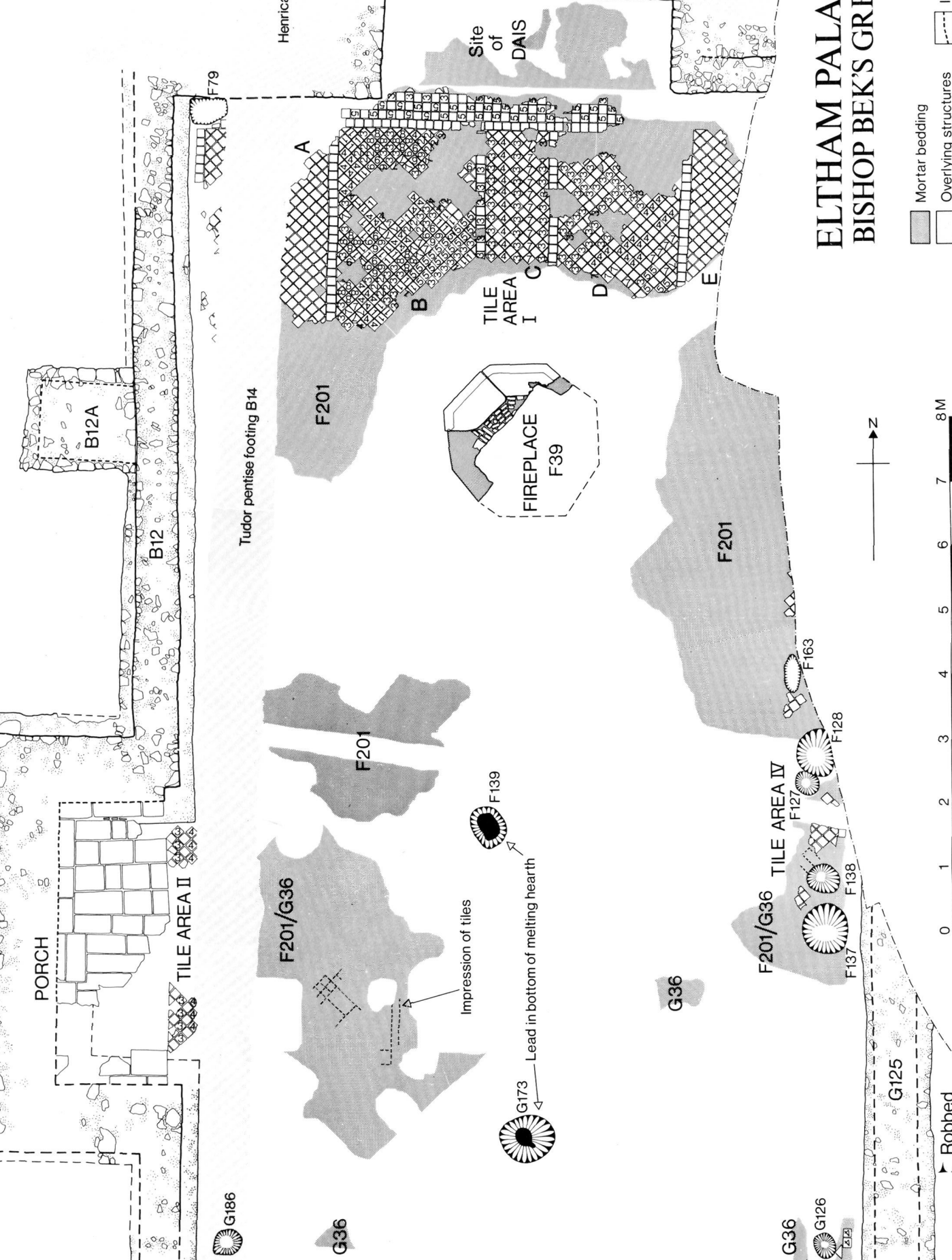


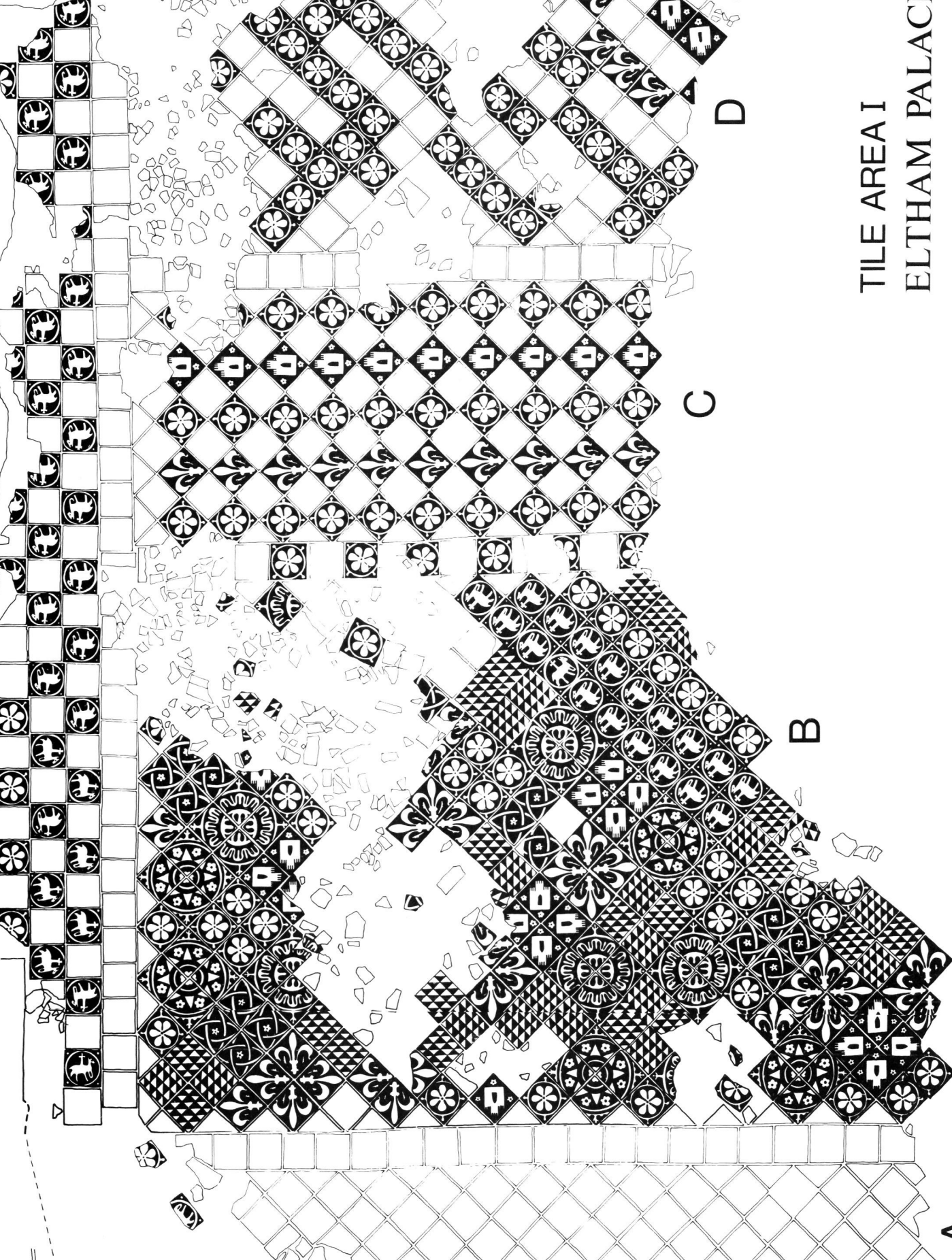
Fig. 4. Eltham Palace: Section from north gable wall of Bishop Bek's great hall to south wall of cellar.



Plate 6. Eltham Palace: Area I of the tile pavement in Bishop Bek's great hall, and the octagonal stone fireplace F39 (Photo: Derek Craig).

ELTHAM PALACE BISHOP BEK'S GRILL





TILE AREA I
ELTHAM PALACE

D

C

B

A

This drawing, however, shows the hall after its demolition, and consequently illustrates features such as lead-melting pits which were constructed at the time of demolition. It omits features of the primary phase which had disappeared before the demolition. It is necessary here, therefore, to describe the features of the primary phase. An interpretive plan of the hall in its primary phase, showing its relationship to the Cellared Building, appears in Fig. 2.

The hall was 10.8m wide and more than 22m long. The footing for the north gable wall (BC27) was found to have been partially cut away by the footing for the south wall of Henry VIII's chapel. Running south from the gable wall, the west wall of the hall (B12) survived for almost its entire length: at the southern end it had been very much damaged by 20th-century buildings, but a stump of it survived in the section which marked the limit of excavation, showing that it continued

beyond this point, below Edward IV's Great Hall.

The line of the east wall of the hall was represented initially by a robber-trench (G125) some 1.1m wide. Removal of the uppermost filling of this trench exposed flint masonry bonded with a very hard off-white mortar. Along the east side of the hall there was apparently a pentise. This was represented by a second, shallower, robber-trench parallel to the first and 3m away from it (G156). At the bottom of this second trench was a layer of crushed chalk, suggesting that this was the material of which the wall-footing had been made. Given the narrow width and shallowness of this footing, it can never have been intended to support a major load-bearing wall. Between the two walls was a layer of pounded greensand chippings, presumably the bedding for the floor of the pentise.

Within the body of the hall five areas of tiled floor were found, together with other

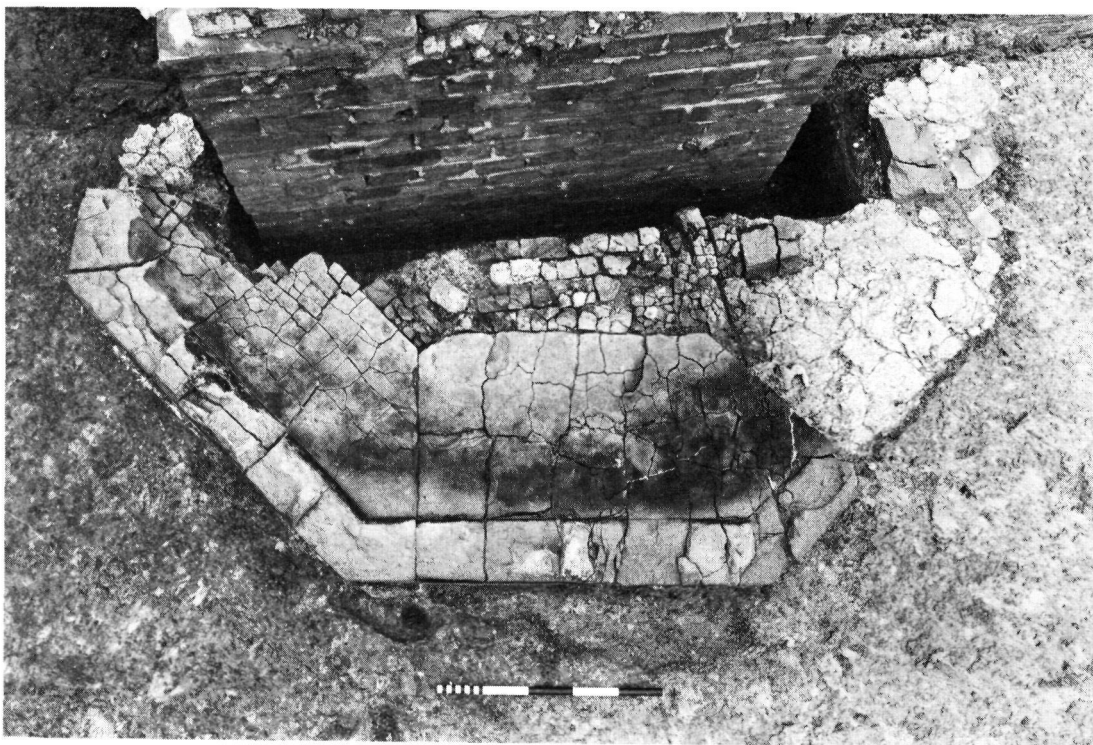


Plate 7. Eltham Palace: Plan view of the octagonal stone fireplace F39 in Bishop Bek's great hall (Photo: Derek Craig).

areas of mortar bedding (some with tile impressions) from which the tiles had been removed when the hall was demolished. This floor is described and illustrated *in extenso* below (pp. 238–244, Figs. 5, 6 and 12, Pls. 6 and 8). The tiling was found to have settled by as much as 0.19m in some places, and in the process to have been pulled away from the west wall of the hall by some 0.12m, such was the instability of the made-up ground on which the hall was built.

The north wall of the hall was much damaged, but it would appear to have been about 4m wide. Within the thickness of this wall was a recess 1.5m deep set on the central axis of the building. Here an area of mortar survived which differed from the areas of mortar within the body of the hall. It contained roof



Plate 8. Eltham Palace: The porch of Bishop Bek's great hall, 1979 season, with Areas II and III of the tile pavement. The view is from the south (Photo: Christopher Guy).

tiles and was set off from the tiled pavement by a straight line defining its southern limit. The presence of roof tiles within the mortar suggests that it was the bedding for something heavier than floor tiles, most probably flagstones, and the straight line defining its southern limit probably marks the riser of a step. This was clearly the position of the dais.

South of the dais was an octagonal stone fireplace (F39) of pitched yellow bricks 150mm long by 110mm thick, surrounded by slabs of Reigate stone with a kerb of half-round moulding. It seems likely that a metal brazier would have stood over the brickwork, and that the stonework was for the raking-out of hot ashes. Presumably there would have been a louvre above in the roof of the hall to let out the smoke.

On the west side of the hall was a porch, on the northern side of which there was a rebate for a door and a socket for a bolt. The porch was floored with flagstones of Upper Greensand. These had split along the line of the porch footing and subsided by 0.23m, giving further evidence of the instability of the underlying strata. The flagstones were laid on a matrix of pounded greensand chippings similar to that in the pentise attached to the east side of the hall.

The Moat Wall

A trench was dug against the inner face of the wall (G218) identified by Dr Strong and Mr Craig in 1952–3 as having been built by Bishop Bek to retain the moat round his new manor house. This trench was some 19m south of that dug by Mr Curnow in 1957.

The inner face of the moat wall was built of chalk, with two offset courses. In the lower part of the wall was a somewhat crudely constructed relieving arch (Fig. 7). The infilling behind the wall had apparently been added as the building work progressed, the surfaces of the various dumps of clay corresponding to stages in the construction of the wall. Much of this clay may have come from digging the moat, but there was an admixture of mason's waste, mostly fragments of chalk.

The infilling of the area to the east of this wall formed part of the plateau upon which Bek's hall was built. It can never have been

ELTHAM PALACE 1975-79

Elevation of Bishop Bek's perimeter wall and adjoining section

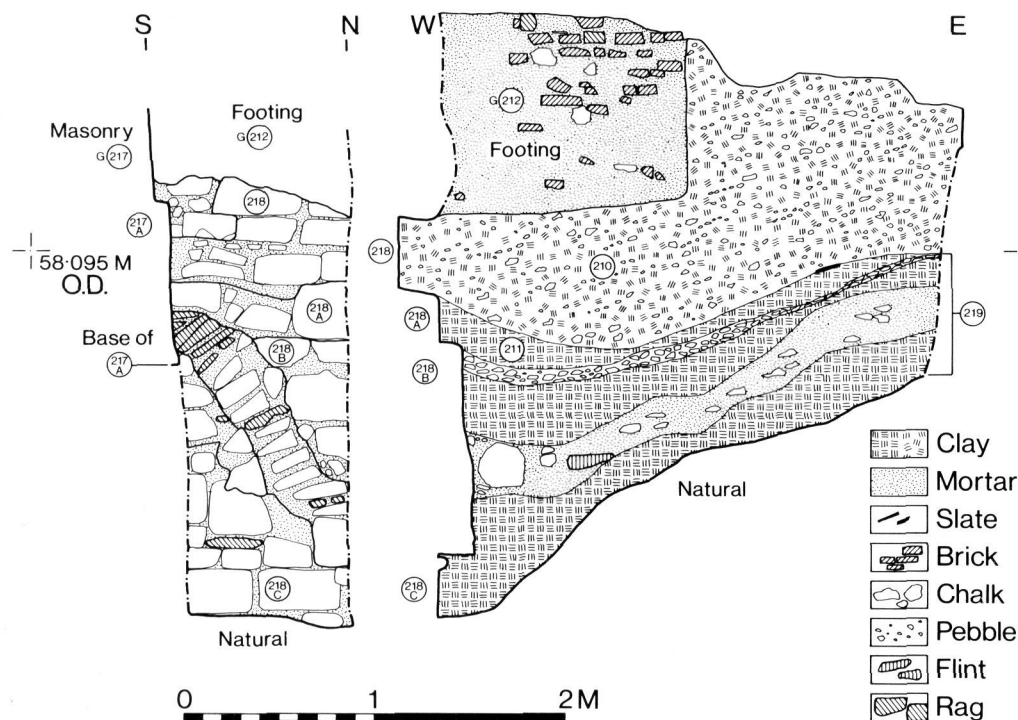


Fig. 7. Eltham Palace: Elevation of strainer arch in Bishop Bek's perimeter wall and section through layers against this wall.

very stable, as shown by the slumping of the floor of the hall. On the surface of this plateau was a coin of John I of Brabant as Duke of Limburg (1288-94), which had been rejected some time around AD 1300.

3. REPAIRS TO THE HALL (Masonry Phase II—see Fig. 8)

The trench described above which was dug against Bishop Bek's perimeter wall exposed the north-east corner of a structure built against it (G217). The footing of this structure was of chalk and was butt-jointed onto the perimeter wall, part of the face of the latter having been removed to facilitate the joint. Running north from the building was a wall (F112) made of loosely-bonded chalk blocks with some crudely-made red bricks. There

were three pilasters of red brick built against the west face of this wall.

During this phase the pentise along the east side of the hall was demolished, and buttresses were added against the east and west walls.

One buttress (B12A) was added at the west side of the hall, butt-jointed onto wall B12. A second buttress on the east side of the hall was represented only by a robber trench (G154). There were no 'tuskers' projecting from the face of the wall of the hall to suggest that the buttress had been bonded into the wall, and it seems likely that this buttress, like the first, was an addition. Presumably these buttresses were two of a series built at 6m intervals, the porch at the west side of the hall taking the place of two such buttresses.

No major alterations to the cellared building were noted during this phase.

