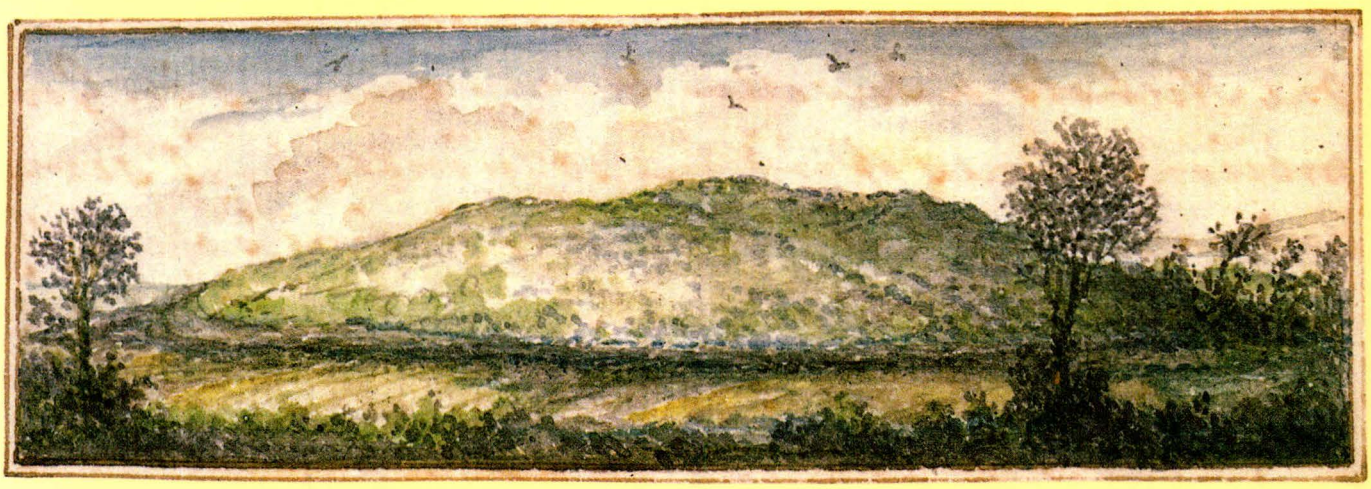
THE EXCAVATION OF A CEREMONIAL SITE AT

FOLLY LANE, VERULAMIUM

ROSALIND NIBLETT



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BY

Rosalind Niblett

With contributions by Sarah Adamson, Denise Allen, Joanna Bird, Nigel Brown, Brenda Dickinson, Jennifer Foster, Val Fryer, Rowena Gale, Brian Gilmore, Stephen Greep, Kay Hartley, Martin Henig, Robin Holgate, Alison Locker, Malcolm Lyne, Don Mackreth, Richard Macphail, Simon Mays, Peter Murphy, Peter Northover, Richard Reece, Valery Rigby, James Steele, Isobel Thompson, David Williams, David W. Williams and Patricia Wiltshire

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Rosalind Niblett

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Finally, but not least, I must thank my husband, Robert, who has been a tower of strength throughout the life of the project, and my son Edward for sorting out the idiosyncrasies of my computer.

SUMMARY

The site at Folly Lane lay 0.5 km north-east of the Roman town of Verulamium. The site was sporadically occupied in the first millennium B.C., *and by the early first century* A.D. *it formed part of the late, pre-Roman Iron Age oppidum of Verlamion. A substantial ditch was dug across the site, just below the break in slope on the edge of the plateau, and to the north of it were traces of domestic occupation, and a possible ritual focus. In the mid-first century* A.D., *the late Iron Age ditch and the occupation associated with it were replaced by a large rectilinear, ditched enclosure with a single entrance facing south-west towards the river. Ten metres east of the centre of the enclosure was a large shaft containing remains of an elaborate funerary chamber. Traces of a pyre site were found 10 m north-west of the shaft, and shortly after* c. *55* A.D. *a high status cremation burial had been placed on the north-east edge of the shaft. The funerary chamber was then destroyed, and both shaft and burial were covered by a substantial deposit of gravel and turf. This had probably extended above ground level to form a barrow or turf stack. The pyre site was marked by a post, and subsequently overlain by a Romano-Celtic temple, probably erected in the early Flavian period. The surrounding enclosure ditch continued to be maintained until the later second century, and during the second and third centuries a large number of deep shafts, many of them apparently votive in character, were dug on the lower slope of the valley side, south of the enclosure ditch. These shafts appear to have been associated with a cult of the skull. In the later second and third centuries the Folly Lane site formed part of a larger ceremonial complex which included the Branch Road bath house, the Verulamium theatre and the Romano-Celtic temple in* insula *XVI of Verulamium. In the later third century the importance of the site declined. The Enclosure ditch ceased to be maintained, ritual pits were no longer dug, and the lower slope was used for agricultural and industrial activities. The temple may have been deliberately demolished. In the late Roman period a hollow-way developed in place of the earlier road from Verulamium to Colchester, and timber buildings were erected on its western side. Occasional finds of early and middle Saxon pottery suggest that occupation continued at a low level for several centuries.*

PART ONE

THE EXCAVATION: PERIODS 1–4

By ROSALIND NIBLETT

INTRODUCTION

Verulamium lies on the outskirts of St Albans, Hertfordshire, 30 km north-west of London (FIG. 1*a*). The area covers the western edge of the Vale of St Albans which occupies a broad belt of boulder clay and glacial gravels stretching from the Thames, north past Hertford. North and west of St Albans, the Chiltern dip slope forms a gently sloping plateau overlain by clay-with-flints. The clay-with-flints deposit was formed by weathering of the underlying chalk and gives rise to heavy, acid soils. In the St Albans area, however, the clay-with-flints only outcrops on the valley slopes, where it forms a relatively shallow skin. On the upper slopes the clay-with-flints is overlain by fluvio-glacial sands and gravels, while the valley floors are covered by deposits of alluvium and river gravels. The valley floor was marshy until comparatively recent times, but elsewhere the land is well drained. The Romano-British town of Verulamium was established on the southern slope of the river Ver, which rises in the Chilterns, 6 km north-west of St Albans; 6 km south of the town it joins the river Colne near Park Street which then runs south, ultimately draining into the Thames at Staines. A number of dry valleys run into the Ver valley, more or less at right-angles to it, dissecting the plateau to form a gently undulating landscape. Changes in level are not pronounced: the maximum difference between the valley floor and the plateau edge in the immediate area is less than 50 m.