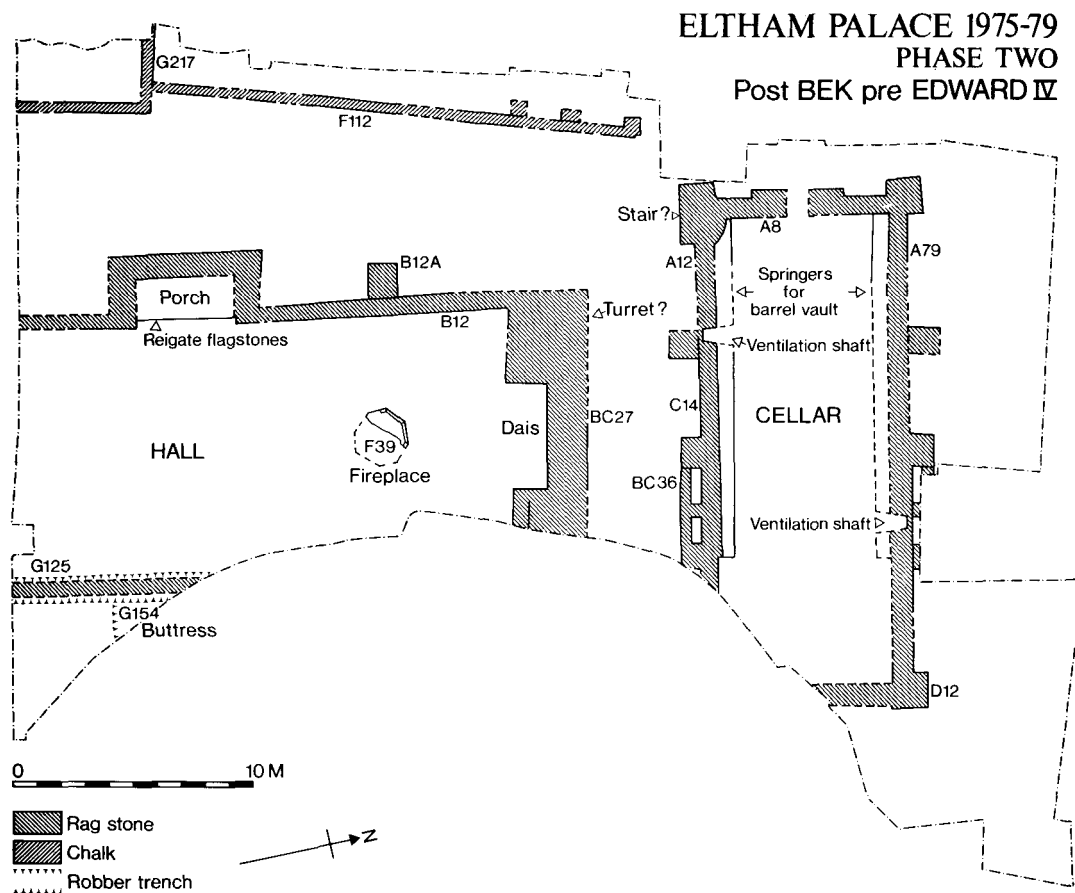


Fig. 8. Eltham Palace: Phase Two.

4. THE BUILDING OF THE ROYAL APARTMENTS (Masonry Phase III—see Fig. 9)

In Phase III the hall and the building adjoining the perimeter wall were demolished and modifications were made to the cellared building. A new range of royal apartments was built close to the edge of the moat.

The Hall

The first features associated with the demolition of the hall were two pits (F139 and G173) for melting the lead flashings from the roof and the lead window comes. In each was a substantial mass of molten lead mixed with charcoal. It was presumably because charcoal had become mixed with the lead during the

melting process that the lead was not saleable and so was left in the ground.

When found, all the tiles in the hall floor were cracked, and there were areas of intensive burning, giving the impression that when the hall was demolished its roof timbers were thrown down and burnt where they lay on the floor. There were runnels of melted lead between many of the tiles and the same phenomenon was observed in the small cracks between the brickwork and the stone slabs of the fireplace. Overlying the fragmentary remains of the tiles was a layer of ash, topped by a layer of broken red roof tiles. Within this layer was a large quantity of molten window glass, some fragments of floor tile, a penny of Henry VI and some pottery dating from the second half of the 15th century.

Over the ash layer was a thick layer of dumped clay from which more pottery of the same period was recovered. This layer appeared to represent deliberate levelling-up after the demolition of the hall. Only after this had been done, and perhaps some considerable time later, do the walls appear to have been robbed for their stone.

The Royal Apartments

A brick-built range superseded the structures built against the retaining wall of the moat during Phase II. The footing of the west wall of this range (G212) straddled the chalk footings of the earlier building.

From the east wall of the new range projected a five-sided bay window (F47) and the five-sided chimney-breast of a fireplace (G64). Within this fireplace the bricks were blackened by burning, and there was a fireback of Reigate stone 0.15m thick. Immediately south of the bay window was a brick footing with the seating for a timber partition, dividing this part of the new building into two rooms of unequal sizes.

The east wall of a second brick-built range, to the north of the first, was found butted onto the north-west buttress of the cellared building. The remainder of this range lay beyond the limits of excavation (see Fig. 9).

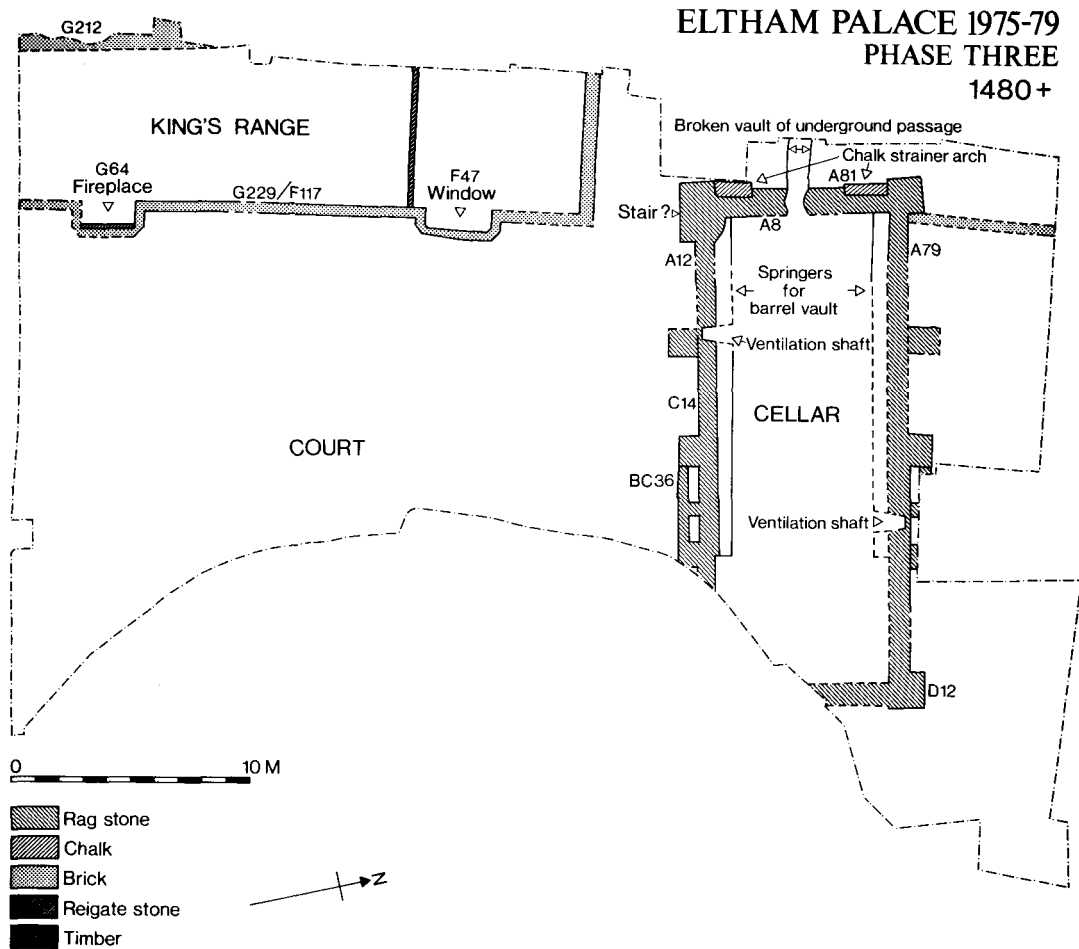


Fig. 9. Eltham Palace: Phase Three.

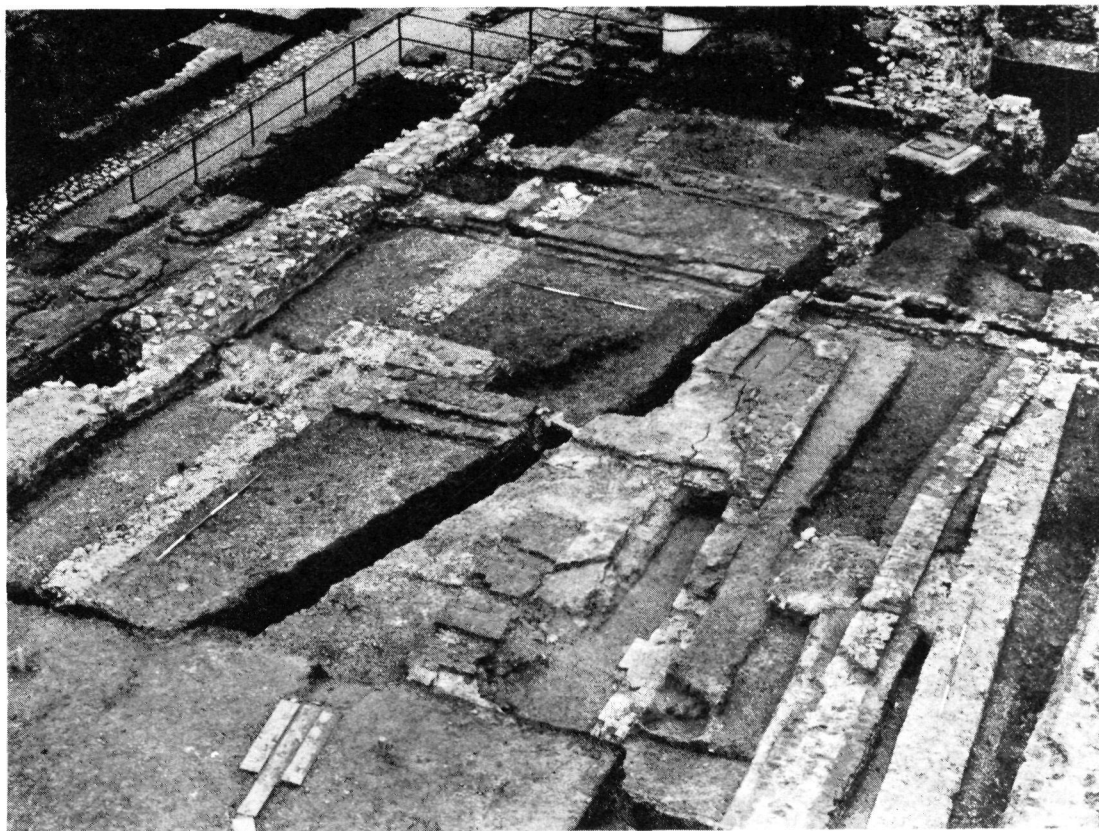


Plate 9. Eltham Palace: The northern end of the range of king's apartments, 1978 season
(Photo: Derek Craig).

The Cellared Building

The original door was replaced during this phase by an angled entrance from which a vaulted passage led westwards to a flight of steps ascending to the ground floor of the new apartments. Only the entrance and passageway were within the writer's area of excavation, the steps having been excavated by Dr Strong in 1952. At the same time two chalk-built relieving arches were inserted against the west gable wall, supporting the two corner buttresses. The northernmost of these arches is illustrated in Fig. 3.

The primary floor of the cellar, and the central drain beneath it, were removed and replaced by a new floor of compacted pebbles with drains running along the sides of the cellar. The drains were of red brick, and met

in front of the more southerly of the two primary relieving arches on the eastern (inner) face of the gable. The chute for these drains, also of brick, was led under this arch and through the gable wall.

Overlying the pebble floor was a layer of ash. From this layer a group of pottery dating from the late 15th and early 16th centuries was recovered.

5. CONSTRUCTION OF THE NEW CHAPEL (Masonry Phase IV—see Fig. 10)

During this phase the cellared building was demolished and a larger building, identified as a chapel, erected on its site; the west part of the cellar itself, however, was kept in use beyond the gable wall of the new building. Attached to the north side of the new chapel

was a house. A pentise with an oriel containing a seat was added along the eastern side of the range of royal apartments to the south-west of the new chapel.

The New Chapel

That part of the old cellared building which underlay the site chosen for the new chapel was filled up with clay tipped in by the cart-load. This filling, which contained pottery

dating from the early 16th century, was carried up high enough for the floor of the new building to clear the slighted walls of its predecessor. Unfortunately, nothing survived of this floor.

The western part of the old building protruded some 4m beyond the gable wall of the new chapel. Although the building itself was demolished, the cellar below it at this point was apparently kept in use, since the debris

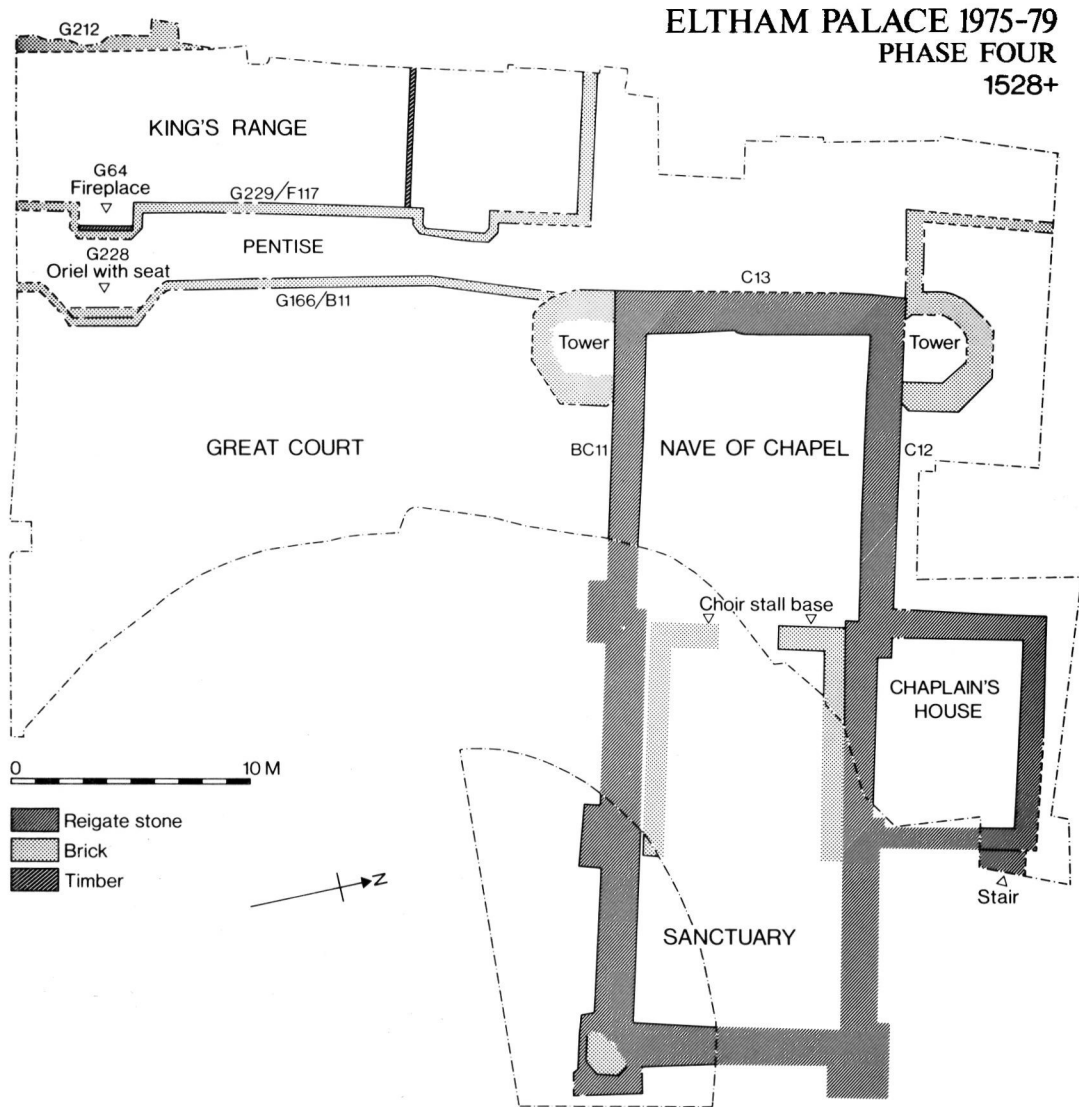


Fig. 10. Eltham Palace: Phase Four.

which filled it contained material datable to the final phase of the life of the palace. Among this debris was a remarkable group of fragments from a stucco frieze.

The new chapel was 33.7m long by 11.9m wide. The west wall (C13) was built of Reigate stone, but it incorporated a large number of painted and moulded stones re-used from the earlier cellared building; where it encountered the ventilation shaft in the thickness of the south wall of the cellared building it was carried over the shaft on a brick arch (Pls. 3 and 4). The footing for the north wall (C124) was considerably thicker than that of the south wall. This was because it had to encase the springing of the destroyed vault on the north side of the earlier cellar; the inner face



Plate 10. Eltham Palace: The east front of the range of queen's apartments, and the tower at the north-west corner of Henry VIII's chapel, showing the well of the stair
(Photo: Derek Craig).

of the footing was carried down clear of the springing, through the pebble floor of the cellar. Incorporated into the wall were a large number of painted and moulded stones from the earlier building. The east wall of the earlier cellar had been removed, though a stub of it was left protruding from the buttress at the north-east corner. The north wall of the new chapel was carried across this stub on a brick arch similar to that spanning the ventilation shaft in the south wall.

The central part of the new chapel could not be investigated, as it lay beneath the drive of the Courtauld mansion. However, part of a brick trough for the choir stalls was found on the northern side of the choir and the east end of an equivalent trough on the south side of the choir was found in an area excavated to the east of the drive (see Fig. 10). Such underfloor troughs had the effect of turning the floor of the stall into a sounding board. Nothing survived of the floors themselves, and the troughs were filled with destruction debris which yielded several lead oak leaves sized and covered with gold leaf.

Attached to the north side of the chapel were the footings of a domestic building measuring 10.2m by 6.9m. At the north-east corner of this building was the base of a newel stair, and on the southern interior face of the apartment was a brick fireplace.

The Pentise

Along the front of the range of apartments erected in Phase Three at the edge of the moat a pentise was now built (B11/G166). A brick structure (G228) projected from this pentise. The southern edge of this structure had been destroyed by a 20th-century drain and the eastern face was obscured by the wall of a later pentise, but the general shape of what survived indicated that it was an oriel for looking out over the court. There was a seat inside the oriel.

The pentise would have been narrowed considerably at this point by the projection into it of the chimney-breast G64. This was clearly the reason for the presence of the oriel immediately opposite: its purpose was to make the pentise wide enough for its users to walk round the chimney.

6. THE REBUILDING OF THE ROYAL APARTMENTS (Masonry Phase V—see Fig. 11)

During this phase the range of apartments south-west of the chapel was refronted, the larger room was sub-divided into two smaller rooms by the insertion of a second partition, and a new pentise replaced that erected in Phase Four.

The east front of the royal apartments, towards the courtyard, would appear to have

been completely rebuilt on a line 1m further east. The new wall (F120/G163) ran south from the five-sided bay window F47 to the chimney-breast G64, which was demolished. The base of the obsolete bay window was incorporated into the new frontage. Within the range, the Phase III timber partition was retained and a second partition, also of timber but without any footing, was erected 6.5m to the south.

In the north-east corner of the southern

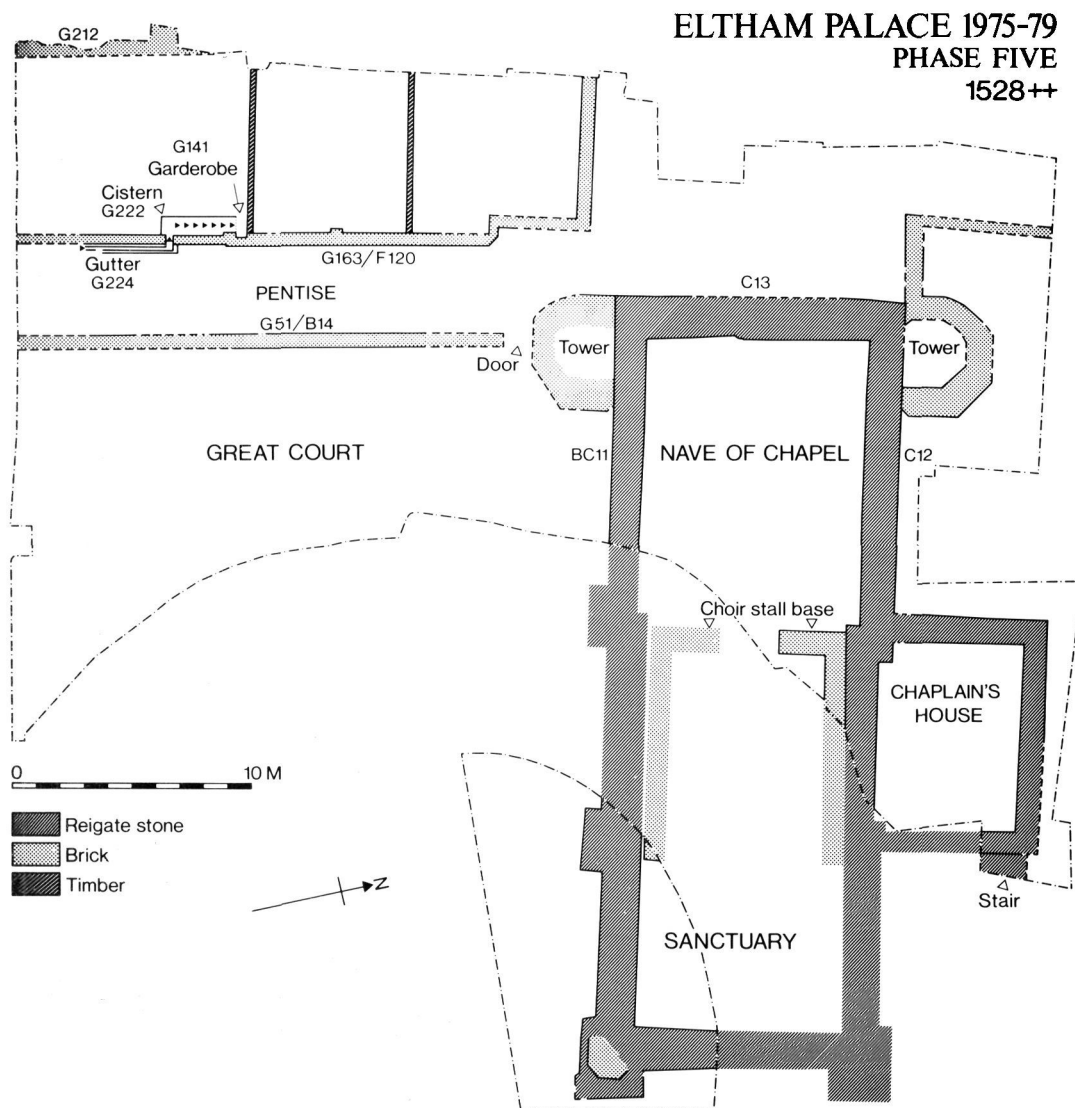


Fig. 11. Eltham Palace: Phase Five.



Plate 11. Eltham Palace: Drain G224, cistern G222 and garderobe G141 in the king's apartments of the Tudor period (Photo: Christopher Russell-White).

apartment formed by the new partition, and integral with the new front wall, was a garderobe (G141) served by a drain running along the outside of the wall and carried through it into a cistern (G222, see Pl. 11). The bottom of the cistern was of loosely-bonded brick which could never have retained water, so it seems likely that it accommodated a lead tank. There was probably some kind of trap at the north end of the cistern which could be used to flush the garderobe, though in the absence of the tank this can be no more than conjecture. It is possible, of course, that the garderobe was flushed whenever it rained, the rainwater being carried through the drain and cistern, but the size of the cistern argues against this and in favour of a quite sophisticated example of Tudor plumbing. The garderobe was filled with demolition debris containing a large number of pieces of clear window glass, a pane of glass with its lead

came intact, and a sized and gilded lead leaf similar to those found in the filling of the brick troughs for the choir stalls in the chapel.

The pentise along the front of the old apartments was demolished and a new one was erected further to the east. Its footing of loosely-packed rubble (B14/G51) was cut through the layers representing the demolition of Bishop Bek's hall, the base of the footing resting on the remains of the tiled floor of that building.

INTERPRETATION AND DISCUSSION

The cellared building

The cellar was clearly used for the storage of perishable commodities, for ventilation shafts were discovered in the north and south walls to allow air into the cellar and prevent the decay of whatever was kept there.

One difficulty in suggesting the nature of the goods stored in the cellar is the fact that the excavated floor of rammed pebbles was not the primary floor laid down by Bek. Similarly, since the primary doorway at the west end of the cellar was remodelled in Phase III it is not possible to say exactly how the cellar was entered at this point during Phase I. Had the original flooring survived, as it does for instance at Leeds Castle in Kent, it would have been much easier to conjecture the purpose of this cellar. At Leeds the cambering of the floor makes it clear that the cellar was used for wine or beer, the cambering allowing for ullage to run down to the side drains.

No such cambering was evident in the 15th-century pebble floor at Eltham and the underlying subsoil, where examined at the west end of the cellar, was level. This does not, of course, rule out the possibility of the use of the cellar as a store for wine or beer. An argument against its being a food store is that it is

a long way from the presumed site of the kitchens. Although the kitchens were not excavated, it may safely be guessed on the analogy of innumerable 13th-century manor houses that these would have been at the south end of the hall (now under the Great Hall built by Edward IV, which still stands). An argument in favour of the cellar's being used for the storage of drink is that it is conveniently close to the hall.

It might be argued that there was an entrance to the cellar at the eastern end, perhaps in the south-east corner, though the presence of the modern drive precludes examination of this point. Certainly, if the cellar was for wine or beer an entrance larger than that in the west gable wall would have been necessary to allow the passage of casks into the cellar. The room at the east end, with its 2m high walls, would have allowed plenty of room for access and for the servants to manoeuvre the casks. By comparison, in the barrel-vaulted part further west a man would not be able to stand upright until he was near the centre of the chamber (see Fig. 3). It is suggested, therefore, that casks may have been let into the cellar at the east end, where the chamber with the depressed vault had plenty of headroom, and then taken into the barrel-vaulted part of the cellar and mounted in racks down the sides, a central passage, accommodating the drain, being left clear.

Nothing survives of the building above the vaulted cellar, so nothing can be deduced about the arrangements above ground from archaeological evidence. However, in the royal exchequer accounts for AD 1399-1400 there are three references to a chapel over a cellar, two of these being to 'the great chapel'.¹ It seems unlikely that much alteration was made to this building between 1305, when Bek granted the reversion of the manor to

Edward Prince of Wales, and the reign of Henry IV to whose first two years these accounts belong. It is suggested, therefore, that the cellar with a chapel over it in use in Henry IV's reign was that under discussion here.

The precise location of the chapel itself cannot be fixed from the documents, which make it clear that there were several other chambers over the cellar in addition to the chapel. Liturgical considerations might suggest that the chapel was at the east end of the building. It might have occupied the space represented below ground by the chamber at the east end beyond the barrel vault. Chapels in domestic manor houses were often quite small. The chapel at the town house of the Bishop of Ely in Ely Place, Holborn, which is still in use as a Catholic church, is an example of such a chapel contemporary with Bek's building.

The early hall

To the south of the cellared building was a large building which by reason of its remarkable state of preservation at floor level was easily identifiable as a hall.

It is typical of domestic halls of the late 13th century, except in one particular: at such a date it would be an early example of a hall of such a width being roofed in a single span. It was more usual for halls of this period to have aisles. At the beginning of the 14th century carpenters were only just beginning to master the new methods of roofing construction which dispensed with the need for aisles (Wood 1965, 49). The hall is attributed to Bishop Bek solely on grounds of historical probability. The most that can be deduced from the archaeological evidence is that it was built some time after about AD 1280 and that it was demolished some time in the latter part of the 15th century. A *terminus ad quem* is given by the construction of the present Great Hall, which

overlies the building here attributed to Bek: this is known to have been built for Edward IV in AD 1475–80. It is not clear when the external buttresses were added.

The tiled floor is described in detail below (pp. 238–244).

The Royal Apartments

Until the reign of Edward IV (1461–1483) the royal apartments had been situated on the east side of the Great Court. Edward seems to have undertaken a major remodelling of the palace. He demolished the early hall and replaced it with another, which still stands. His new hall, orientated east-west, covered the southern end of the earlier building and perhaps also the kitchens associated with it. It is probable that the settling of the made ground on which the early hall was built, and which had necessitated the addition of external buttresses, had by Edward's reign made the hall so unsafe that it had to be demolished. It seems unlikely that Edward would have embarked on such a major rebuilding programme without good reason.

The King's Lodgings were rebuilt at the west side of the Great Court, where they could be integrated with the west end of the new hall. Unfortunately, the presence of the squash courts and orangery built by the Courtauld family precludes investigation of this particular point. The new range was of brick, as was the new hall, though the latter was clad externally with Reigate stone. The line of the east front of the range, towards the Great Court, was broken by a projecting chimney stack and bay window.

Of the Queen's Lodgings, only the front wall lay within the area of excavation, butted into the north-west buttress of the cellared building, which was retained in use. Doubtless the great depth of the foundations of this latter building had saved it from the settlement problems which

had beset the early hall. The west end of the cellar was modified so that it could be connected up with the royal apartments. From the remodelled doorway an underground passage led to a flight of steps which ascended to the ground floor of the Queen's Lodgings.

The work of this phase can be dated securely from documentary sources (Brown et al. 1963, 936). In the Patent Rolls for 1476–77 it is recorded that in November 1475 Roger Appleton was appointed 'master and surveyor of the repair and building of the king's manor of Eltham'. During the next five years he received at least £1,500 'for the works within the manor of Eltham'. Accounts kept by an associate of Appleton's, James Hatfield, show that the roof of the new Great Hall was under construction in October 1479, and although there is no documentary evidence for the exact date of the completion of the hall, it seems reasonable to suppose that the work was finished by 1480 or a little after. A date of c. 1480–85 may therefore be assigned to the rebuilding of the royal apartments at the west end of the new hall. Sometime between 1477 and 1485 Adam Vertu was asked to supply no less than eleven new fireplaces for the 'logyngs over the new seler'.

The King's Lodgings were subsequently remodelled, at least to the extent of being re-fronted. The old east front, erected by Edward IV, was demolished and a new front built just beyond the old line. This must imply some alterations to the roof structure as well. The interior room spaces were also altered. The exact date of these alterations is not clear, but it would seem to lie some time in the second quarter of the 16th century.

During the excavations fragments of a window were recovered which probably came from the northern gable end of the King's Lodgings. These fragments are

discussed and illustrated below (pp. 244–5 and Fig. 14). Also recovered were fragments of a stucco frieze which probably came from the same area as the window (see below pp. 249–51, and Figs. 20 and 21). These window and frieze fragments help to give some idea of the above-ground appearance of the royal apartments in the 16th century.

The New Chapel

The major work of the early 16th century was the destruction of Bishop Bek's cellared building to make way for a grandiose new chapel in the Renaissance style. This building appears in the royal accounts between 1518 and 1528: 'Item to take down our olde Chapell and a new to be sett upp and made of timber work sett upon a vawte with a foundation of stone . . . and the same Chapell to be sett xij feet nearer to hall than the old chapell' (Brown *et al.* forthcoming, 80). Excavation showed that the detailed specification given in the final part of this instruction was faithfully followed.

A survey was made of the whole of Eltham Palace during the reign of Elizabeth I by John Thorpe. Of the two drawings he made in 1590, the first, showing the Great Court, is now in the collection of the Marquis of Salisbury at Hatfield House; the second, showing the Green Court, is in the Public Record Office in London. These two drawings form the basis of Fig. 1, but in this figure the orientation of the chapel in relation to Edward IV's hall, which is incorrectly shown on Thorpe's drawing, is shown as excavated.²

Excavation added only one structural detail to the plan of the chapel known from Thorpe's survey. In the area west of the circular driveway of the Courtauld mansion, the west end of the brick base for the northern choir stalls was found; the east end of the southern stalls was

located in the area east of the drive. The screen shown on Thorpe's drawing as dividing the nave from the choir must have been immediately west of these stalls.

Of the two chambers of the Chaplain's house shown by Thorpe, only one could be excavated, the other lying under the car park. The base of the newel stair between the two chambers was, however, located. Two pieces of the finial from the west end of the Chaplain's house were recovered (see below p. 245, and Fig. 15). The lower piece, from the apex of the gable, shows the pitch of the roof. It was relatively shallow, which casts doubt on the reliability of the drawing made by Peter Stent in *c.* 1650 (Pl. 12) which is preserved in the Officers' Mess at Eltham.

Although the roof of the Chaplain's house is hidden by other buildings in the foreground of this drawing, Stent shows the roof of Edward IV's Great Hall and Henry VIII's Chapel. He shows the pitch



Plate 12. Eltham Palace: Drawing by Peter Stent made *c.* 1650 of Eltham Palace from the west, shortly before its demolition by Colonel Nathaniel Rich (Photo: Derek Craig).

of the hall roof as being much sharper than it actually is, and by analogy it seems likely that his portrayal of the pitch of the chapel roof, which he shows as even sharper than that of the hall, is also inaccurate. Stent's drawing is useful, however, in showing the general massing of buildings just before their demolition.

THE TILE PAVEMENT

By Elizabeth S. Eames

DATE

During these excavations five areas of tile paving were found *in situ* in the hall built for Bishop Antony Bek. The tiles were set in lime mortar on a man-laid foundation of clay. The paving was demonstrably coeval with the building. The hall was apparently begun in or soon after 1295, when Antony Bek acquired the manor of Eltham, and is assumed to have been completed before his death at Eltham in 1311; indeed it is probable that it was completed by 1305 when Bek granted the reversion of the manor to Edward Prince of Wales (Brown *et al.* 1963, 930). Building accounts survive in royal records for the period after 1311 but none are known from the period when Bek held the manor and this hall was constructed. Paving was always one of the last tasks to be undertaken in a new building, probably the very last after the removal of the internal scaffolding which would still be in use while the windows were being glazed and the walls painted. It is therefore probable that this paving was laid during the first few years of the 14th century. Such a date is also suggested by a coin discovered in clay in the same archaeological context level as that on which the pavement was based, although not under the pavement itself. This coin was identified as one minted for John I of Brabant as Duke of Limburg (1288–94), lost or rejected *c.* 1300. A date between 1300 and 1305 for the laying of the tile pavement in Antony Bek's hall can be postulated.

GENERAL DESCRIPTION

As can be seen from the plan on Fig. 2 complete excavation of the area of Bek's hall was not possible. Its full width of 10.8m was recovered in the area south of the drive, the position of the dais at its northern end was ascertained, 22.3m of its length was investigated, the base of the porch on the west side was found, and part of a central octagonal hearth was present. The area of the hall was overlain and cut by some later walls, pipe trenches and drains, including an inspection chamber. The five areas of paving are numbered I to V on the plan on Fig. 5. The most informative was that numbered I at the north end of the hall next to the dais and extending southwards nearly as far as the central hearth. Area II lay just within the west porch, area III lay by the west wall near the southern limit of the excavation and areas IV and V lay by the east wall, IV opposite the porch and V opposite III (Fig. 5). In all places where the edge of the pavement was present near a wall there was a substantial gap between it and the face of the wall indicating either that the wall had been rendered with a thick coat of plaster (or even with plaster and wainscott) or that severe slumping had taken place in the underlying deposits.

All the surviving tiles were very worn. Many of the plain dark glazed tiles had lost all or most of their glaze, many of the plain light glazed tiles had lost not only the glaze but most of the underlying white slip and many of the decorated tiles had lost most of their decoration. This condition was informative. Bishop Bek's hall was apparently still in use in 1456 but was evidently demolished by 1475/6 when the building of the present great hall began (Brown *et al.* 1963, 936). This degree of wear therefore demonstrates the result of about 175 years of heavy use.

In addition to this normal wear the remaining paving showed signs of other severe damage, consisting of secondary burning, breakage and even shattering of most of the tiles and a scatter of specks of lead. Such damage could have been sustained during the demolition of the building if roof tiles and stones were allowed to fall to the floor, fires were lit on the pavement and lead was melted in the

building. Further south in the hall two pits had indeed been used for melting lead (Fig. 5). Comparable damage might also have resulted if there was a fire in the roof and burning timbers, roof tiles and melted lead fell from it. At Clarendon Palace, however, where a burning joist is known to have fallen on to the pavement of the Queen's chamber, the middle of the area of secondary burning was deeply depressed where the blow made by the falling timber striking the floor had been sufficient to compress the underlying foundation of flint and chalk (Eames 1958, Pl. 34; Eames 1980, Vol. 2, 188, Fig. 12). Such a blow would certainly have compressed the clay foundation beneath the pavement at Eltham but no such depressions were found. It therefore seems probable that the damage was sustained during demolition and that the spatter of lead was due to carelessness on the part of the demolition workers rather than to accidental fire in the roof of the hall. The damaged state of the pavement made conservation *in situ* or lifting impractical.

AREA I

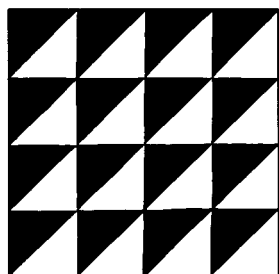
The paving in area I is illustrated in detail on Fig. 6. It occupied the full width from the west wall of the hall to the eastern limit of the excavation, measuring a maximum of about 8.5m west to east and 3.8m north to south. It consisted of five parallel panels running north to south marked A to E on the plan and of a sixth panel running west to east across the north edge of panels B, C and D. Within panels A to E the tiles were set diagonally to the axis of the building; in the north panel they were set square. The panels were separated by a single row of tiles set square and the presence of a few tiles set square at the west edge of panel A suggests that a comparable row ran down each side of the pavement against the west and east walls. This arrangement of the paving in parallel panels was the most usual in the 13th and 14th centuries. It can most easily be seen in the pavements remaining *in situ* in Westminster Abbey Chapter House, Clifton House, King's Lynn and Prior Crauden's Chapel, Ely, and in the piece of pavement from the Queen's

chamber at Clarendon Palace, already mentioned, exhibited in the Medieval Tile and Pottery Room at the British Museum. At Eltham the single lines of tiles set square were, as far as can be ascertained, laid with alternate light and dark plain glazed tiles except in the row separating panels B and C where the dark glazed tiles alternated with examples decorated with a rosette, illustrated on Fig. 12 as design 3.³

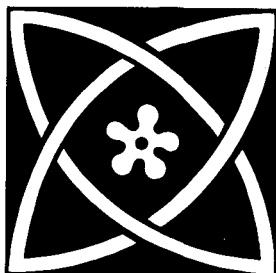
Panels A and E were set with plain glazed tiles, dark and light examples being laid alternately to form a chequered pattern. In panel A the triangular half tiles at both the west and east edges were light. This panel was a little under 2m wide and remained to a maximum length of 3m. Its central part lay under a later wall. The maximum excavated width of panel E was 0.8m and its maximum remaining length 2.4m. The tiles at the west edge were triangular halves of dark glazed examples.