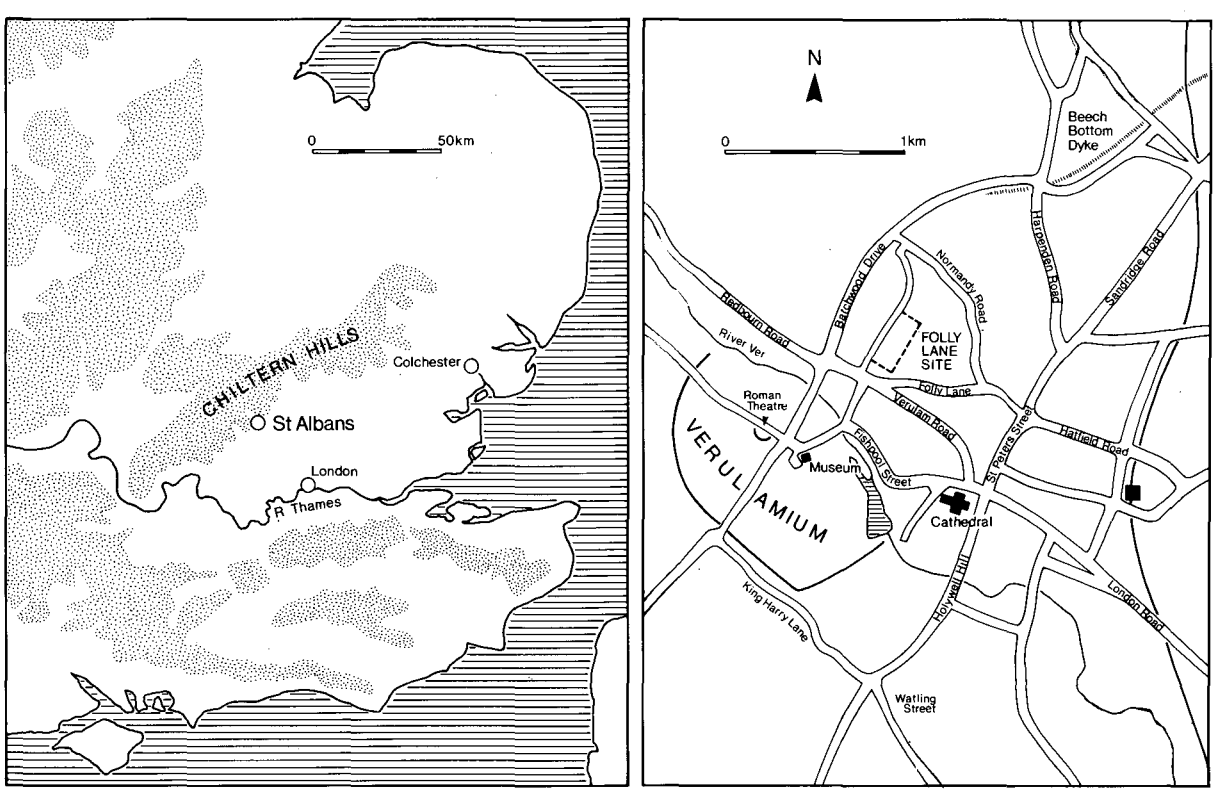


FIG. 1. *a*. Location map of St Albans; *b*. The Folly Lane site in relation to the modern town.

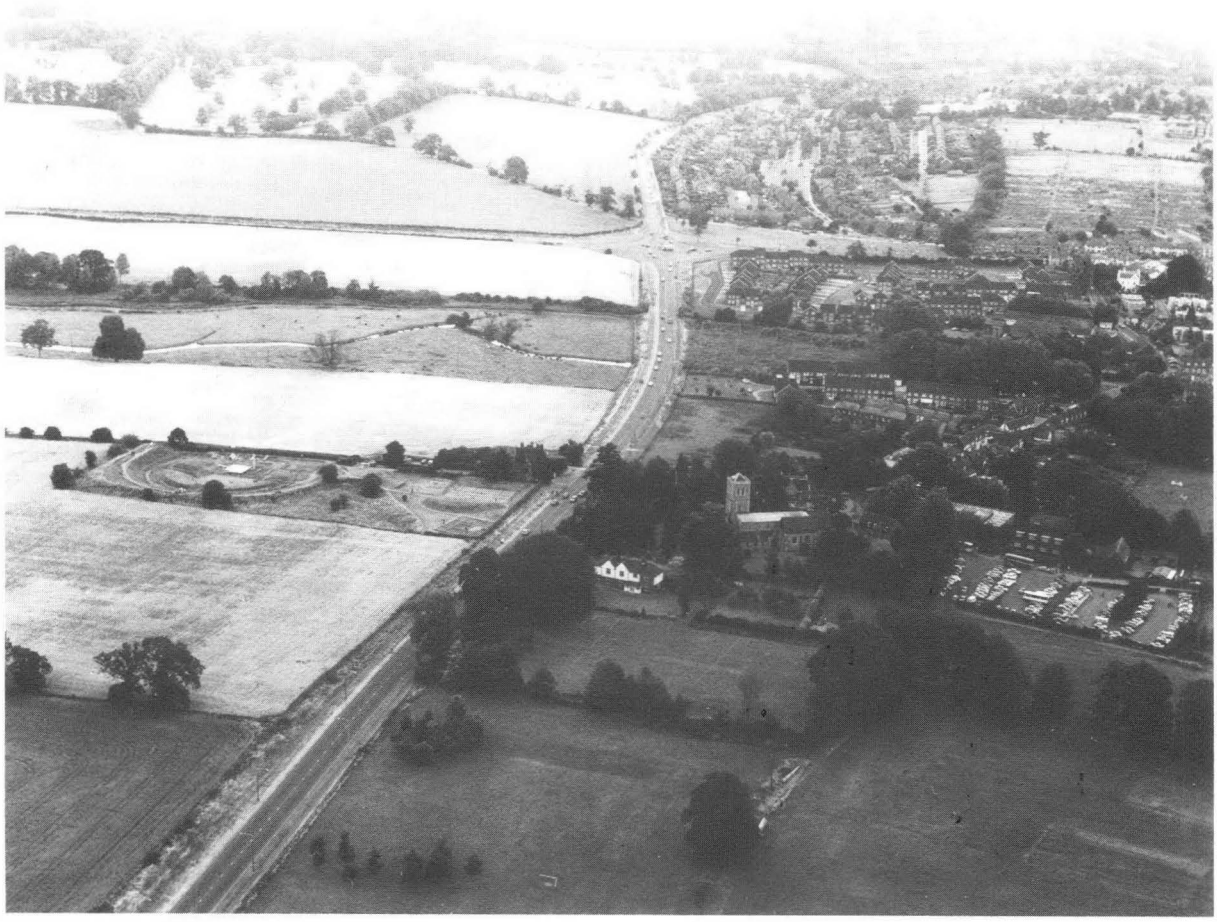


PLATE I. The Folly Lane site and the centre of Roman Verulamium. The site occupied the area of allotment and field at the top right-hand corner of the photograph. St Michael's church (centre) overlies the Forum; the Roman theatre is on the left.
Photograph: St Albans Museums.

The excavations that form the subject of this report were undertaken at intervals between 1991 and 1993. They were rescue operations in the face of imminent housing development over 4.5 ha (11 acres) of allotments on the north slope of the river Ver, opposite the site of Verulamium, and 500 m outside the north-east gate of the town (PL. I). The site lay on the north-west side of Folly Lane, which runs from the centre of present day St Albans to join the A5183 road to Redbourn 1 km west of the town centre (FIG. 1*b*). As with other large-scale rescue excavations in the District, preliminary assessment of the site took place, augmented by observation (wherever possible) of topsoil in the cultivated allotments, aerial photography and geophysical surveys. Observation of the topsoil produced a small quantity of weathered Romano-British pottery sherds and roofing tile from the south-eastern end of the site, but an aerial survey carried out in the summers of 1988 and 1990 failed to reveal any archaeological features.

PRELIMINARY WORK

The site had been used for allotments for over a century and was littered with large quantities of scrap metal, corrugated iron and assorted rubbish. A magnetometer survey was attempted[1] but was abandoned due to the distortion caused by the amount of scrap metal on the site. A resistivity survey was also conducted on the southern part of the site, and this traced the line of the main Colchester road for a distance of some 30 m from the southern boundary of the site; other features were not detected and in the light of subsequent events this was probably due to the extremely dry conditions prevailing at the time. In the early spring of 1991 a ground sensitive