The central panel C was narrower than the rest being 0.97m wide. Its maximum remaining length was a little over 2m. It was laid with alternate rows of plain dark glazed tiles and decorated tiles. From west to east these rows were composed of plain triangular half tiles, rosettes (design 3), plain tiles, fleurs-de-lis (design 4), plain tiles, rosettes, plain tiles, castles (design 7), plain tiles, rosettes, triangular halves of plain tiles. The tiles decorated with fleurs-de-lis and castles were set with the base to the south so that they would look the right way up as one approached the dais but upside down as one looked down from the dais.

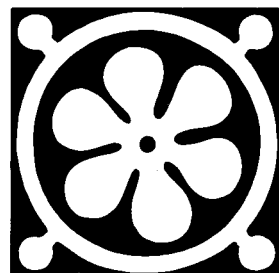
Panel B was a little over 2m wide and remained to a maximum length of 3.2m. It was laid with decorated tiles arranged in groups of four of the same design except at the edges where the triangular half tiles were probably all plain with dark glaze although many were too worn for this to be certain. All eight designs illustrated on Fig. 12 were present in this panel. Only two of these, 6 and 8, were designed to be laid in groups of four so that the principal motif in each was a circular band, but both were repeating patterns that would never be complete. In design 4 the fleur-de-lis was set diagonally and such



1



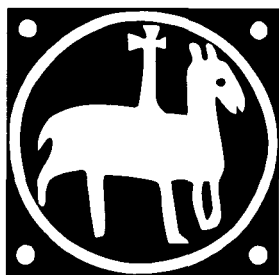
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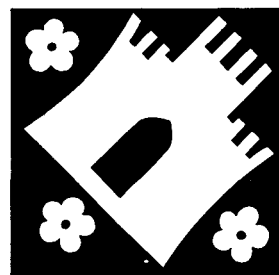
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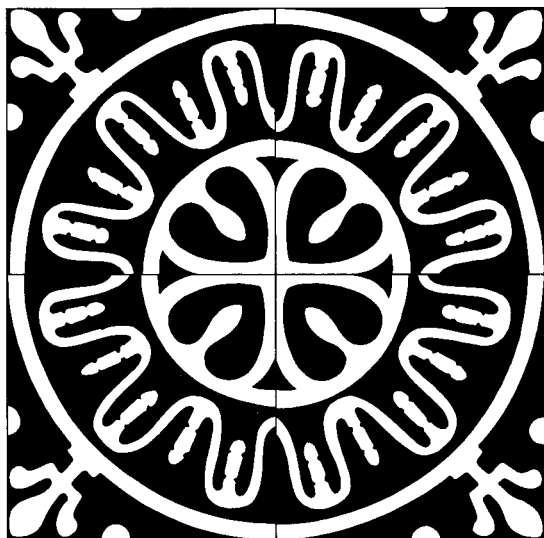
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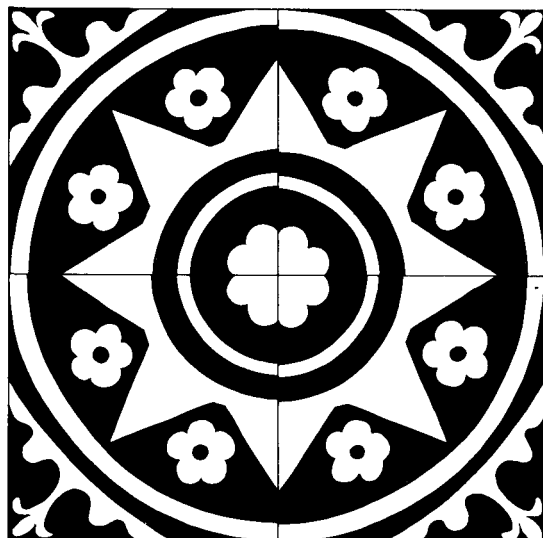
5



7



6



8

0 100 200 mm

Fig. 12. Eltham Palace: The tile designs in the great hall pavement (1/4).

designs were frequently set in fours with the stems to the middle so that they formed a cross, as they did in this panel, where the castles (design 7) were also set with the base to the middle. The vesicas of design 2 formed endlessly repeating interlacing circles when four or more tiles were laid together. At the east edge of the panel there was insufficient room for a row of complete 4-tile squares and the easternmost tile of each square was replaced by a plain triangular half tile on which the glaze was probably yellow.

No systematic arrangement of the 4-tile squares could be found. Generally tiles in adjacent squares were decorated with different designs but in one area five 4-tile squares all decorated with the paschal lamb (design 5) were placed edge to edge to form a diagonal line and this was apparently bordered on the south-east by a single row of rosettes. It is not unusual to find some apparently haphazard features within the general framework of a medieval tile pavement.

Panel D presented the least regular appearance. Its east edge sloped inwards as it went south so that the panel narrowed and different shaped pieces of tile were necessary to complete it at that side. Because the east wall of the building could not be excavated at this end it is not known whether the wall itself inclined inwards or whether this sloping edge was due to a fault in the layout of the panels.

This panel remained to a maximum length of 2.5m but the northern part was so badly damaged that the few remaining pieces of tile were unrecognisable and most of it had been subjected to severe secondary burning. As far as could be seen both plain dark glazed tiles and decorated tiles were used in this panel. The decorated tiles were arranged in diagonal lines running in both directions but not in any apparently systematic relationship to each other. In the north-west part of the remaining area all the decorated tiles were examples of design 3, the rosette, and in the area south-east of this all were decorated with design 4, the fleur-de-lis, but this sequence was interrupted on the south by castles and paschal lambs, which also had an intrusive rosette among them. Even if one assumed that some of the very worn tiles had also been

decorated it remained impossible to work out any systematic plan in the placing of the decorated examples.

The north panel running west to east across the north end of the panels B, C and D was laid with the tiles set square in three rows. In the two southern ones plain dark glazed tiles alternated with tiles decorated with the paschal lamb to form a chequered pattern. The third row on the north continued this but had rosettes instead of paschal lambs as the decorated members at the west and east. North of that were only a few uninterpretable fragments. It is not known whether this panel continued west and east across the ends of panels A and E. Panel A had two triangular half tiles remaining at its northern end and panel E had only one, but these were sufficient to indicate that those panels terminated at that point. If the north panel did not continue across them, some other arrangement was present there. It seems probable that the north panel ran right across the width of the building.

AREA II

Two patches of paving remained in area II in the west porch both on the line of the west wall of the hall and therefore west of the edge of the main pavement which may be supposed to have continued south from area I at least as far as the south end of the porch. Both patches formed part of the same panel running north to south at the inner edge of the porch. The west edge with its triangular half tiles was present in the south patch (Fig. 5). The tiles were set diagonally in alternate rows of plain dark glazed tiles and decorated tiles, finished at the west edge with triangular halves of plain dark glazed tiles. From west to east the sequence of rows was plain, the rosette (design 3), plain, the fleur-de-lis (design 4), plain, an arrangement comparable with that used in panel C. If at the east this panel was squared off by a row of plain triangular half tiles and edged by a row of tiles set square this would probably bring it up to the edge of panel A of which nothing survived in this area to which area II could be accurately related. West of this panel the porch was paved with stone slabs. Part of area II

had been overlaid by a later wall and cut by a modern pipe trench so it was fortunate that these two patches of tiles remained. Although the tiles were worn and broken they did not show any secondary burning or shattering.

AREA III

Area III also contained two small patches of tile, separated by a pipe trench. The northern patch measured a maximum of 0.95m east to west and 0.5m north to south. It lay close to the west wall of the hall at the south end of the excavation (Fig. 5). It included the remains of six groups of four tiles set diagonally, arranged in alternating east west rows of plain and decorated groups. All that remained was part of a group decorated with the rosette, south of that part of three groups of plain dark glazed tiles and south of that part of another group decorated with rosettes in line with the first and part of a group decorated with the 4-tile pattern illustrated as design 6 (Fig. 12).

The southern patch apparently continued the same arrangement but retained only parts of two plain dark glazed tiles and one triangular half yellow glazed tile which presumably indicated the position of the edge of the panel. This was not a continuation of the arrangement of plain glazed tiles in area I panel A.

AREA IV

Area IV consisted of five small patches of plain glazed tiles near the east wall of the hall opposite the porch. This area was cut by scaffold holes and a pipe trench and the largest patch included the remains of only nine tiles but one set square indicated the position of the east edge of the panel. The tiles were severely damaged by secondary burning but their position suggested that panel E may have continued south as far as this.

AREA V

Area V consisted of three small patches of tile against the site of the east wall near the southern limit of the excavation (Fig. 5). Two of these included tiles set square indicating the position of the east edge of the panel.

Three tiles set square were decorated with the fleur-de-lis (design 4) and two with single examples of the 4-tile pattern illustrated as design 8 (Fig. 12). These were contiguous, not alternated with plain glazed tiles as they were in the row between panels B and C in area I. The remaining tiles were plain set diagonally, apparently arranged chequerwise dark and light. This could be a continuation of panel E in area I. No part of the east edge of that panel could be excavated there and it is possible that that too was bordered by decorated tiles set square at its eastern edge; it must be noted, however, that the single border tile in area IV was plain.

One area in line with the south patch of tiles in the porch, beginning about 1.8m east of it and extending about 1.4m eastwards, showed faint marks of the position of tiles on the remaining mortar bed. Those at the east were marks of a row of tiles set square, the rest were diagonal. The marks of tiles set square were not in line with the rows dividing panels A and B or B and C in area I and, if they were correctly interpreted, indicate a change in the width of the panels in the southern part of the hall. There is no remaining evidence of a screen north of the porch which might give occasion for a change in the arrangement of the panels and the evidence is too slight to be certain but the possibility of such a change exists.

THE TILES

Among the many loose tiles of varying date found during the excavations and taken into store were many examples the same as those *in situ* in the pavement. These were made available and a representative sample was examined in detail.

The fabric was well prepared for that of medieval floor tiles and had small red and white inclusions. The tiles were well and evenly fired and in the sample examined only one plain glazed tile (78F41B) and one decorated tile (77F55) had a grey reduced core, the rest being fully oxidized. There were no keys in the bases of the tiles, which were untrimmed and retained traces of the sand on which they had been formed. The sides had been trimmed with a downward sloping bevel

in the most usual way. The thickness of the tiles in the sample examined varied from 18 to 24mm. The length of the sides averaged 135mm but there was a noticeable tendency for them to be a little longer on one dimension than the other. The general impression was that they had been well made and fired, and both plain glazed and decorated tiles were the same.

The glaze was the usual lead glaze (Eames 1980, Vol. 1, 19-23). It was applied over a coat of light slip to produce the light glazed tiles. In the sample examined these ranged in colour from pale yellow through orange/yellow to quite a deep orange. The lead glaze was applied direct to the body to produce the plain dark glazed elements in the pavement. These ranged in colour from a dull olive brown through light brown and medium brown with darker spots, to a dark purplish brown. None of the green to black tiles that most commonly formed the dark elements in English medieval pavements was present. It was more economical to use the same glaze for both light and dark tiles, but it is possible that iron had been added to the glaze used on some of the dark elements; some iron was always present. None of the glaze or body fabric has been analysed. The lead glaze was applied to the decorated tiles to produce the usual yellow design on a brown background, the brown tending to purplish rather than golden shades and the yellow deep rather than cream.

The decoration was applied in white slip in shallow stamped cavities and clings to the edges in the way that indicates that it was introduced in a liquid not a plastic state. The cavities do not have the sharp cut edges that are present when the tile was coated with slip before the decoration was stamped. Whatever method was used to apply the white slip the final appearance of the decoration depended upon the care taken to remove surplus slip and body clay from the surface (Eames 1980, Vol. 1, 45-8). On these Eltham tiles this seems to have been fairly carefully done and there is very little smudging of white slip on to the background.

Only eight different decorative designs were present and this accords with the practice of

the period except in the most elaborate pavements. In the remaining piece of pavement from the Queen's chamber at Clarendon Palace only six different designs were present, and in the pavements at Clifton House, King's Lynn, only seven two-colour designs were used. Such pavements depended for their general effect on the layout of the panels and the arrangement of the dark, light and decorated elements, and only on closer inspection upon the decorative designs themselves.

All the motifs used in the designs on the tiles in the Eltham pavement were common in the latter half of the 13th century and the earlier half of the 14th but at the time of writing only one tile identical with any of the Eltham examples had been located.⁴ It is a tile of the same size, decorated with design 8, in Plumstead Museum, said to be from the site of Lesnes Abbey, formerly in Kent, and less than five miles from Eltham. Other indications of a link between the decorated tiles at the two sites have been found and are here demonstrated by comparison with tiles in the British Museum (Fig. 13). Other tiles from Lesnes Abbey are preserved on the site itself, in Plumstead Museum and in St John's Church, Erith.

A larger tile from Lesnes Abbey about 170mm square (1468 design 2806)⁵ is decorated with a design resembling Eltham 6 but including two circular bands. Four smaller tiles about 100mm square are decorated with another version closer to Eltham 6 (1220-3 design 2808). All three designs could be derived from a better-drawn version on a tile about 112mm square (13,602 design 2807) of Middle Thames type but uncertain provenance, possibly from the site of Chertsey Abbey, Surrey. Four tiles of the small size, about 100mm square, from Lesnes Abbey are decorated with a variant of Eltham 8 (1214-9 design 2795) and another about 108mm square from Hayden Street, Minories, London (11,350 design 2794) is decorated with yet another variant. Neither of the 4-tile designs Eltham 6 and 8 is particularly common in any form.

Four of the more usual motifs present on the Eltham pavement tiles were also used on the smaller tiles at Lesnes Abbey but all in

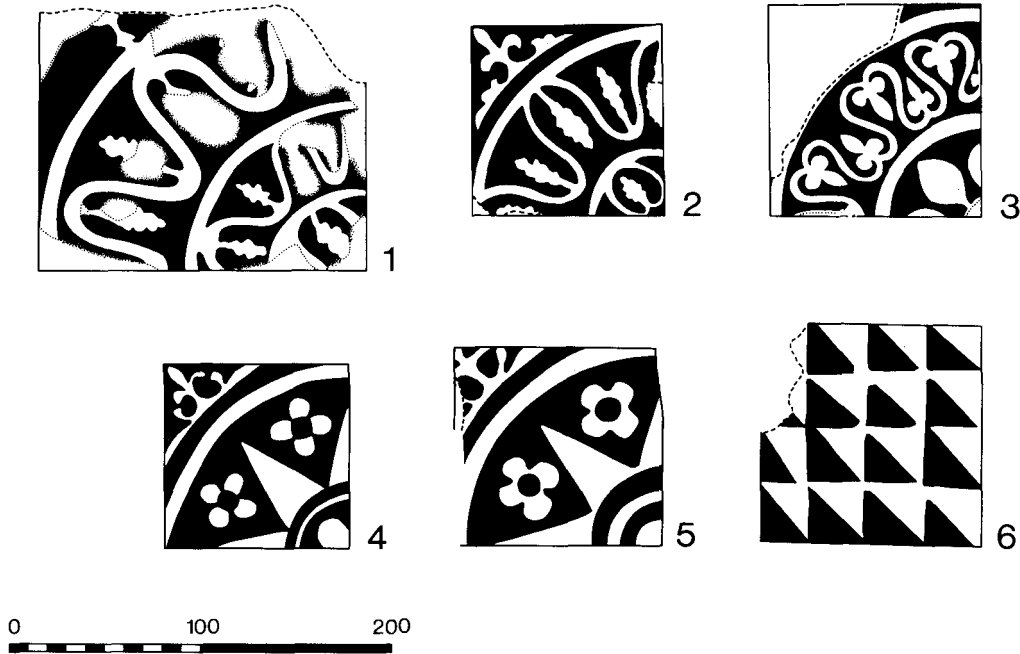


Fig. 13. Eltham Palace: Comparative tile designs from Chertsey (No. 3), Lesnes (Nos. 1, 2 and 4), London (No. 5) and Westminster (No. 6), (1/4).

different designs, not merely in reduced versions of the Eltham designs.⁶ The paschal lamb is not known from Lesnes. An unprovenanced tile about 115mm square is decorated with the same simple geometric design as Eltham 1 (122 design 2024), but it belongs to an entirely different series related to the tiles in Westminster Abbey Muniment Room pavement and therefore known as the 'Westminster' series.⁷

None of these Eltham Palace pavement or Lesnes Abbey tiles has at the time of writing been found in association with a kiln. Among the Eltham tiles in store examined by the writer was an example decorated with design 5 (77F84) which had cracked or broken during firing and had glaze on the fractured edge. One not very seriously damaged waster cannot be taken as evidence of the presence of a kiln. Nevertheless it seems probable that the tiles in the Eltham pavement were made in west Kent, perhaps within Eltham manor itself or somewhere nearby, and that the related tiles from Lesnes Abbey were made

by the same tilers. The fact that these Eltham designs are virtually unknown elsewhere is probably due only to the accident of survival. The Eltham examples were unknown before these excavations were undertaken and further excavations elsewhere may reveal other examples and supply more information. Meanwhile this pavement supplies a closely dated group of tiles and decorative designs.

MOULDED STONE (Figs. 14–19)

Ten fragments of a window. Part of the window has been reconstructed (Fig. 14), but the reconstruction of the entire window is not possible. The fragments recovered make up three lights divided by a transom.

1. Bottom part of a mullion with frontal fillet chiselled off. Cf. No. 2. The fact that the fillet has been chiselled off makes it clear that this is a mullion on the interior of a building: the fillet must have been chiselled off to make way for some piece of internal decoration or furnishing such as an arras. From layer A 3/2, backfill of the underground strongroom west of Henry VIII's chapel.

2. The same as above, but more complete. The whole

profile of the mullion survives, with exterior fillet intact though abraded, and grooves for the glass on either side. From layer A3/1, backfill of the underground strongroom.

3. Part of the transom with a deeply cut corner spandrel. Grooves for the glass in the soffit. From layer A3/1, backfill of the underground strongroom.

4. Section of mullion beneath the transom. Grooves for glass surviving on either side. From layer A3/2, backfill of the underground strongroom.

5. Section of the side of the window beneath the mullion. The border has been deliberately chiselled off, *cf.* Nos. 1 and 2. Groove for glass on inside. From layer A4, backfill of the doorway into the underground strongroom.

6A and 6B. Two joining fragments of a mullion. At the top of the upper fragment is a horizontal groove to hold an iron tie-rod. Grooves for glass on either side. From layers A3/2 and A3/4, backfill of the underground strongroom.

7. Bottom half of a section of mullion. The complete profile survives, showing the exterior frontal fillet to be wider than the interior fillet. Grooves for glass on either side. From layer A3/1, backfill of the underground strongroom.

8. Fragment of mullion with internal fillet and grooves for glass on either side (illustrated in section only). From layer A3/1, backfill of the underground strongroom.

9. As above (illustrated in section only). From layer A3/1, backfill of the underground strong room.

All these fragments were recovered from the backfill of the underground strongroom west of Henry VIII's chapel and the doorway leading into it. It seems reasonable to suppose that they came from a building of the final structural phase standing in immediate proximity to the strongroom. Thorpe's plan of the chapel as it appeared in the reign of Elizabeth I shows a doorway at the west end of the chapel. Undoubtedly there would have been a large window over the doorway, and there may have been windows at ground level on either side of the door. The fragments recovered could represent part of one of these side windows.

The other likely provenance is the northern gable end of the king's apartments, which is also directly over the strongroom. The fact that the fillets have been chiselled off the mullion above the transom to make way for a decoration or furnishing seems to argue in favour of this location rather than the chapel.

Two pieces of a roof finial (Fig. 15)

10. The apex of a gable: the bottom part of the finial is integral with this. In each shoulder there is a socket to hold a metal tie. The two parts of the finial were held together with a lead tie (illustrated in plan view and section). From layer D69, backfill of choir stall base.

11. Base of the finial column. The lead tie which held this to the gable apex has been snapped in antiquity, when the palace buildings were razed by Colonel Nathaniel Rich. From layer D69, backfill of choir stall base.

These pieces were recovered from the backfill of a choir stall base immediately south of the western chamber of the chaplain's house. It can only be from the west end of this building, therefore, that the finial came. It is especially useful in attempting to reconstruct the appearance of the Henrican chapel and chaplain's house in that it shows the pitch of the roof of the chaplain's house, which was lower than as illustrated by Stent.

Two pieces of column base which may be part of the same column, but could be from two nearly identical columns (Fig. 16).

12. Part of the moulded base of an engaged shaft. It is similar (though of a later date) to the clusters of engaged shafts on either side of the doorways and in the oriels at the west end of Edward IV's Great Hall, which still stands. In plan, No. 12 does not exactly match No. 13. If No. 12 was part of a base with only three facets, then clearly two shafts are represented. If, however, it was part of a base with five facets, the two fragments could have been part of a single shaft whose facets were not symmetrical. From layer G30, demolition layer inside the king's apartments.

13. As above. From layer G30, demolition layer inside the king's apartments. The composite section drawing to the right of No. 13 shows the appearance of a shaft base reconstructed from the two fragments. (Fig. 17).

14. Fragments of upper greensand window tracery. From a 20th-century disturbance at the dais end of Bishop Bek's Great Hall.

15. Fragment of tracery, probably from a blind arcade. From layer A3/2, backfill of the underground strongroom. (Fig. 18).

16. Ashlar with a border of ivy leaf decoration. From layer 2, topsoil.

17. Bottom of upper greensand shaft with foliate border. The sculpted foliage is very abraded, but appears to represent ivy leaves, as in No. 16. From layer 2, topsoil.

18. Fragment of a trough. From layer 2, topsoil (Fig. 19).

19. Fragment of attached shaft with frontal roll moulding and projection at the back for keying the shaft into the wall. From layer 2, topsoil.

20. Column drum. From layer G15, 20th-century disturbance at southern limit of site.

21. Chip of ashlar with hollow chamfer. From layer G34, the demolition layer inside Bishop Bek's Great Hall.

22. Fragment of string course. From layer D106, a demolition layer of the chaplain's house.

23. Corner piece of a string course. In footing G212, so presumably it came from Bishop Bek's Great Hall, which was demolished just before footing G212 was constructed.

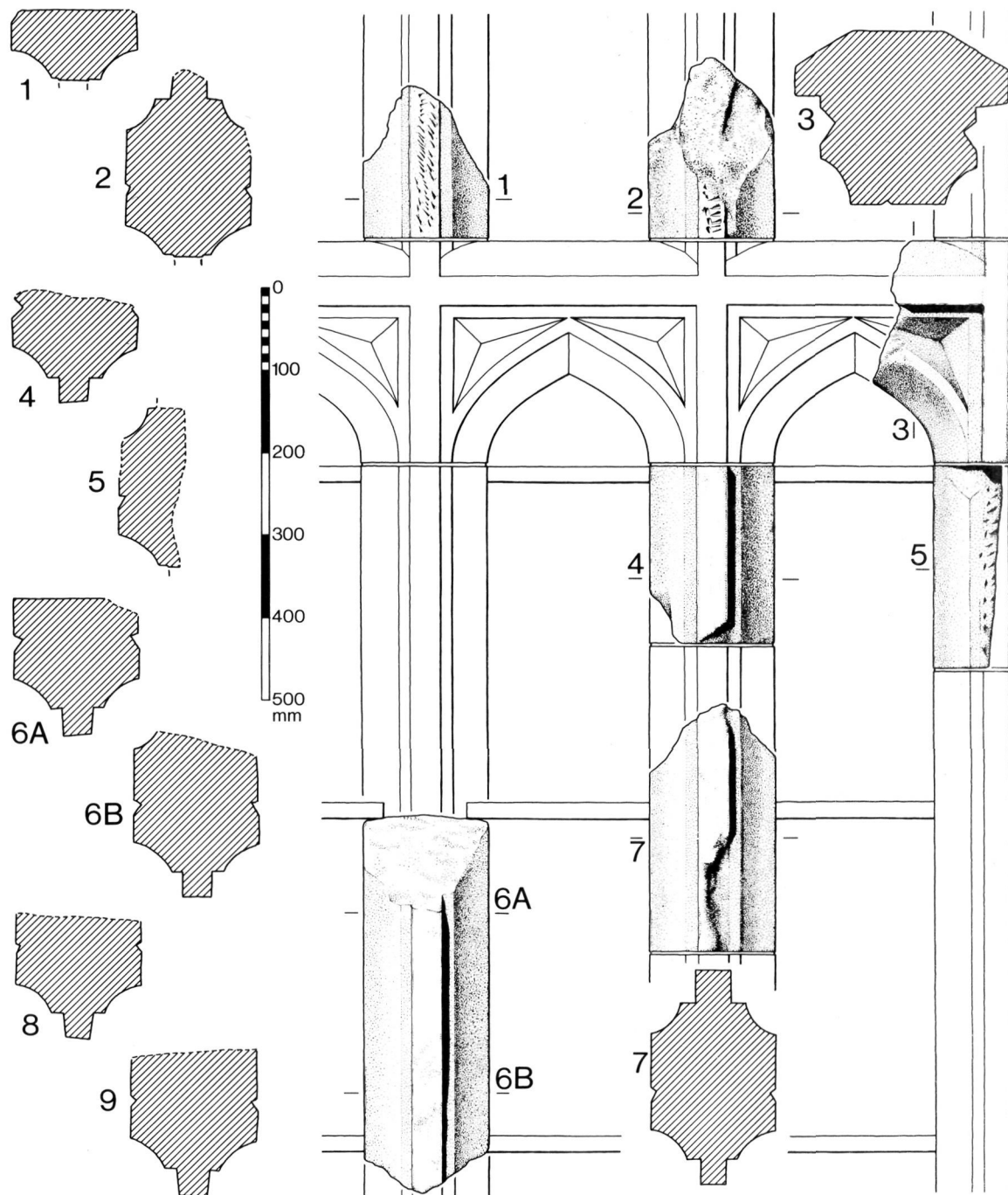


Fig. 14. Eltham Palace: Reconstruction of a window probably from the north gable end of the king's apartments (1/8).

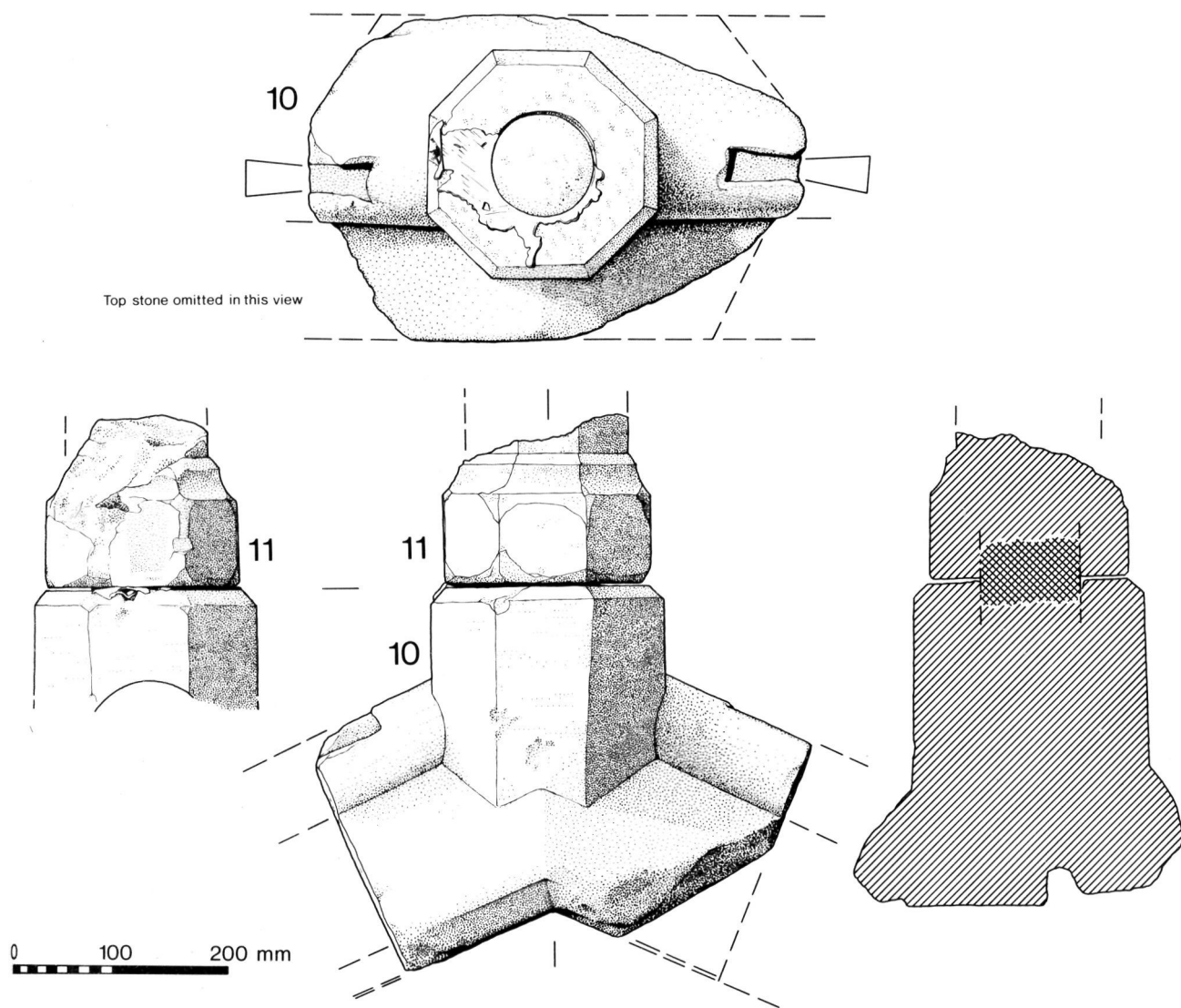


Fig. 15. Eltham Palace: Gable finial from the chaplain's house (1/6).

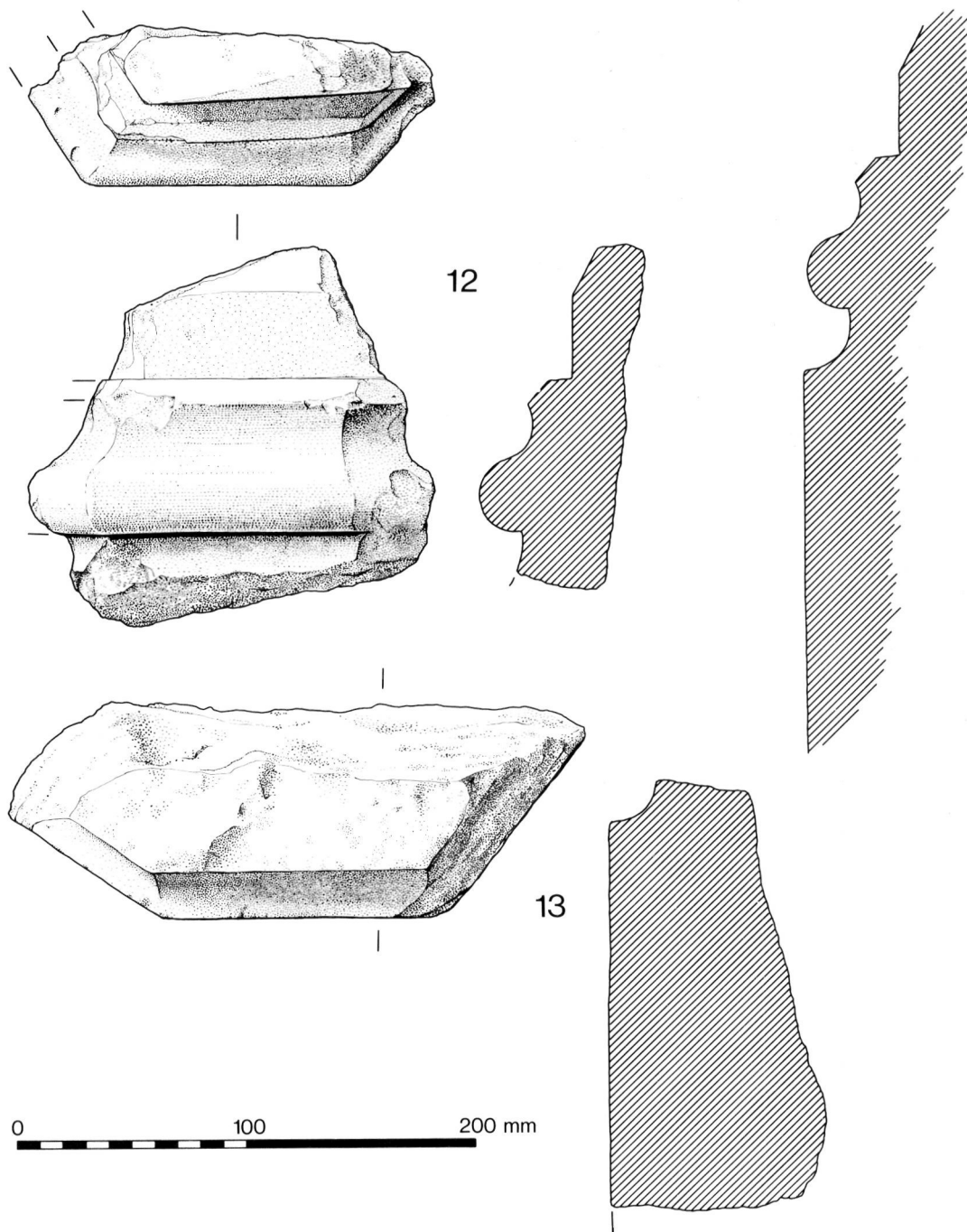


Fig. 16. Eltham Palace: Fragments of shaft base from the king's apartments, and a composite reconstruction of a complete base (1/3).

24. Fragment of drip mould. From layer A4/3, backfill of doorway into the underground strongroom.

25. Fragment of drip mould. From layer B35, the construction trench for a brick drain leading from the south-west tower of Henry VIII's chapel under the king's apartments to the moat.

26. Fragment with wedge-shaped end and right-angled recess. From layer A3/2, backfill of the underground strongroom.

27. Fragment of a scroll. From layer A4/7, backfill of the doorway into the underground strongroom.

STUCCO

(Figs 20-21)

Eleven fragments of stucco were recovered from layers A3/1, A3/2, and A3/3, all layers of backfill of the underground strongroom immediately west of Henry VIII's chapel.

They must represent parts of an internal frieze, but it has not been possible to reconstruct the appearance of this frieze, as the fragments do not join. They are therefore published without textual description of the individual pieces and illustrated without numbers.

Two of the fragments have not been illustrated because they are small pieces of which much larger pieces bearing the identical designs have been recovered and illustrated.

The relief, composed of a rather gritty buff plaster averaging 10mm high, has been applied to a thick, coarse, buff-coloured plaster matrix. On one of the pieces (top left, Fig. 20), the fingerprints of the craftsman are

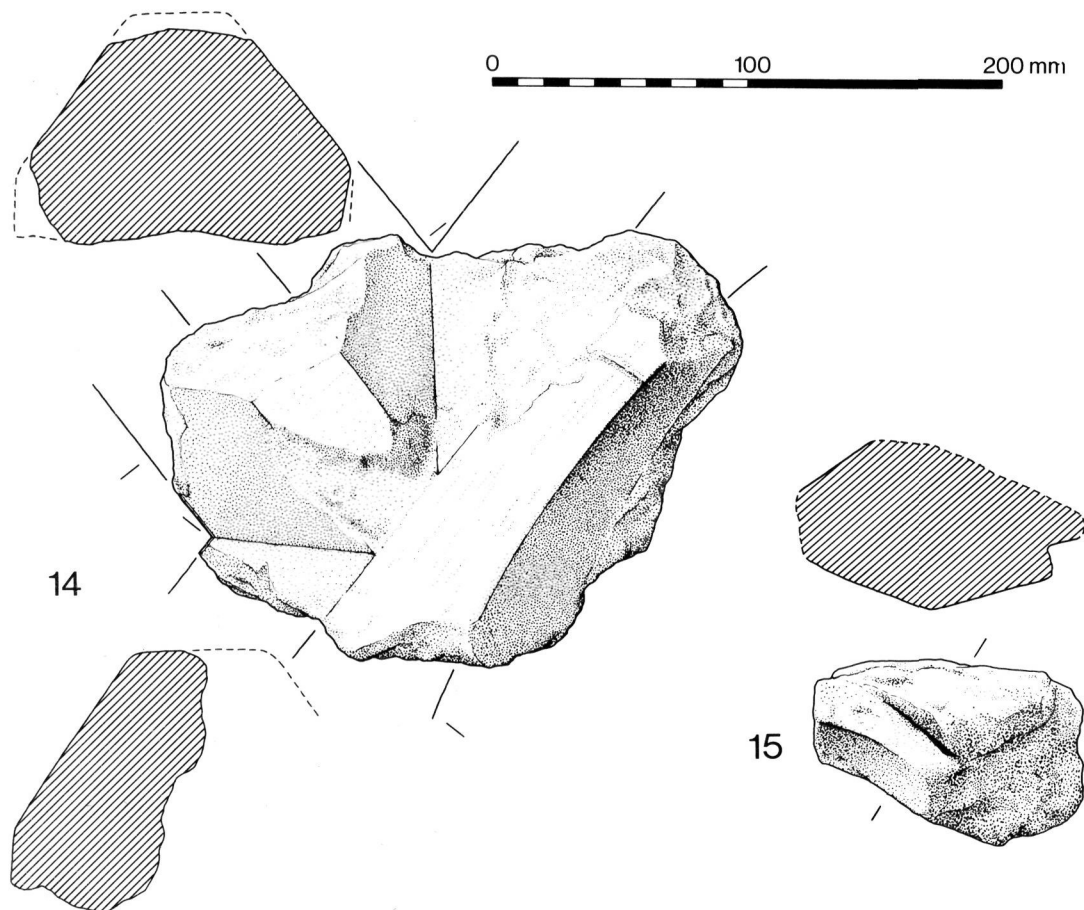


Fig. 17. Eltham Palace: Fragments of moulded stone (1/3).