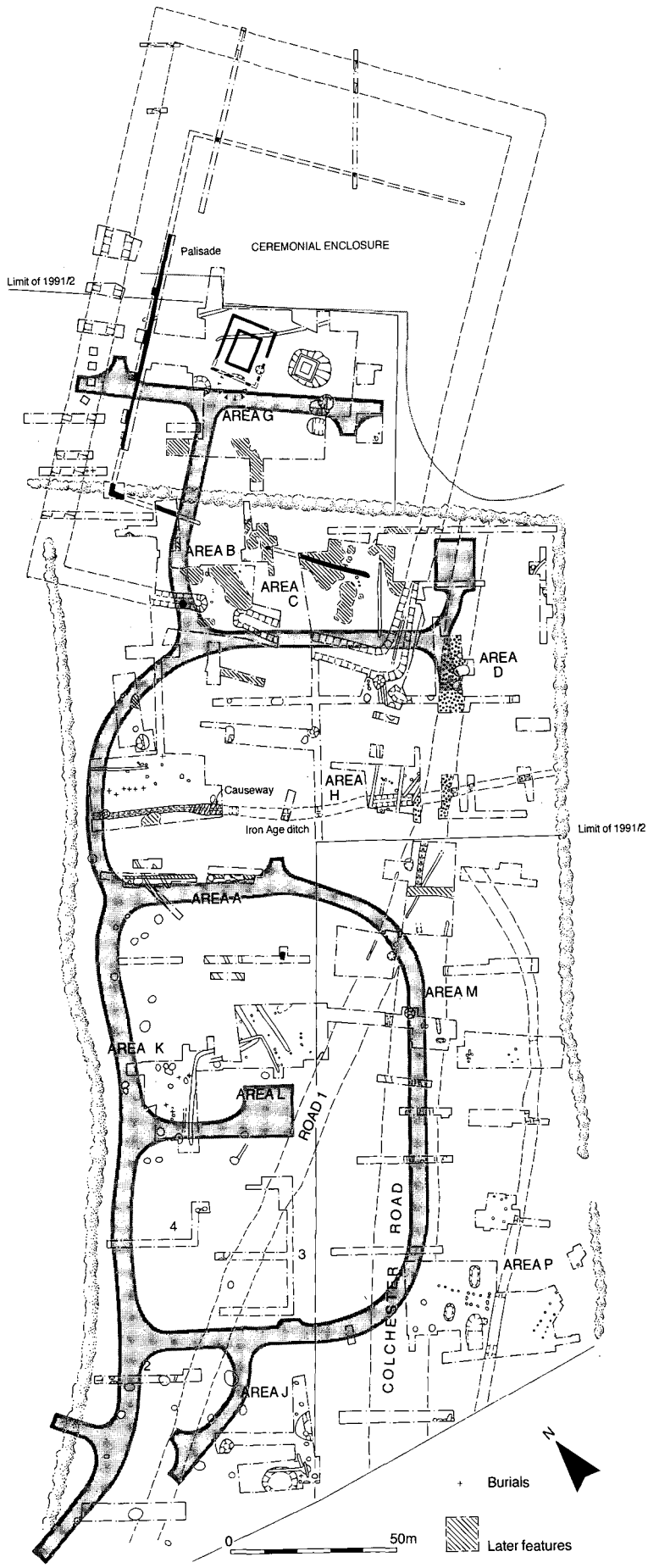


FIG. 2. The Folly Lane excavations 1991–3.

radar survey was undertaken over the entire site,[2] with the exception of area G, which, at that stage in the planning process, was due to be retained as an open space. The radar survey revealed a large number of separate anomalies forming no regular pattern over much of the site, with traces of large ditches in areas A, B and C (FIG. 2).

In April and May 1991 a number of trial trenches were excavated in areas A, B, C, J and K where the geophysical survey had revealed clusters of anomalies. At the time the proposed development did not extend beyond the hedgerow north of areas B and C, so no trial trenches were dug here. Elsewhere the trial trenches revealed a number of deep shafts dating to the second century A.D., a large ditch in areas B and C, a smaller ditch in area A, and a Roman road surface in areas C and K. In the light of these results a full-scale rescue excavation was commenced in September 1991, which was extended to area G in December 1991 when it became clear that this area also would be built over. Building work commenced at the beginning of April 1992 whereupon archaeological excavations ceased, although a watching brief was maintained throughout the building operations. In May 1993 planning permission was given for additional development on the south-east part of the site in areas M, P and R, and a further programme of rescue excavations was undertaken here in May and June 1993. Here again a watching brief was maintained on the subsequent building work.

EXCAVATION STRATEGY

Neither time nor resources allowed for a total excavation of the entire 4.5 hectares (11 acres) covered by the development. Consequently, except in instances where excavation was crucial to the understanding of the site, it was decided to concentrate on those areas and deposits that would be destroyed by the proposed building work. Within this overall strategy priority was given to excavating areas where archaeological deposits were likely to survive best. For these reasons the following areas of the site were not examined in any detail.

1. The area north of area B and south of area G which lay beneath an established hedgerow that was to be retained in the proposed development.
2. Areas D, E, F and the southern side of area H which would be predominantly gardens or open spaces.
3. A band of sand across the site in areas B, C and G, above the 80 m contour which had been extensively quarried in the post-medieval period.
4. Many of the pits and shafts encountered on the excavation were in excess of 3 m in depth. Some at least of these appear to have been wells, in which case they would have been approximately 15 m deep in order to penetrate the water table. The developers decided that they would 'cap' all these deep pits. The deposits in them would therefore be preserved undisturbed, and the decision was taken not to expend the very considerable resources required in time and money for their full excavation.

EXCAVATION TECHNIQUE

The allotment soil was removed mechanically using a wheeled JCB, operated by an experienced driver working under close supervision. The underlying deposits were then hand excavated, with the exception of the lower fills of some deep pits which were dug out mechanically and the archaeological material retained. A small section from the upper fill of the main enclosure ditch in area C was also removed mechanically under close supervision, and the excavated soil sifted. Apart from these exceptions, normal methods of hand digging were employed, and the deposits recorded on context sheets using a single context recording system. In selected contexts the entire deposit was removed to the Museum Resource centre and wet sieved through 5 mm and 3 mm sieves. Core samples were taken from three pits, and from the funerary shaft at the centre of the Ceremonial Enclosure. Dumps of excavated soil were checked with metal detectors.

The varied character of the drift geology across the site produced subsoils that ranged from a stiff orange clay to loose sand or gravel. When first excavated the surface of the subsoil often appeared to be devoid of archaeological features, and it was only after the cleaned surface had been allowed to 'weather' for a few days (the length of time varied according to season and

weather conditions) that archaeological features could be detected. Conversely, features that at first appeared to be slots, pits, or postholes, frequently turned out to be simply the result of natural variations in the subsoil.

The funerary shaft

When first discovered the size of this feature suggested it was a natural feature, possibly deliberately filled in. The south-eastern side of it was hand dug to a depth of 1.5 m but produced no archaeological material, at which point the possibility that it was a swallow hole (which are not uncommon in the area) prompted concern about the safety of the excavation, and hand digging ceased. The developers decided it would not be feasible to re-site the proposed housing, or to 'cap' the feature. Consequently, in view of the imminent destruction of the shaft, core samples were taken, and a mechanical excavator was used to remove between 0.5 and 1.8 m filling from the rest of the shaft, under close archaeological supervision. The excavated material was spread on one side of the shaft, and examined. As soon as remains of timber were observed at a depth of 1.8 m mechanical excavation ceased and the remaining fill was excavated by hand. As the excavation progressed, the mouth of the shaft was cut back in the interests of safety.

PHASING SUMMARY

The features excavated on the site have been ascribed to eight periods stretching from the the middle Bronze Age to the early Saxon period. The phasing scheme is shown below (FIG. 3), and is dated by pottery and other associated material.

Period 1: Prehistoric

Flint debitage and pottery, usually surviving as rubbish in later features, suggest there was occasional occupation, particularly on the upper slope, from the second millennium B.C.

Period 2: Late first century B.C. to mid-first century A.D.

A late pre-Roman Iron Age ditch ran east–west across the site just below the break in slope at the edge of the plateau. North of this ditch, gullies 1–3 delimited a late pre-Roman Iron Age occupation site, of which structure C1 and (possibly G2) were a part.

Period 3: Mid-first century A.D.

The late pre-Roman Iron Age ditch was filled in, structure C1 was destroyed and a large Ceremonial Enclosure was laid out surrounding a funerary shaft, remains of a pyre and a cremation burial. Road 1a linked the Enclosure entrance with the site of Roman Verulamium on the other side of the river Ver.

Period 4: Later first century to mid-second century A.D.

Pits were dug in the terminals of the Ceremonial Enclosure ditch. It is possible that the Romano-Celtic temple north-west of the funerary shaft was erected during this period. Small cremation cemeteries were established outside the Enclosure in areas A and K. On the southern edge of the site small-scale metalworking took place in area J. Road 1a was diverted to run along the south- east side of the Ceremonial Enclosure as Road 1.

Period 5: Mid-second century to early third century A.D.

The Ceremonial Enclosure ditch was filled in, and its south-western arm surfaced with chalk rubble. The temple was constructed (unless it had already been built in period 4). South-west of the Ceremonial Enclosure a large number of deep shafts were dug. Road 1 was replaced by the main Colchester road leading directly from the site of the north-east gate of Verulamium to the south-eastern side of the Ceremonial Enclosure. Small-scale industrial activity continued close to the Colchester road.

FIG. 3. Periods of Site Use.