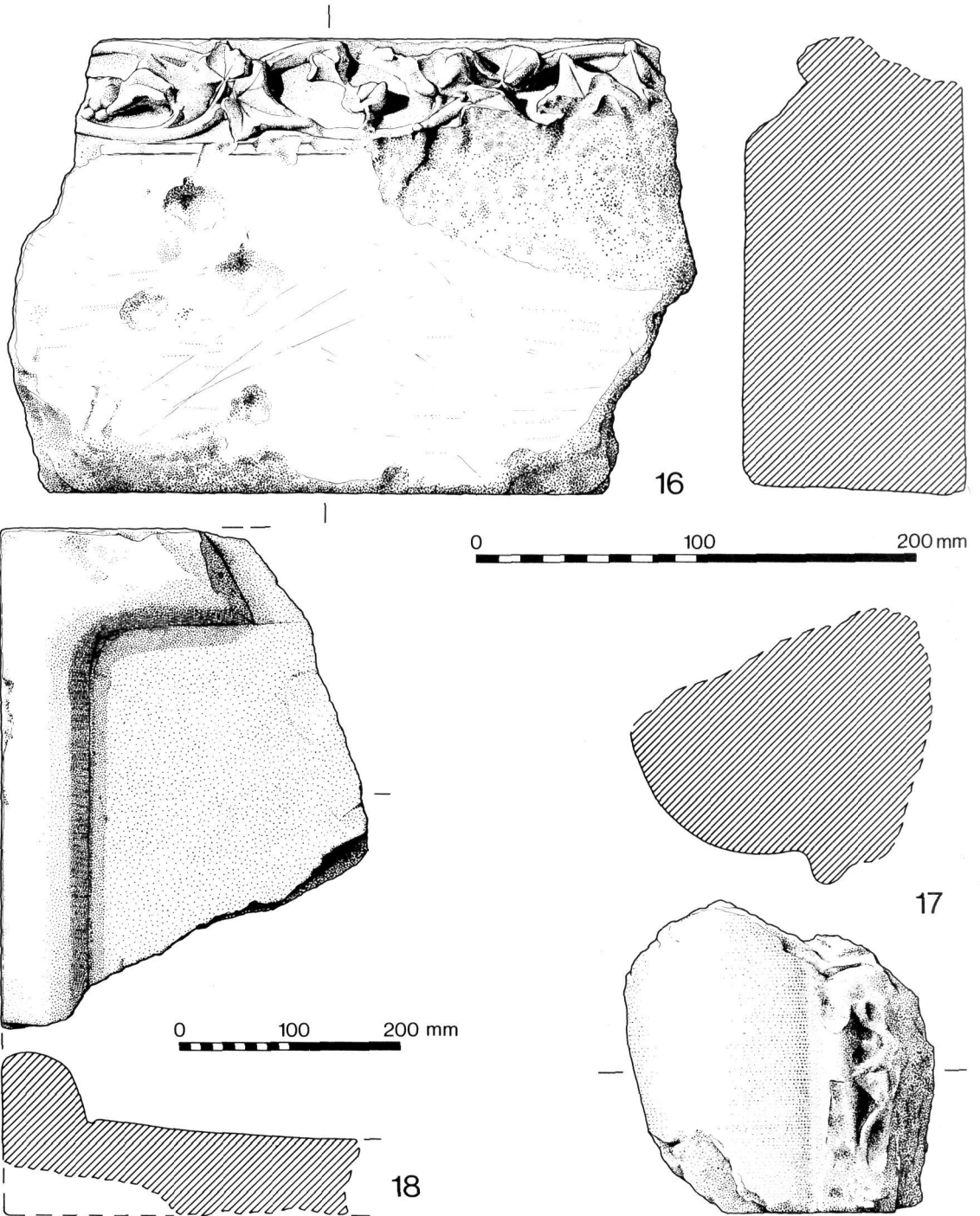


Fig. 18. Eltham Palace: Fragments of moulded stone (1/3 except No. 18, 1/6).

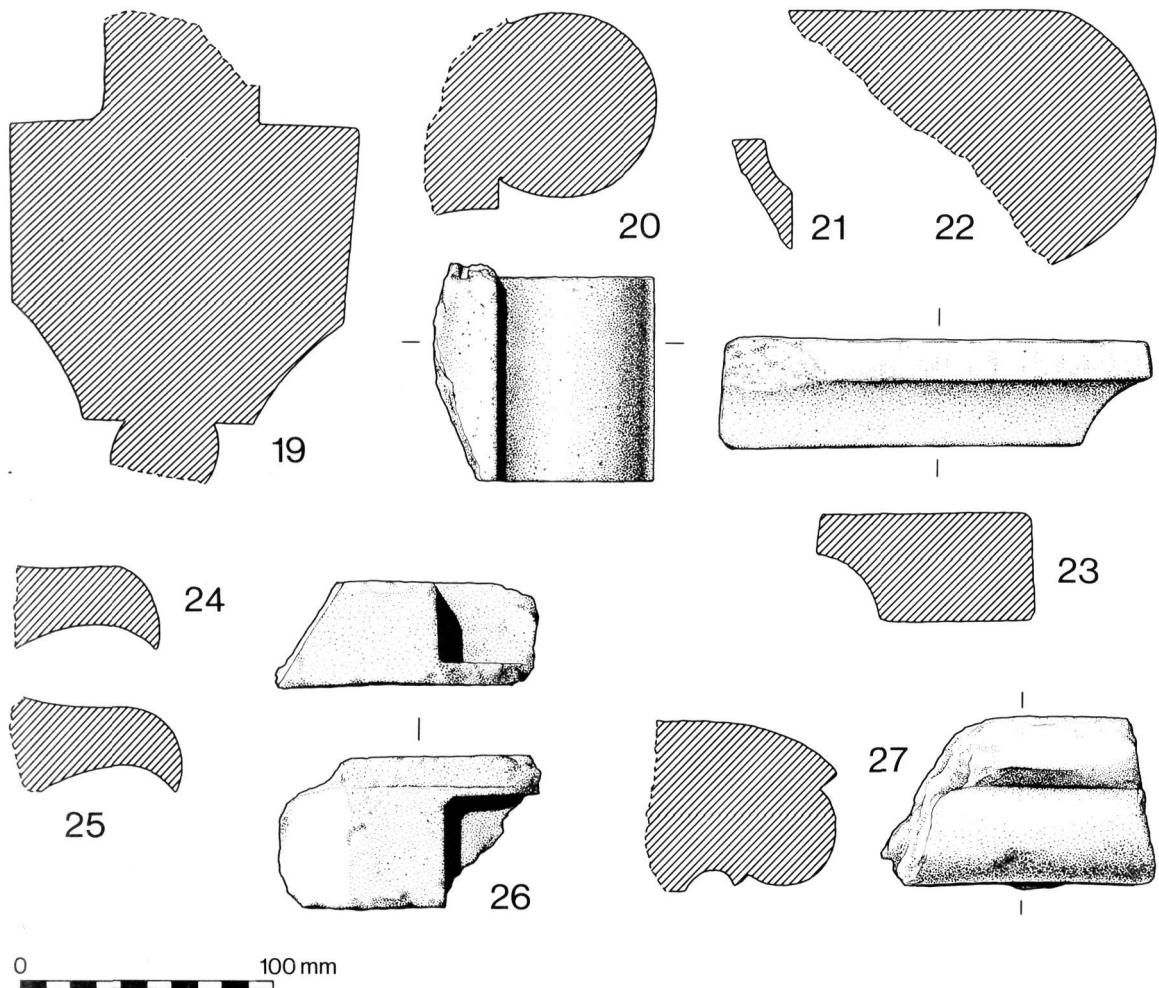


Fig. 19. Eltham Palace: Fragments of moulded stone (1/3).

clearly visible on the relief work, where he has pressed this onto the matrix.

The most likely provenance for this frieze is, as for the window illustrated in Fig. 14, the northern end of the king's apartments, whose gable stands almost directly over the underground strongroom.

In general style the designs are typical of the Early Renaissance period and the frieze must date to the reign of Henry VIII.

Similar stucco work was recovered during the excavation of Henry's palace at Nonsuch in Surrey (Biddle 1961, 9-10). The Eltham

stucco, however, is much finer in both design and execution, and must be the work of a different hand.

LEAD LEAVES (Figs. 22-23)

Thirteen decorative leaves of sized and gilded lead were recovered. All except one came from the backfill of the brick bases of the choir stalls. The exception came from the backfill of the garderobe in one of the chambers of the king's apartments.

The leaves have been cast in a mould. They

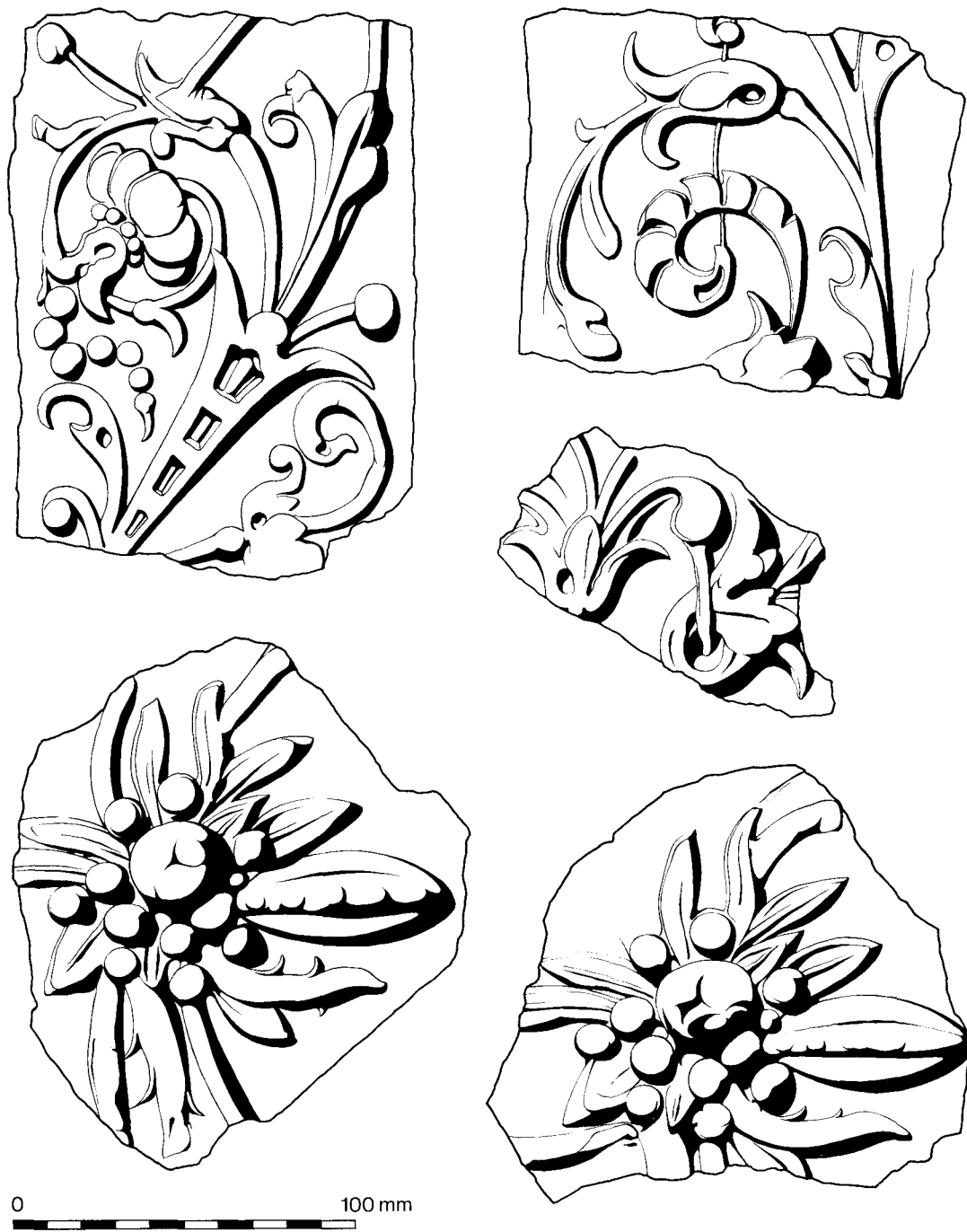


Fig. 20. Eltham Palace: Fragments of stucco (1/2).



Fig. 21. Eltham Palace: Fragments of stucco (1/2).

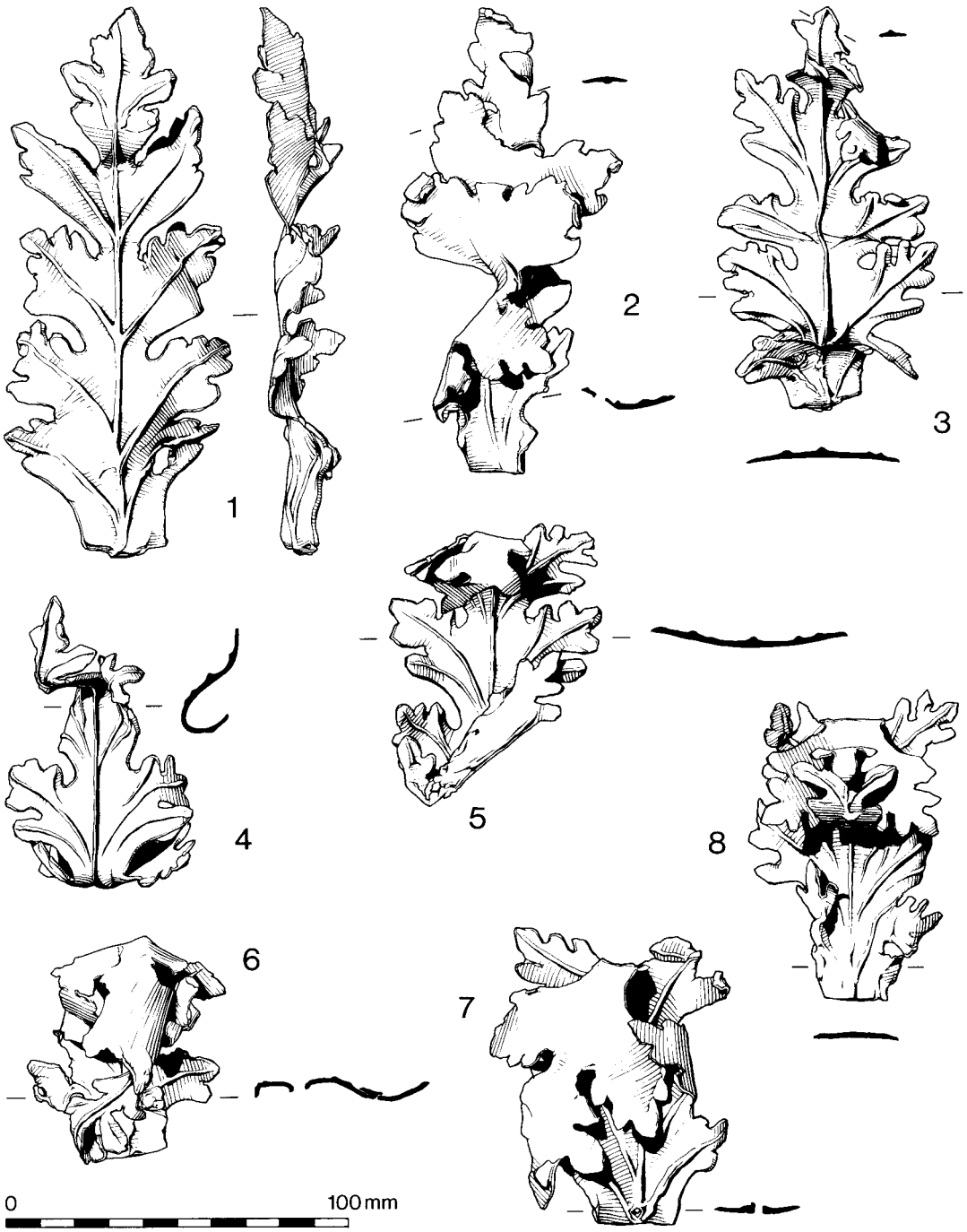


Fig. 22. Eltham Palace: Lead leaves (1/2).

have rivet holes, and in some cases surviving rivets, at the base, presumably for attachment to the choir stalls, or in the case of the example recovered from a garderobe, to the wainscoting.

Nos. 1-8 are more or less identical. Nos. 9-12 appear to be fragments of the same design—oak—as all the others with the exception of No. 13. The design of No. 13 does not resemble the leaf of any English tree known to the author, but the plumber may not have been English.

Most of the pieces are bent to a greater or lesser degree, some being completely doubled over. In conserving them, no attempt has been made to straighten them out. They have been conserved and are illustrated as found.

MORTAR OF PURBECK MARBLE WITH PIERCED HANDLES

By the late G. C. Dunning

(Fig. 24)

The fragments comprise: part of the rim and side, with upper end of a handle; small piece of rim; and lower part of handle and part of base (two pieces joining).

The rim has an outside diameter of about

8.4ins.; it is hollowed on top, as often on this type (Clarke and Carter 1977, 326-7, Fig. 148). The side of the bowl is faceted and tooled obliquely. The spacing allows for three facets between the handles and the lugs at the front and back.

Only two mortars of this type are complete to the base: unprovenanced, in the Department of Medieval and Later Antiquities, British Museum (Reg. No. O.A.35); and from Wintringham, Hunts., (G.T.M. Beresford excavations). On both the base is moulded, and that of the Eltham Palace mortar has been restored accordingly.

The pieces of side handle show that they extended from rim to base, and curved markedly outwards from the bowl. Thus the hole was rather larger than on other examples of this type. The lower part of the handle splays considerably to merge into the base. The surface of the handle is carefully smoothed and polished.

Mortars of Purbeck marble with pierced handles, regarded as early in the series from this source, have been found in thirteenth-century contexts at Winchester (inf. Mr M. Biddle and Mr D. Smith). The early dating is confirmed by the evidence from Eltham Palace.

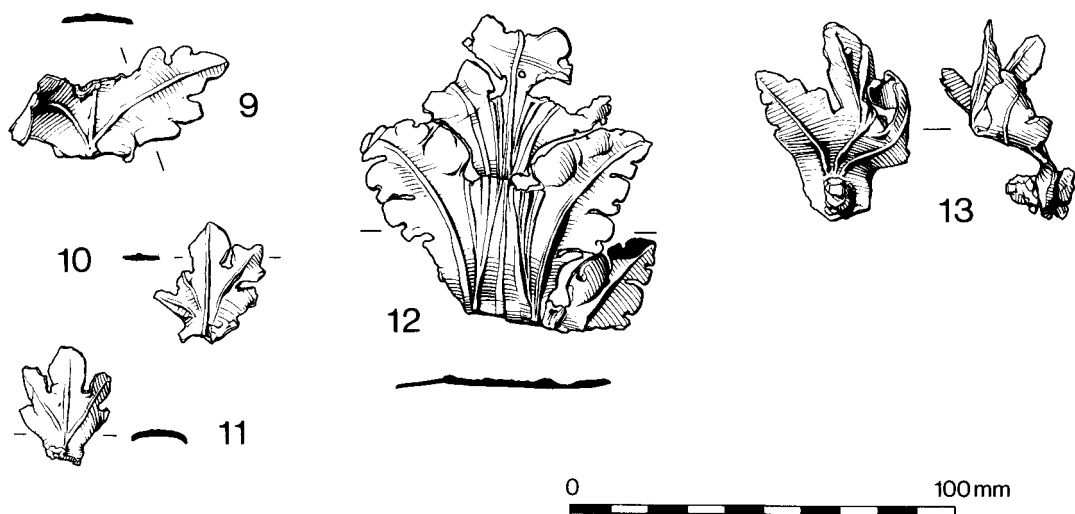


Fig. 23. Eltham Palace: Lead leaves (1/2).

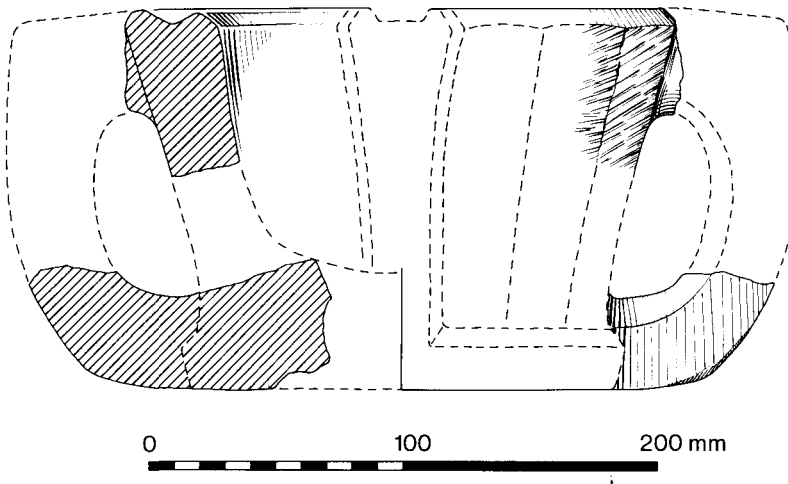


Fig. 24. Eltham Palace: Purbeck marble mortar (1/3).

SMALL FINDS

(Fig. 25)

SILVER

1. Star-shaped object with rivet at back. From layer F 36/2, dumped clay overlying the demolition layer within Bishop Bek's great hall.

GILT BRONZE

2. Decorative fitting from a book cover. Rouletted decoration and gilding on face. Broad end doubled over to protect the edge of the book. Two rivet holes at this end. Trilobe edge at narrow end, where a single rivet survives. From layer C119, the construction trench for footing C88, at the west end of Henry VIII's chapel.

3. Domed stud, shank bent. Traces of gilding on the dome. From layer D78, demolition layer within the chaplain's house.

BRONZE

4. Pen with nib at one end and spoon at the other. The shaft is hollow. From layer C45, earth overlying the clay backfill of Bishop Bek's cellar.

5. Instrument formed of three pointed bronze strips. The three strips are attached by a single rivet. From layer G148, dumped clay over the demolition layers inside Bishop Bek's great hall. Late 15th century.

6. Hinged clasp, perhaps from a book. The hinged attachment is at the front of the object, and has a rivet hole near the hinge. The back end of the object has a loop on its underside. The back end is now doubled over on itself, and the hinged attachment is also doubled back. The bronze is tinned. From layer G178, a surface cut by the garderobe of the final Henrician phase. Early 16th century.

7. Book boss with two rivets surviving, and holes for two further rivets. From layer F106, a demolition layer inside Bishop Bek's great hall.

(Fig. 26)

8. Decorated hollow domed stud. From layer A4/4, backfill of the doorway into the strongroom at the west end of Henry VIII's chapel.

9. Chape from the upper end of a leather dagger sheath (Medieval Catalogue 1940, 192, Fig. 59). Cusped edges with incised decoration. The holes are probably decorative rather than for rivets. One rivet surviving at the back and a hole for another. From layer F177, ground make-up under the king's apartments built by Edward IV. Late 15th century.

10. Buckle. From layer G19, surface associated with greenhouses overlying Tudor king's apartments.

11. Fragment of strap-end buckle of pronged type (Medieval Catalogue 1940, Pl. LXXV, No. 2). From layer F90, surface associated with Tudor king's apartments.

12. Dress fastening (*cf.* Sherlock and Woods forthcoming, Fig. 23, No. 64). From layer A14, ground surface associated with the tower at the north-west corner of Henry VIII's chapel.

13. Dress fastening, similar to above but without surviving hooks. From F22, a 20th-century disturbance cut into the demolition layers inside Bishop Bek's great hall.

14. Dress pin with drawn stem and head of coiled wire. From layer A14, ground surface associated with the tower at the north-west corner of Henry VIII's chapel.

15. Dress pin. From layer D106, a demolition layer of the chaplain's house.

16. Boot lace tag. From layer C119, the construction trench for footing C88 at the west end of Henry VIII's chapel.

17. As above, but smaller. From layer D16, a demolition layer within the chaplain's house.

18. Fragment of a belt chape with raised decoration. Rivet hole at one end. The chape is broken across the rivet hole and also at the other end. From layer E52, a

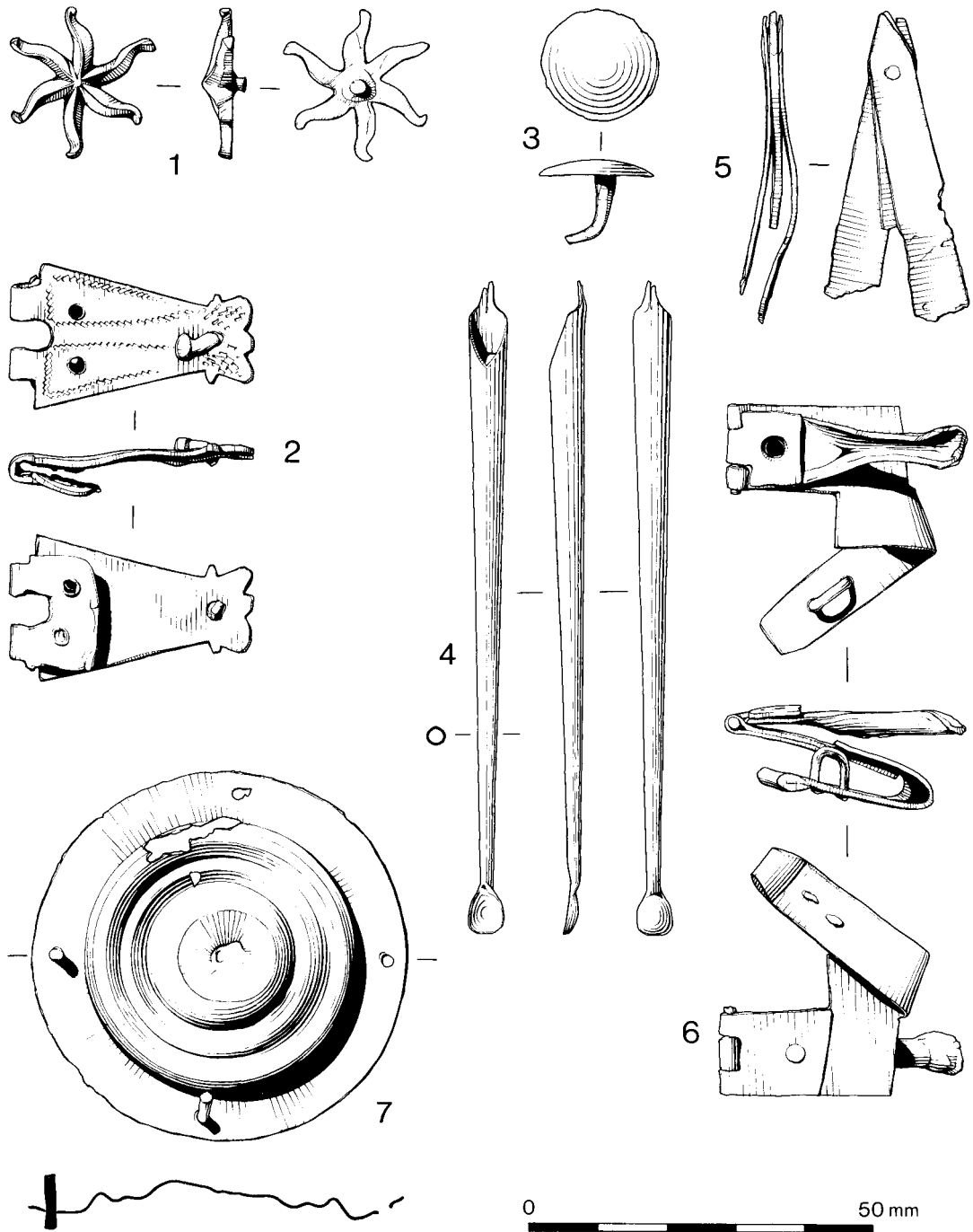


Fig. 25. Eltham Palace: Small finds, objects of silver, gilt-bronze and bronze (1/1).

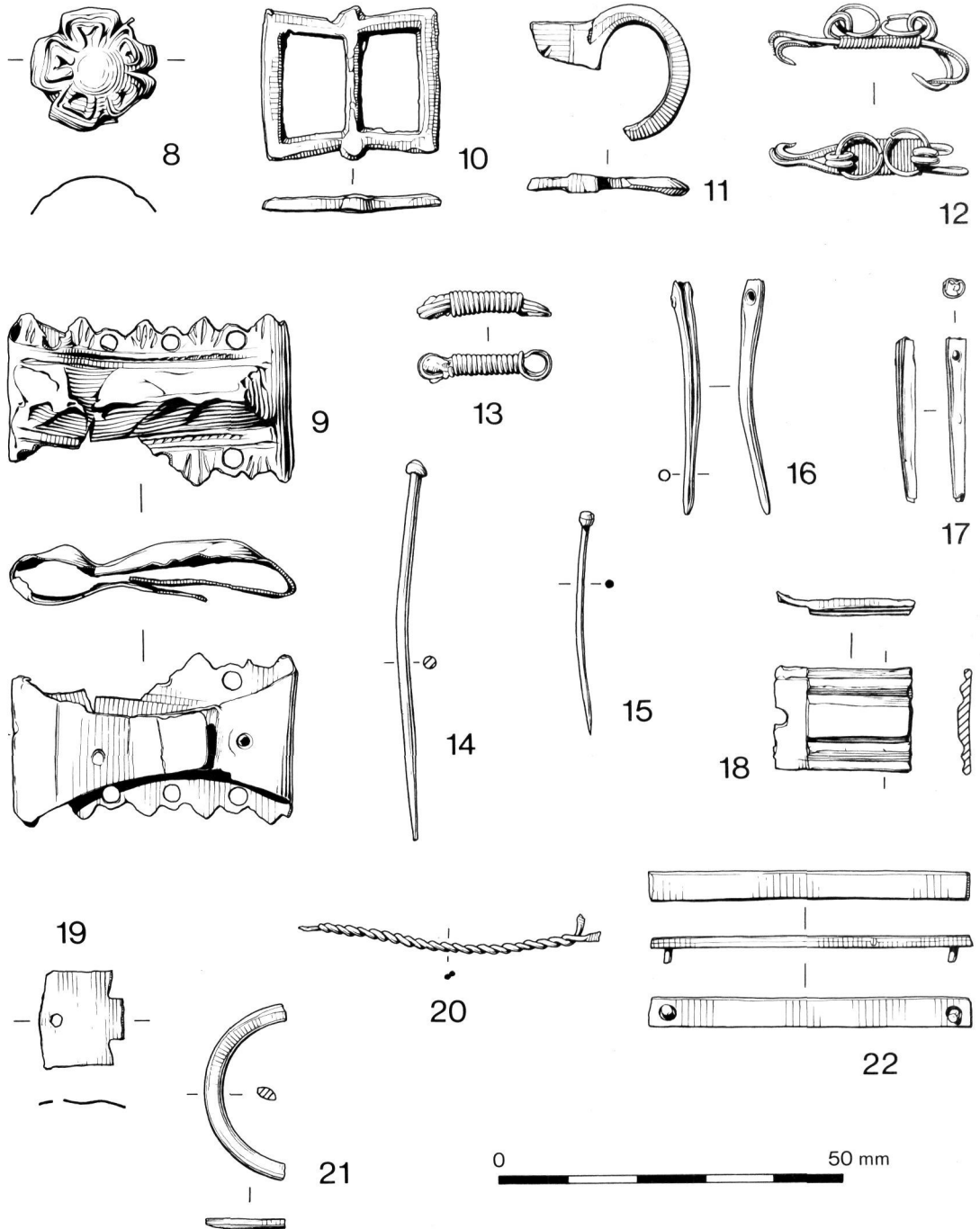


Fig. 26. Eltham Palace: Small finds, objects of bronze (1/1).

ground surface associated with the east end of Henry VIII's chapel.

19. Fragment of sheet with rivet hole. From layer A4/8, backfill of the doorway into the underground strongroom at the west end of Henry VIII's chapel.

20. Coiled wire (*cf.* Sherlock and Woods forthcoming, Fig. 23, Nos. 61 and 62). From layer B35, the construction trench for a brick drain leading from the south-west tower of Henry VIII's chapel under the king's apartments to the moat.

21. Fragment of curtain ring. From layer E13, 20th-century disturbance at south-east corner of Henry VIII's chapel.

22. Riveted strip. From layer C90, the dumped clay backfill of Bishop Bek's cellar.

(Fig. 27)

IRON

23. Rondel dagger in leather sheath, which is carried up under and around the guard. Grip and cylindrical pommel of wood. Remains of a bronze end cap where the tang protrudes from the pommel. A green stain round the girth of the pommel shows that it was encircled with a bronze band. On one side of the sheath a piece of leather survives which may be a belt attachment. The guard is convex in profile. The point of the dagger is missing. From Dr Donald Strong's excavations, found in a garderobe attached to the north-west tower of Bishop Bek's perimeter wall, but not contemporary with Bek's wall.

24. Spearhead, socketed (*cf.* Medieval Catalogue 1940, Pl. XVI, No. 1). From layer F152, ground make-up under the king's apartments built by Edward IV, but the spear head is probably of earlier date.

25. Arrow head, socketed (*cf.* Medieval Catalogue 1940, Fig. 16, No. 9). From layer F106, a demolition layer inside Bishop Bek's great hall.

26. Arrow head from a socketed hunting arrow. The open flanges are not barbed, so it was designed to be withdrawn after killing. From layer F173, ground make-up under the king's apartments built by Edward IV.

27. Socket from an arrow. The head is missing. From layer D147, layer of backfill in the well sealed under the north wall of the chaplain's house.

28. Harness buckle. From layer D135, a rubbish pit. Early 13th century.

(Fig. 28)

29. Key. From layer G184, the demolition layer of the Phase II chalk building.

30. Key, in three pieces which do not join. From layer D42, a demolition layer associated with the chaplain's house.

31. Knife blade, tip missing, part of tang surviving. From layer D173, a ground surface cut by the late 12th-century turf building in area D.

32. Knife. From layer D76, dumped clay sealing the 13th-century ground surface west of the chaplain's house. Early 14th century.

33. Knife, blade broken. From layer D34, a demolition layer of Henry VIII's chapel.

34. Fragment of blade and whittle tang of knife. Brass inlay on blade; and applied brass plate surviving on the top of the tang. From layer A4/4, backfill of the doorway into the underground strongroom at the west end of Henry VIII's chapel.

35. Knife with brass shoulder-plate attached with a single brass rivet, and brass end cap. Bone handle attached with three iron rivets. From layer D81, a ground surface associated with the chaplain's house.

36. Knife with scale tang and broken blade. The tang, which is incomplete, has three tubular brass rivets surviving. From layer E22, demolition layer overlying the south wall of Henry VIII's chapel.

37. Fork, with bone handle. The handle is secured to the scale tang with two rivets, and is decorated with incised lines. From layer G1, topsoil.

38. Part of a horseshoe, with three nail holes. From layer E23, a demolition layer associated with the south wall of Henry VIII's chapel.

39. Part of a horseshoe, with three nail holes. From layer D82, a ground surface associated with the chaplain's house.

(Fig. 29)

40. Strip with four rivet holes. From layer D106, a demolition layer of the chaplain's house.

41. Pintle for a door. From layer C103, the ash overlying the pebble floor of Bishop Bek's cellar.

42. Fragment of a hinge-plate, with a single nail head surviving. From layer E23, a demolition layer associated with the south wall of Henry VIII's chapel.

43. Staple. From layer D198, a ground surface cut by the late 12th-century turf building in area D.

44. Hook. From layer G184, the demolition layer of the Phase II chalk building.

45. Wall hook. From layer F42, a demolition layer inside Bishop Bek's great hall.

46. Hook. From layer A4/4, backfill of the doorway into the underground strongroom at the west end of Henry VIII's chapel.

47. Hook. From layer A3/10, backfill of the underground strongroom at the west end of Henry VIII's chapel.

48. Looped object, possibly part of a chain. From layer E2, topsoil.

49. Nail with wood adhering. Shank broken. From layer D69, the choir stalls in Henry VIII's chapel.

LEAD

(Fig. 30)

50. Lead alloy méreau, with crude design in relief on one side only. From layer A108, the construction trench for the east wall of the queen's apartments. Late 15th century.

51. Weight, with suspension lug at the top. From layer F57, clay surface associated with the final phase of the king's apartments under Henry VIII.

52. Window came. From layer G141, backfill of the garderobe of the final phase of king's apartments under Henry VIII.

BONE

53. Ring seal, with initials JW. Two small holes on

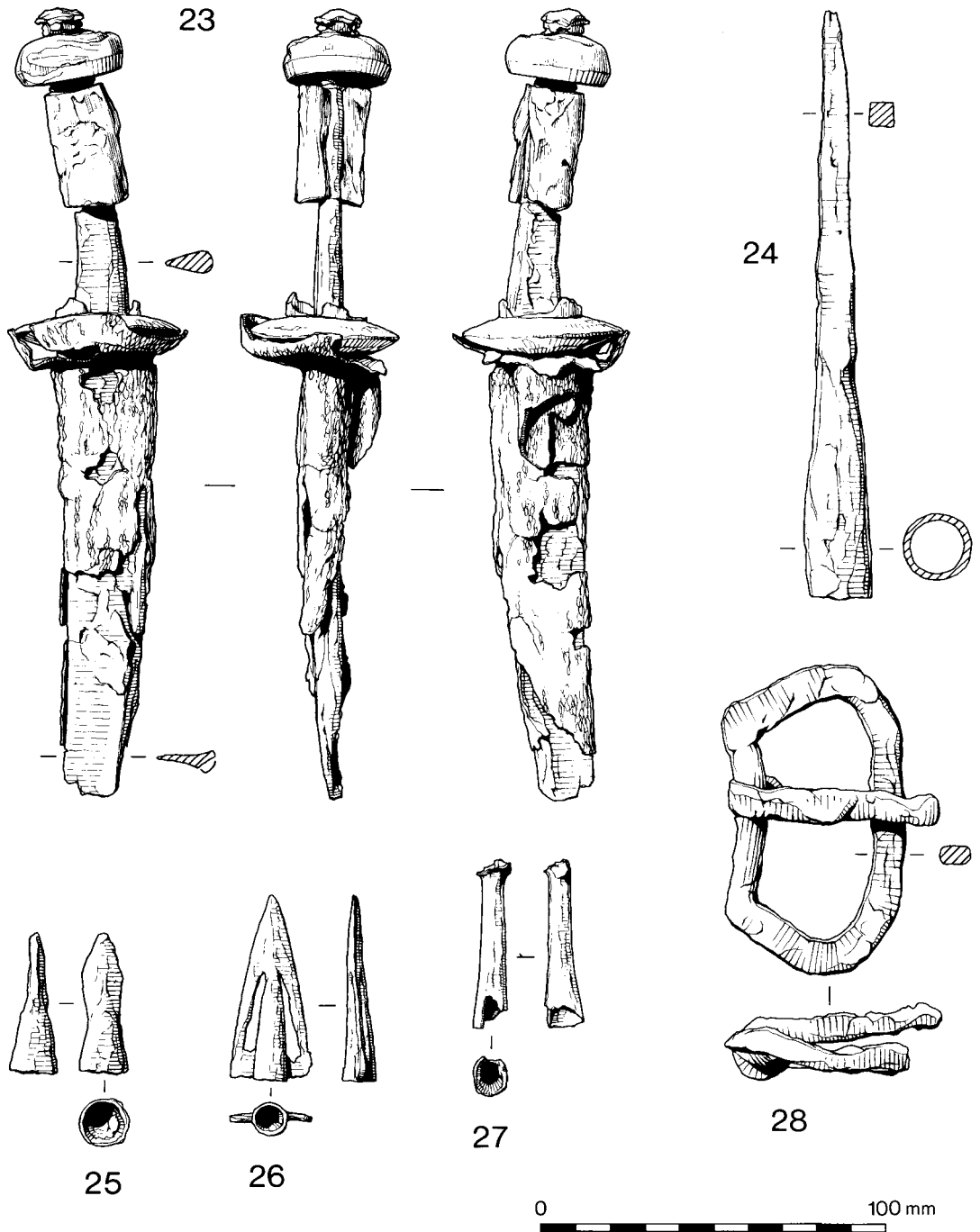


Fig. 27. Eltham Palace: Small finds, objects of iron (1/2).