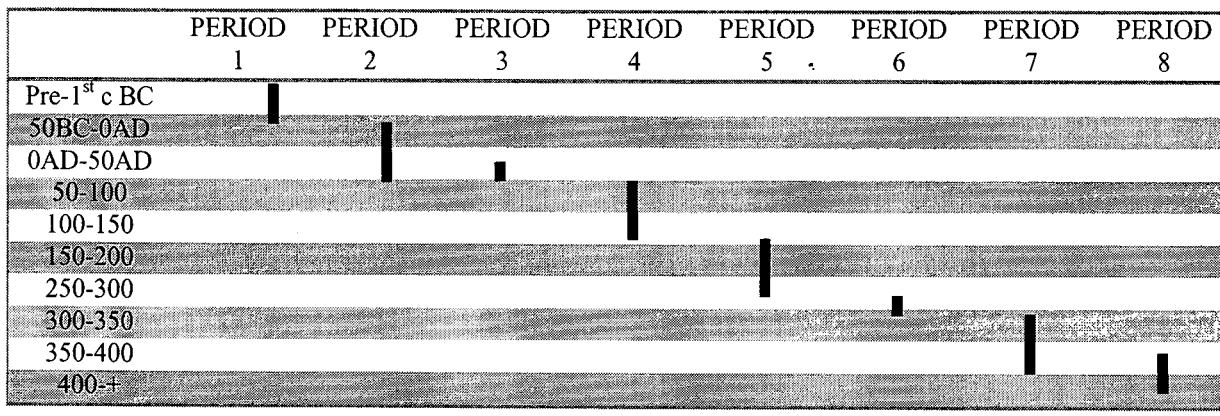


FIG. 3. Folly Lane, phasing diagram.

Period 6: Mid- to late third century A.D.

Rubbish accumulated in the hollow over the filled Enclosure Ditch, and in hollows over backfilled shafts. The Ceremonial Enclosure probably fell into disrepair, although new shafts continued to be dug on the lower slope.

Period 7: Early to mid-fourth century A.D.

The Ceremonial Enclosure was by now abandoned, and the hollow over the Enclosure ditch was levelled with redeposited material from middens etc. Cellars east of the main Colchester road were also backfilled. Possible clay floors in area J may be the remains of buildings resting on cill beams and dating from this period. Wells and cess pits continued to be dug, but no more ritual shafts. The Colchester Road became less well defined as its course became 'braided'.

Period 8: Late fourth century to early Saxon

Gullies were cut in areas K, L, A and G probably defining agricultural features. A corn drying oven in area A also dates from this period. A hollow-way developed following a sinuous course east of the Colchester road. Post-built structures (buildings 1–5) spread over the eastern side of the lower slope and over the earlier surface of the Colchester road.

PERIOD 1: PREHISTORIC OCCUPATION

Early occupation was evident in two areas, area G and area P. Although structural remains were slight the presence of early material in these areas suggested use of the site in the first millennium B.C.

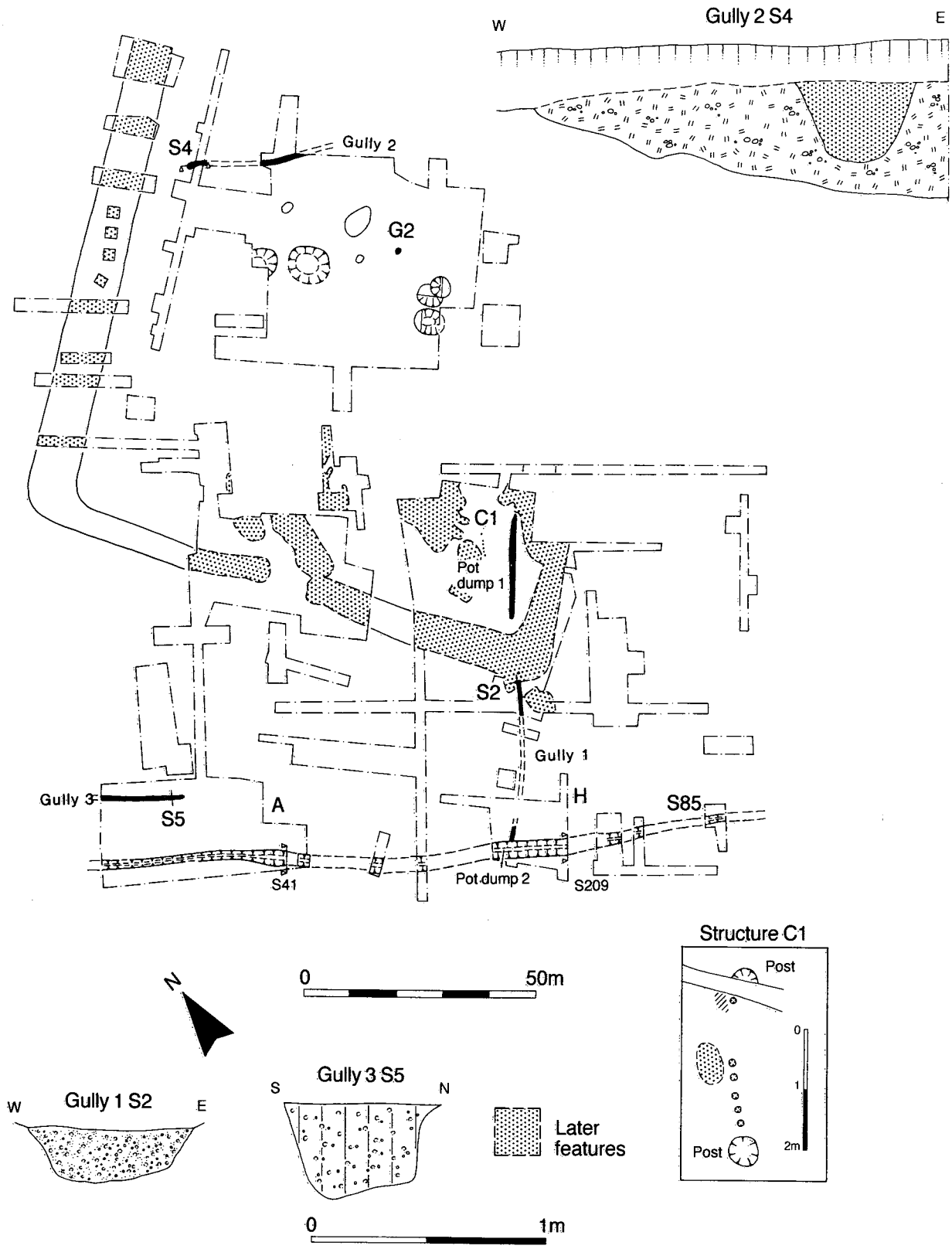


FIG. 4. Period 2 occupation.

LATE BRONZE AGE

A scatter of struck flints was recorded over the entire site. The bulk of this material dated either from the Neolithic period, or the later Bronze–early Iron Age (p. 122). Low density flint scatters of this sort are typical of soils over the Plateau gravel and clay-with-flints deposits in the St Albans area. On the edge of the plateau, in area G, two shallow pits (contexts DGS and CRJ) contained flint debitage and charcoal. A third pit containing burnt clay and flint debitage, with

two adjacent stakeholes, was found 100 m to the south-west in area A (FIG. 37, area A, context BCJ).

Lower down the valley slope, in area P of the excavations, two small post-pits, (FIG. 44, contexts AVA and ATF) contained several large pieces of a late Deverel Rimbury urn (FIG. 46) which, together with flint nodules, had been used as packing material for small posts. The posts dated from the Roman period, but the obvious explanation for the presence of large, unweathered sherds on the site is that there was a later Bronze Age settlement in the near vicinity. The post packing also included fragments of a sandstone saddle quern, and a sandstone rubbing stone (FIG. 47).

EARLY AND MIDDLE IRON AGE

A Halstatt C razor was found on the allotments early this century (Saunders 1982, 201), although no details as to its context were recovered. The 1991–3 excavations produced a small quantity of hand-made pottery in a finely flint-gritted fabric. The total amount weighed less than 300 g, and the sherds were generally small and badly weathered; they were found either in unstratified contexts, or as rubbish surviving in later Iron Age and Roman features. Low levels of flint-gritted sherds are commonly found on local sites and the quantity from Folly Lane is not significantly greater than that recorded from other sites of comparable size. At Folly Lane, however, flint-gritted sherds were concentrated over a relatively small area on the edge of the plateau, close to the area later occupied by the funerary shaft and the Romano-British temple.

The evidence suggests there was a low level of occupation on the upper slope at a time when flint-gritted pottery was current; such occupation is likely to date from the first millennium B.C., but without additional evidence it is difficult to date it more precisely. It is worth noting in this context the growing evidence elsewhere in the Verulamium area for scattered and perhaps seasonal occupation in the late Bronze and early Iron Age. Remains of a small round house of middle or late Iron Age were recorded during the construction of the Verulam Estate, 1 km south of Folly Lane (Saunders, pers. comm.) and part of a palisade of possibly earlier date was excavated at Gorhambury 2 km to the south-west (Neal *et al.* 1990, 9–10). Scatters of weathered, flint-gritted sherds similar to those from Folly Lane, have been recorded on a number of local sites in recent years, notably at St Stephen's cemetery, 900 m to the south and at King Harry Lane (Stead and Rigby 1989, 53–5). Further afield, parts of what appear to be single round houses of the late Bronze Age or early Iron Age, have been recorded at Harpenden, 7 km to the north (Hurley 1997, 141,5).