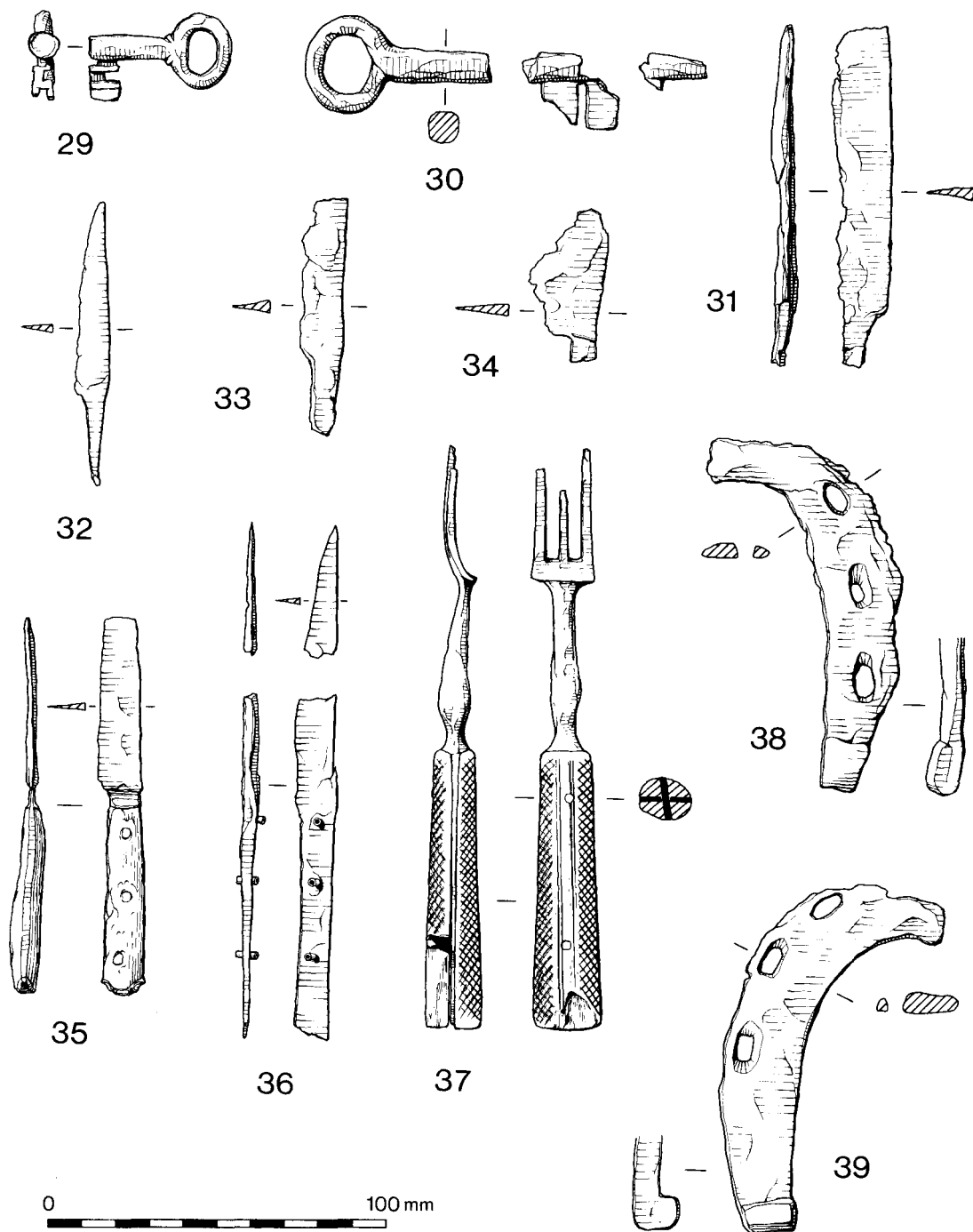


Fig. 28. Eltham Palace: Small finds, objects of iron (1/2).

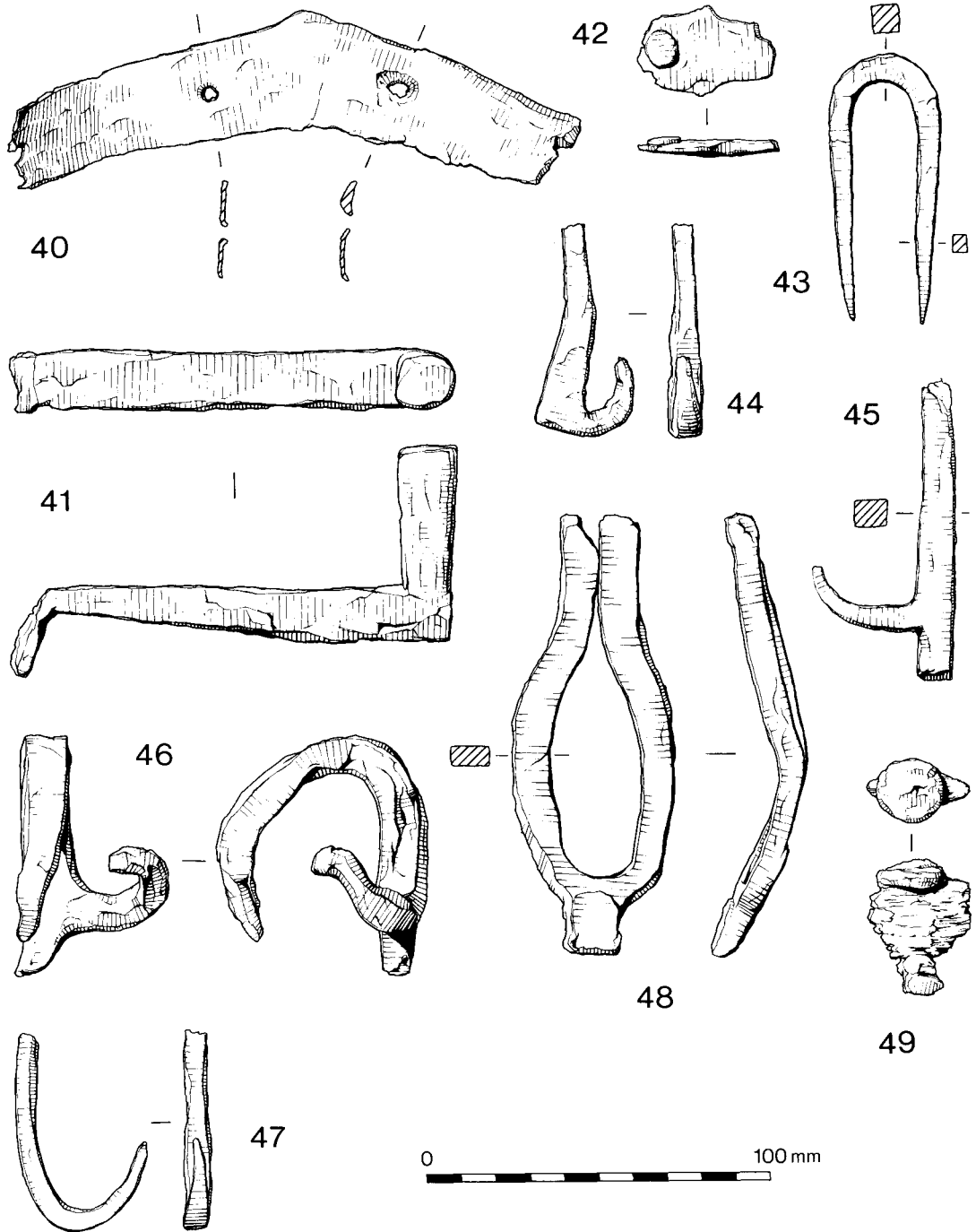


Fig. 29. Eltham Palace: Small finds, objects of iron (1/2).

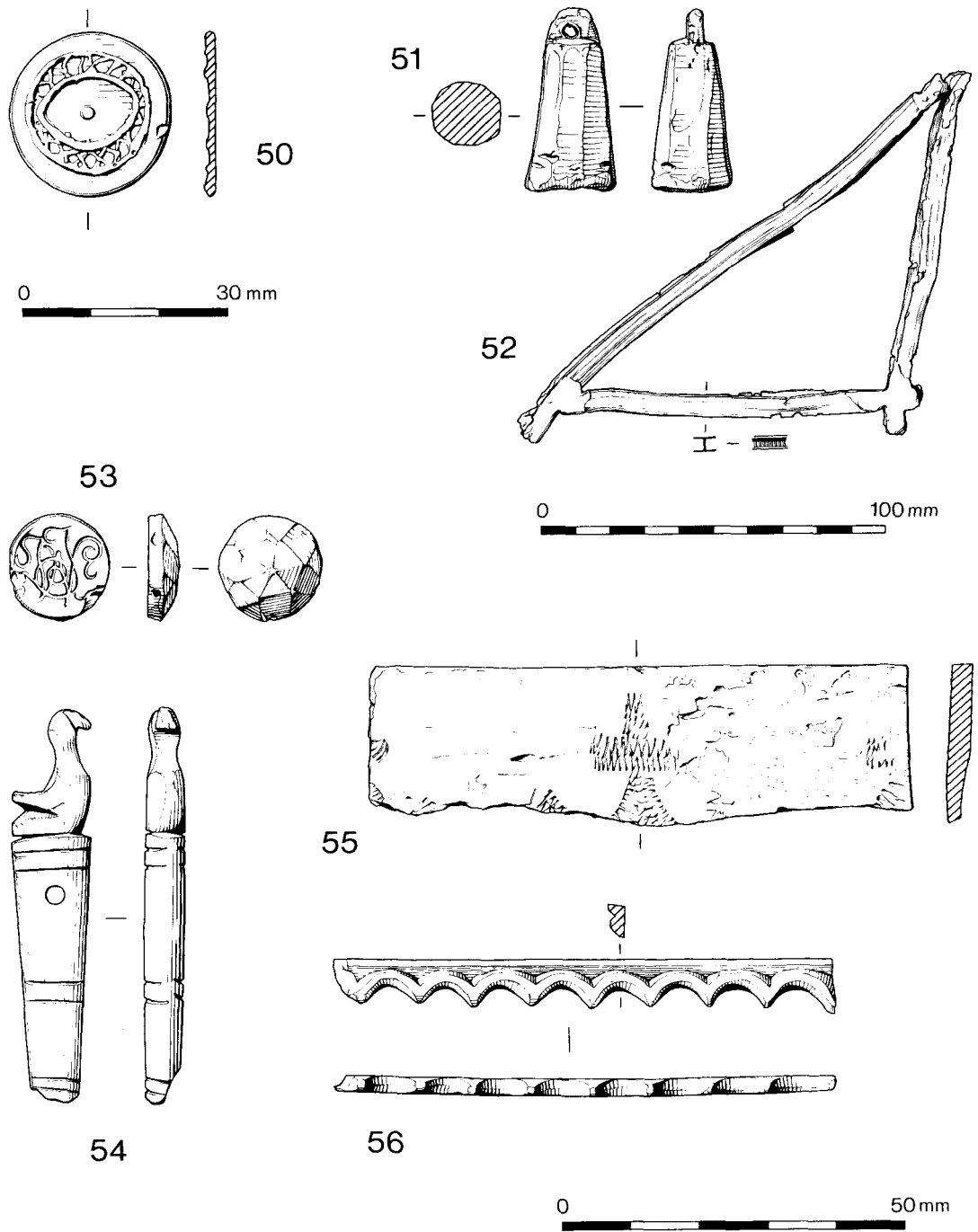


Fig. 30. Eltham Palace: Small finds, objects of lead and bone (1/1 except Nos. 51 and 52, 1/2).

either side for the clasps. From layer E30, a demolition layer at the east end of Henry VIII's chapel.

54. Handle with bird at one end, the other end broken. Circular perforation for suspension, perhaps from a belt. From Dr Donald Strong's excavations, unstratified.

55. Part of a casket. Three edges intact, the fourth broken away. Incised design of a crown of which the central terminal is clearly visible, and the tips of three other terminals—two to the left and one to the right—are just visible above the break. From layer G30, the demolition layer overlying the Tudor king's apartments.

56. Decorated strip, probably a border for a casket. From layer A4/1, backfill of the underground strongroom at the west end of Henry VIII's chapel.

(Fig. 31)

57. Decorated stick, sawn at both ends. From layer D106, a demolition layer of the chaplain's house.

58. Similar to the above, but without the decoration. Sawn at one end, broken at the other. Also from layer D106.

59. Similar to Nos. 57 and 58, but heavily burnt. Broken at both ends. Also from layer D106.

60. Peg, possibly for a game. From layer C78, backfill of ventilation shaft in north wall of Bishop Bek's cellar.

ACKNOWLEDGEMENTS

The excavations at Eltham Palace between 1975 and 1979 were carried out by a small number of professional archaeologists and a large number of volunteers. The names of the volunteers do not appear in the account ledgers of the Department of the Environment, so it is a pleasure to thank them here. They were: Mark Baker, Richard Buchanan, Andrew Bullivant, Nigel Crisp, Alan Curtis, Les Grimsley, Dave Hall, Ray Martin, Susan Parker, Ted Slater, Judith Slutzky, Jean and Albert Smith, Ruth and Paul Verrall, Roger West and Derek White.

For their co-operation and hospitality I should like to thank Colonel Naylor, Commandant of the Army Institute of Education at Eltham Palace from the beginning of the excavations until the end of the third season; and his successor Colonel Kirby, Comman-

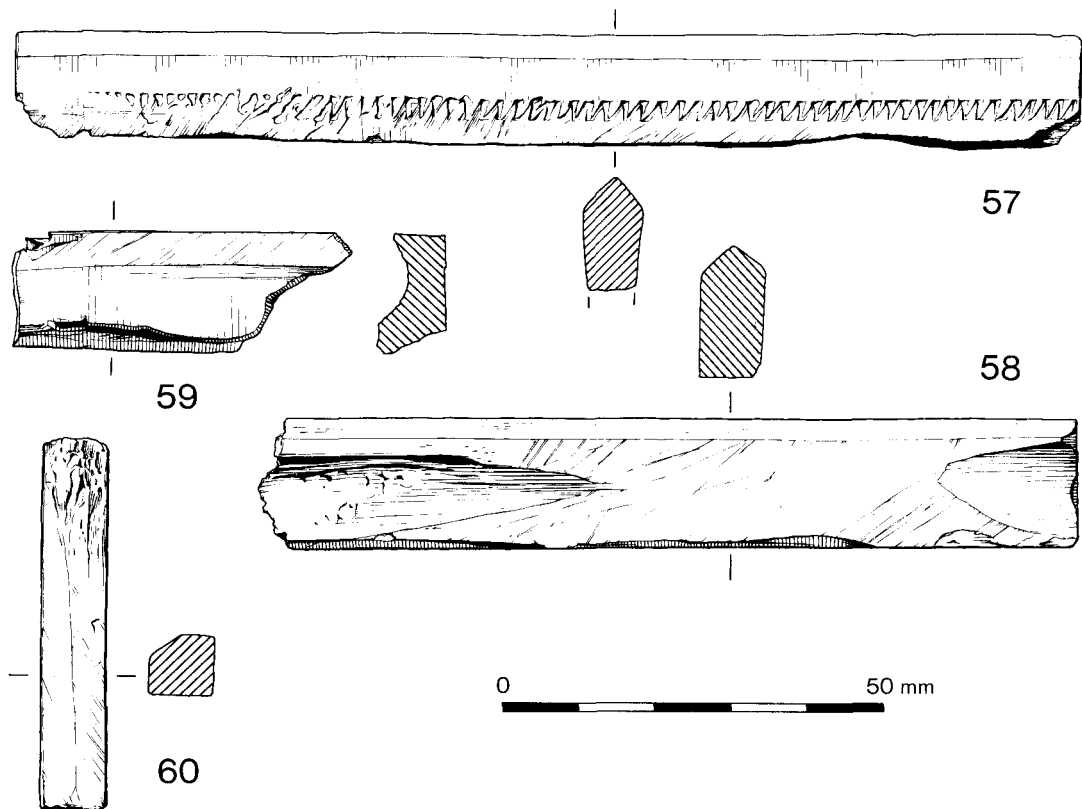


Fig. 31. Eltham Palace: Small finds, objects of bone (1/1).

dant during the 1979 season. I should also like to express my gratitude to the Mess Secretary, Lt. Colonel Gladstone, for his unfailing courtesy and assistance.

Among my professional colleagues special thanks are due to Mr Clive Orton, Miss Elizabeth Platts and the late Mr Stuart Rigold for examining and dating the pottery. I owe to them all ceramic dates given in this report. Mr Rigold also examined and dated the numismata from the site. Mrs Carole Keepax, Mrs Alison Locker and Mr M. A. Monk analysed and reported on the environmental remains, and Dr Helen Keeley the soils. Dr F. W. Anderson identified the stone of which the mortar reported on by the late Dr G. C. Dunning was made.

The published site drawings are the work of Mr David Honour from original drawings by Mr Stuart Glen, Mr Christopher Guy, Mr Brendan Murphy, Mr Christopher Russell-White, Mr Michael Webb and Mrs Jennifer Woods. The drawings of the moulded stone, stucco, lead leaves, and small finds are also the work of Mr Honour. The marble mortar was drawn by Mr James Thorn, and the floor tiles were drawn by Mrs Jennifer Woods.

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NOTES

1. PRO E101/502/15.
2. The two drawings together with the evidence of the 1975-79 excavations also form the basis for the figure of Eltham Palace used in Brown *et al.* forthcoming. A version of Thorpe's survey is published in Strong (1958).
3. Woods (1977) 108. The sequence of design numbers published in this note has been retained.
4. I am indebted to Mark Horton, who has made a survey of remaining medieval tiles in Kent for the Census of Medieval Tiles, for supplying this information that he has found no other identical tiles in the county.
5. The numbers in brackets are the catalogue numbers and design numbers of the British Museum tiles in Eames (1980) Vols 1 and 2.
6. The tiles from Lesnes Abbey in the British Museum decorated with designs incorporating the same motifs as four Eltham designs, all on smaller c. 100mm square tiles, are numbered in Eames (1980) as follows:
Eltham 2 Lesnes (1224-6 design 2369)
Eltham 3 Lesnes (1229 design 2321)
Eltham 4 Lesnes (1227-8 design 2123)
Eltham 5 Lesnes (1204 design 2006)
7. This widespread group is discussed in Eames (1980) Vol. 1, 207-8.

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