PERIOD 2: PRE-ROMAN IRON AGE OCCUPATION

At some time in the later first century B.C. or early in the first century A.D. an east–west ditch was cut approximately 45 m below the crest of the hill. Gullies and postholes north-east of the ditch indicate domestic, or possibly ceremonial use of the site in the pre-Roman period.

It was not until the late first century B.C. or early first century A.D. that occupation on the site led to the formation of more substantial remains, notably a linear ditch, three well defined gullies, and a number of postholes and stakeholes (FIG. 4). As in the earlier period, occupation seems still to have been confined to the upper slope.

THE LATE PRE-ROMAN IRON AGE DITCH

A substantial ditch, running east–west, was traced across the entire width of the site, approximately 45 m below the edge of the plateau. In 1994, evaluation excavations close to St Albans City Hospital, traced its course over a further 130 m on the north-east side of the site, giving a total known length of 280 m (Hurley 1997, 141,30). Neither end of the ditch has yet been found, but it seems likely that it ran between the two dry valleys now occupied by Batchwood Drive and Normandy Road (FIG. 1*b*). Over most of the length excavated in 1991/3 the ditch survived to a depth of nearly 2 m below the modern surface with a wide, V-shaped profile and

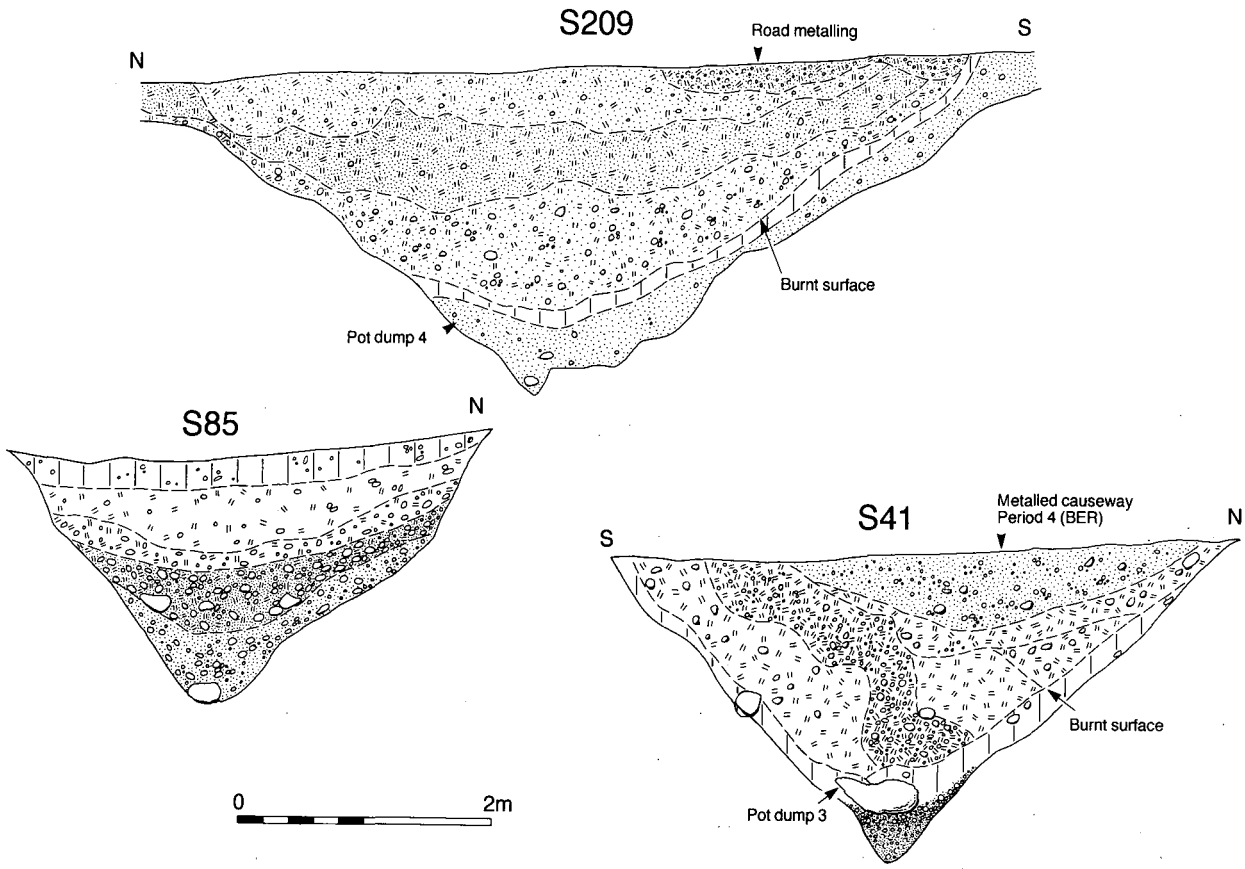


FIG. 5. Late Iron Age ditch sections.

steep sides. East of area H (FIG. 2) the profile was shallower and narrower, but this change was probably due to greater erosion on this side of the site. For much of its course the ditch fill was virtually sterile although a few substantial deposits of rubbish were recovered. These contained a substantial quantity of animal bone, a late La Tène brooch and over 10 kg of pottery, dating from the first half of the first century A.D. (p. 129, 218 and FIG. 72, no. 2).

The late Iron Age ditch seems to have run across the site without any break for an entrance. In area H the ditch was overlain by the main Roman road. (FIG. 2). Unfortunately the ditch could not be traced beneath the full width of the road due to the presence of a modern water pipe and a large late Roman pit. It is possible that originally there was a narrow entrance through the ditch beneath the centre of the Roman road.

After 0.3 m of silt and rubbish had accumulated, the ditch was filled with clean deposits of stony clay and gravel, devoid of silt and humus. A small amount of pottery was found in this filling, all of it dating from the first half of the first century A.D. Occasional traces of bone were also recorded. The extremely acid nature of the deposit however, had reduced these to little more than powder and they were impossible to lift, much less identify. The clay and gravel was interpreted as the result of a deliberate backfilling of the ditch. The tip lines could be easily traced and were particularly marked in section 41 (FIG. 5, S41; PL. II). They suggest that the backfilling took place from the lower, south-western side. Since the levelling material was presumably derived from the ditch's bank, it is assumed that this stood on the downhill side of the ditch.

THE GULLIES

Although the evidence for occupation contemporary with the late Iron Age ditch was extremely fragmentary, enough survived to suggest that a rectilinear enclosure, defined by shallow gullies (gullies 1–3) had been laid out, more or less at right-angles or parallel to the late Iron Age ditch and on its upper, north-eastern, side. Due to erosion and allotment working, the gullies only survived as isolated lengths up to 65 m long. The 10 m gap in gully 1, 4 m north-west of the

PLATE II. The late Iron Age ditch in area A, looking east. The burnt vegetation on the sides of the ditch is clearly visible.

Iron Age ditch, was caused by terracing of an allotment, and does not reflect an entrance. It is very likely that further gullies exist outside the area of the excavation.

Gully 1

This contained a substantial amount of early to mid-first-century pottery and must have been partly overlain by the bank of the Ceremonial Enclosure that was laid out in period 3. Indeed, the better state of preservation of this gully on the north-west side of the enclosure ditch may well be due to the former presence of a bank over it (PL. III). When excavated the gully appeared to have been truncated by the late Iron Age ditch in area H (FIGS 4, S2, and 6). However, this was due to weathering of the edge of the hollow that formed over the compacted ditch fill during the Roman period.

Gully 2

This ran north-west/south-east, approximately 140 m north of the Iron Age ditch. The date of the gully was not precisely established. It contained pre-conquest pottery in its primary fill and was cut by a palisade trench associated with the period 4 Romano-Celtic temple. This gully may date from period 4 as it came to an abrupt end 7.5 m short of the northern arm of the ditch of the Ceremonial Enclosure, possibly against an internal bank on this side of the ditch (FIG. 4, S4).

Gully 3

This ran 10 m north of the western stretch of the Iron Age ditch, and was parallel to it; it was cut by a second-century cremation burial (Burial 5, p. 113).

The filling of all three gullies consisted of a small amount of grey silt, covered by stony loam.

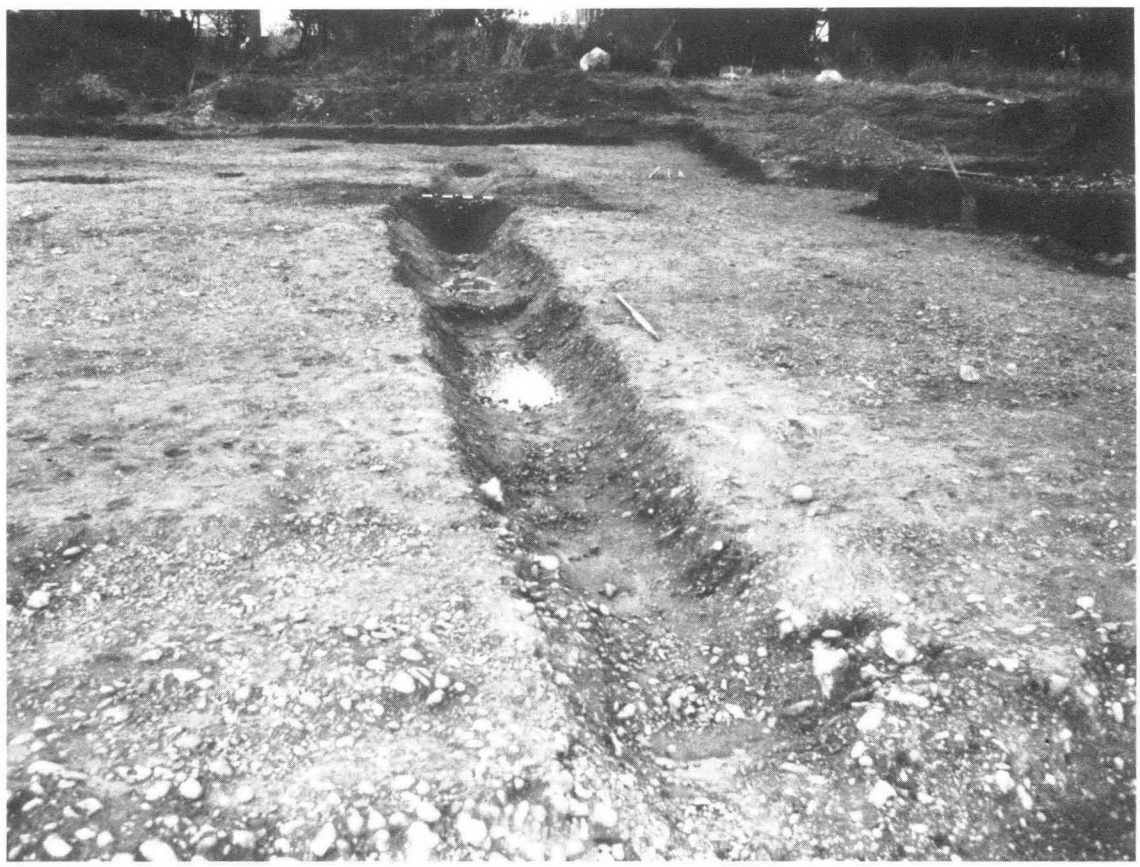


PLATE III. The period 2 gully 1 in area C, looking north–east.

There was no indication of any deliberate infilling and gullies 2 and 3 contained little datable material. As in the case of the Iron Age ditch however, gully 1 contained isolated dumps of charcoal, pottery, animal bone and fired clay (pottery dump 1, FIGS 4, S2, and 49). The pottery consisted of relatively large, unweathered fragments of locally produced grog-tempered and silty wares, dating to the first half of the first century A.D. and comparable to those found in Prae Wood (Wheeler and Wheeler 1936, 178–9, fig. 25). Included with it were two fired clay triangular 'loom-weights' (FIG. 48), fragments of fired clay slabs, probably used in a hearth, and part of a late La Tène brooch dated to between the late first century B.C. and the mid-first century A.D. (below p. 220, and FIG. 72, no. 3). It is interesting to note that comparable deposits of domestic refuse, charcoal and dark humic soil in the late Iron Age ditch were found in lengths of the ditch closest to gullies 1 and 3.

POSTHOLES

Numerous postholes and stakeholes were recorded, and although many undoubtedly belong to later periods, a few may date from period 2. None of them formed recognizable building plans, and the absence of datable material from their fill adds to the problem of interpretation. Only two possible structures could be shown to have been truncated by period 3 features, and these are described here.

Structure C1

This was represented by two small postholes, (contexts BXP and BWP; FIGS 4 and 7) 2.7 m apart. Between them was a row of six stakeholes 0.6 m west of gully 1. Originally there had probably been eight stakeholes regularly spaced 0.25 m apart, but subsequent disturbances had removed two near the north-east end of the row. All the stakes and posts had been burnt *in situ*, and the natural clay/sand subsoil on either side of them was scorched. The northern posthole

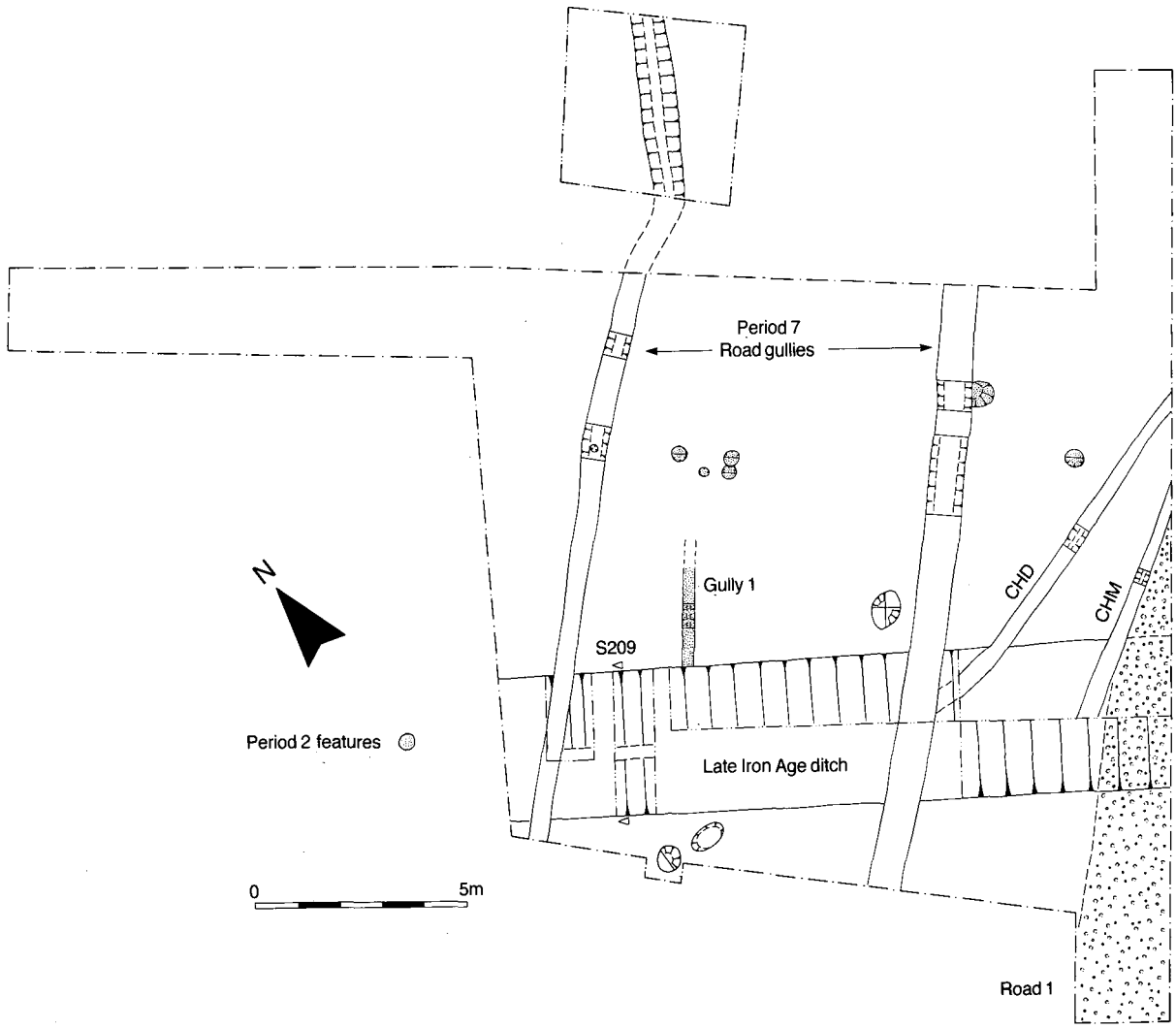


FIG. 6. Period 2 occupation in area H.

was cut by an early Roman palisade slot, and in period 3 the structure had probably been at least partially sealed by the bank of the Ceremonial Enclosure.

Structure G2

The entire area at the centre of the Ceremonial Enclosure, including the area beneath the period 4 temple, was stripped to the surface of the natural subsoil. Unfortunately this was an area that had been particularly heavily eroded and traces of early occupation were almost impossible to detect. In the first place, the construction of the funerary shaft and mound must have removed most of the evidence for any earlier structures. In addition the topsoil over this part of the site was exceptionally shallow, due to the partial levelling of the area for a football pitch, and many of the features found here had been caused by relatively recent agricultural activities. Nevertheless this part of the site produced nearly 4 kg of grog-tempered pottery, most of which dated to the mid-first century A.D. or earlier. Much of this material was badly weathered, but it included sizeable fragments and conjoining sherds, (FIG. 50, no. 36), all of which suggests that the pottery was used and discarded in the immediate vicinity. It was found in the topsoil, in the construction levels for the Romano-Celtic temple, in the low mound beneath them and in the filling of gully 4 (see below, p. 131). The coarse, grog-tempered fabric was in marked contrast to the predominantly fine and imported wares that characterized the pottery from the period 3 funerary shaft. There are two possible explanations for the presence of this coarse pottery. Either it derived from pre-existing occupation on this part of the site, or it was used during an early stage in the

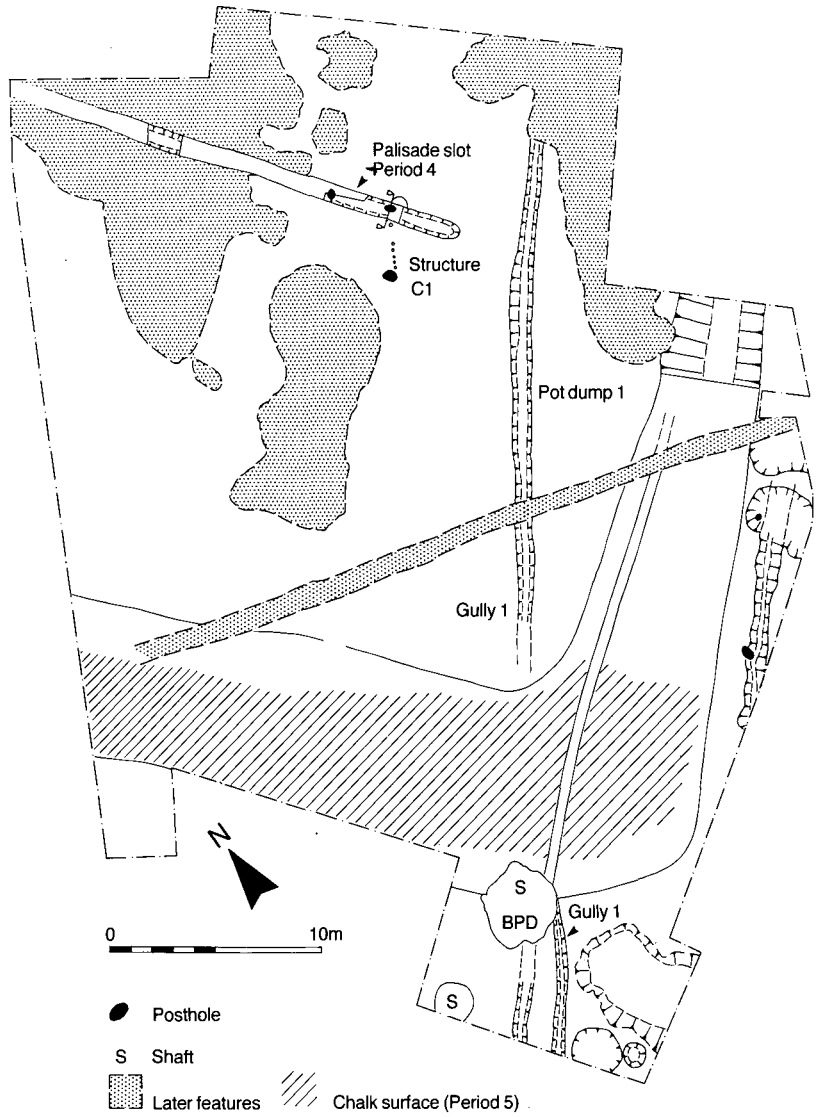


FIG. 7. Period 2 occupation in area C.

period 3 funerary rituals, but was not considered suitable for inclusion in the burial pit or funerary shaft.

Apart from pottery evidence, possible remains from period 2 are very slight. In spite of the shallow depth of the surviving deposits, a weathered cobbled surface (context CDD) dating from the Roman period, survived relatively intact over an area 2 m by 4 m immediately north-west of the funerary shaft. This surface sealed short lengths of two slots, 0.15–0.2 m deep. Both slots were at the best very faint and insubstantial, and had been truncated by subsequent activities on the site (FIG. 23). Another short length of slot survived 4 m to the north-east. This feature turned south at a right-angle, leading in the direction of the period 3 funerary shaft. All three slots were interpreted as cill beam slots, and, assuming they were all part of the same structure, they represented a building measuring approximately 3.4 m by 4 m. This building (structure G2) followed an alignment roughly similar to that of gullies 2 and 3, and quite different from the very carefully aligned structures of periods 3 and 4. Central structure G2 was a shallow scoop or small stakehole, cut 0.14 m into the natural subsoil and filled with heavily leached silty clay. On the west of the shaft the three small stakeholes (contexts DGP, DGW and DGX) may also belong to the same phase. All had contained stakes which were burnt *in situ*.

It must be emphasized, however, that the surviving evidence for structure G2 was extremely slight. It is quite possible that the features just described date from early in period 3. The slot on the south-west side of G2 was cut into the filling of a large, irregular pit, (FIG. 23, period 2,

pit *a*). This was one of several similar features (FIGS 4 and 23). All had irregular, steeply shelving sides and uneven bases 0.7–0.9 m below the surface of natural subsoil. They were filled with clean tips of mixed sand, clay and gravel, and apart from occasional scraps of flint-gritted and grog-tempered pottery, produced no finds. All four are interpreted as holes resulting from the grubbing up of tree stumps during the clearance of the area. If the beam slots described above are assigned to period 2, the position of the slot on the west side of structure G2 means that this tree must have been felled during period 2, although the others seem to have been felled only shortly before the construction of the mound in period 3.

Other postholes

In areas A and H, stakeholes and small postholes were found approximately 5 m north-west of the late Iron Age ditch (FIGS 6 and 37). In area A they were overlain by part of a gravelled causeway that had been laid over the ditch in the early Roman period, and which presumably led to the entrance to the Ceremonial Enclosure. No evidence was found as to their use.

THE CHARACTER AND DATE OF THE LATE IRON AGE OCCUPATION

Mention has already been made of possible occupation on the upper slope and on the plateau top at a time when flint-gritted pottery was current. It is not yet clear how long flint-gritted pottery continued in use in the Verulamium district, and it is possible that some of the features assigned to period 1 may in fact belong to period 2. The distribution of late pre-Roman Iron Age material over the site was similar to that of the flint-gritted sherds, while a few features produced sherds in both fabrics.

It is disappointing that the traces of pre-conquest occupation were so fragmentary, and that the dating evidence for both gullies and structures is so slight. If the assumption is correct that gullies 1–3 were contemporary with the late Iron Age ditch, the resulting plan is of a rectilinear enclosure, roughly 90 m by 140 m. This would make it comparable in size to the contemporary enclosure at Gorhambury, 2.5 km to the west. At Gorhambury also, rectilinear structures resting on cill beams were combined with post-built buildings. Furthermore, the overall plan of a rectilinear enclosure abutting onto a linear ditch whose bank lay on its lower side is paralleled by the enclosures at Prae Wood, Gorhambury and the Verulam estate (Bryant and Niblett 1997, 274).

The rubbish both in the gullies and in the Iron Age ditch at Folly Lane appears to have been deposited as isolated 'dumps' over a period of time. Pottery dump 2 (see below, p. 129, context BHF), for instance, lay in the primary silt in the ditch, while dumps 3 and 4 (FIG. 5, contexts BEW and CKY, and FIG. 50, nos. 21–32 and 38–40) were not discarded until 0.2 or 0.3 m of secondary silt had accumulated. The content of the individual dumps was fairly consistent — burnt daub, hearth and oven fragments, animal bone, charcoal, and pottery in locally made grog-tempered and silty fabrics. Dump 3 also contained a late La Tène Rosette brooch (FIG. 72, no. 2). It is worth noting that there are no 'normal' rubbish or cess pits on the site at this date and it is probable that the dumps of domestic material in the linear ditch and in the gullies simply represent the disposal of everyday domestic rubbish (but see below p. 57). Nevertheless, it has frequently been suggested that even the disposal of refuse had a ritual or ceremonial aspect. This may have been the case at Folly Lane, even though there is nothing to suggest that the period 2 occupation on the site was anything other than domestic. The pottery covers the normal range of domestic forms, including storage jars, cooking pots, beakers and platters and dates from the period *c.* A.D. 5–50. High quality imported wares are almost totally absent suggesting that the occupants of the Folly Lane site did not enjoy a standard of living as high as that of their Gorhambury neighbours. On the other hand, only a small area of the Folly Lane site was excavated, and the main focus of the period 2 settlement may have lain elsewhere. The presence of loom-weights in dumps 2 (FIG. 48) and 4 is interesting in view of the suggestion that these may be indications of high status sites (Gregory 1991, 191). All the 'dumps' contained fragments of fired clay, either pieces of clay slabs, or small lumps of daub. It is possible that these are

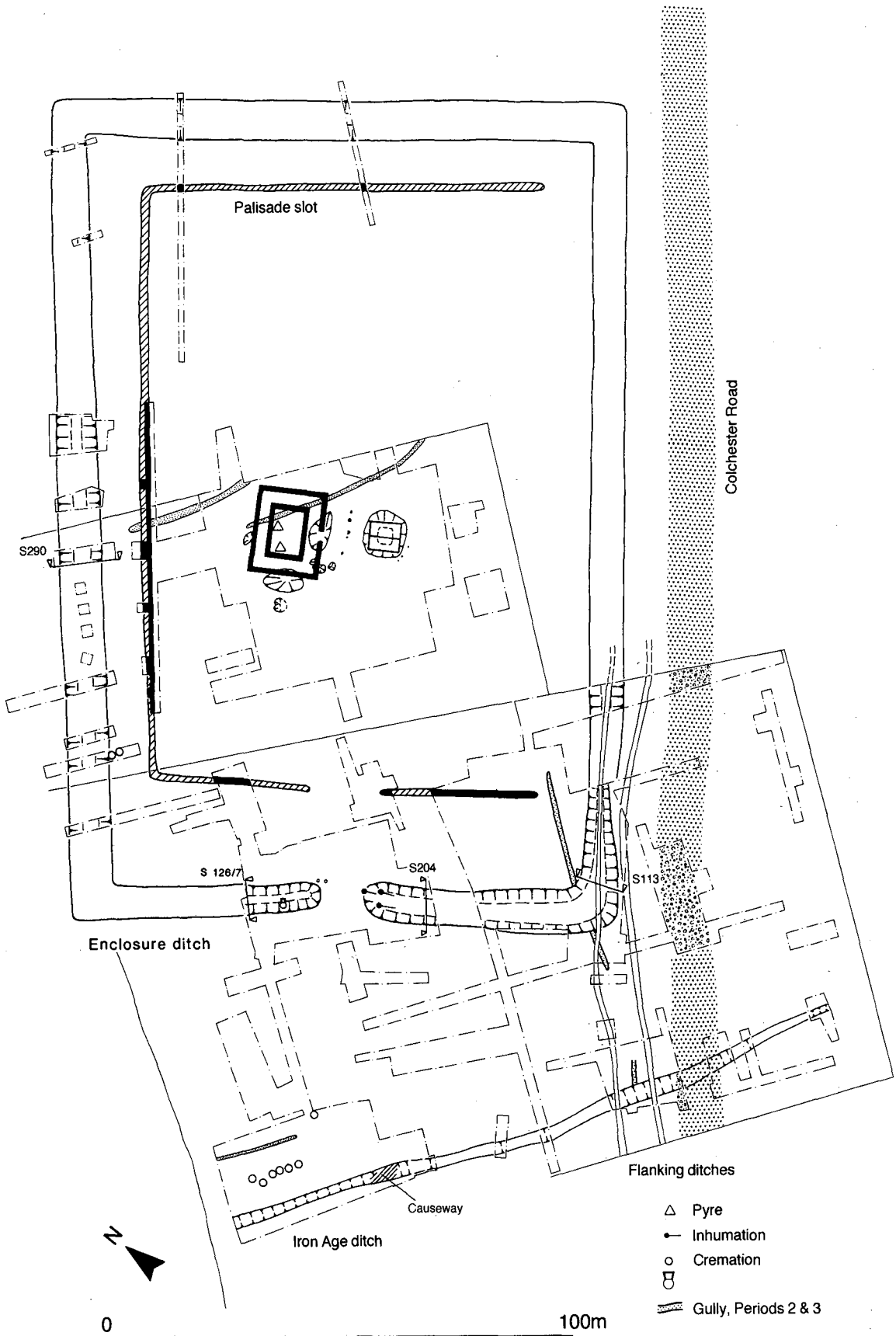


FIG. 8. The Ceremonial Enclosure showing the main features and the excavated areas.

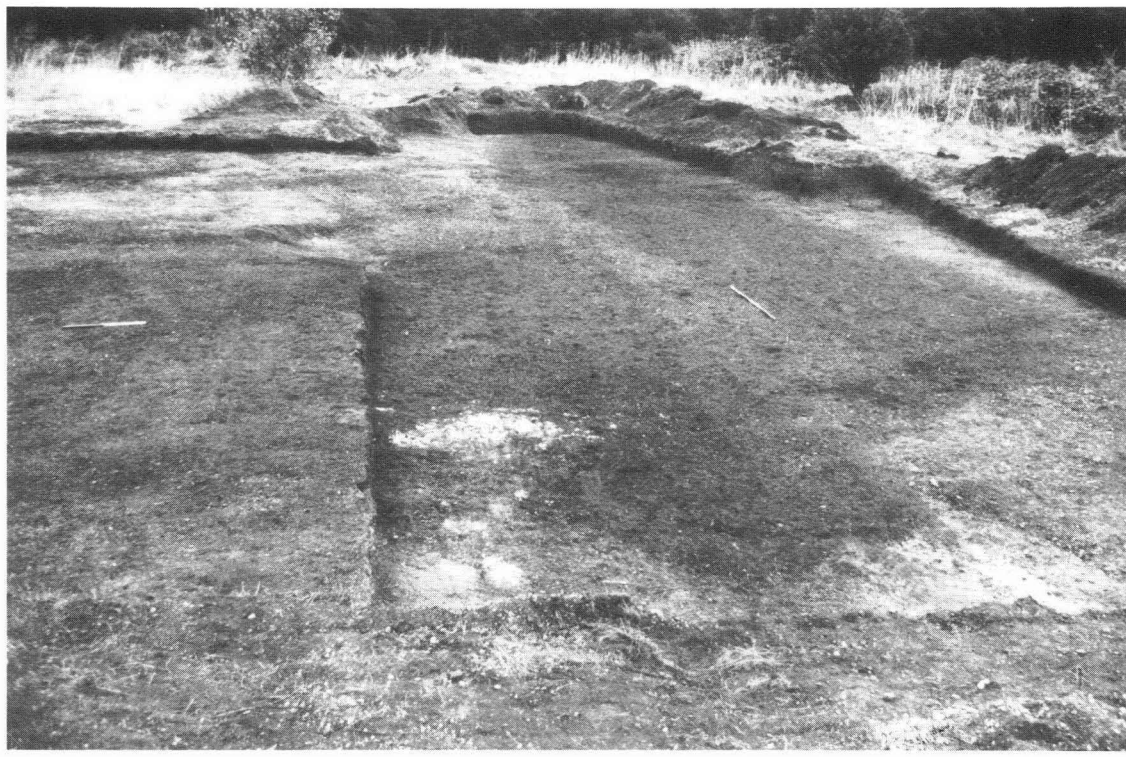


PLATE IV. The south corner of the Ceremonial Enclosure ditch prior to excavation.

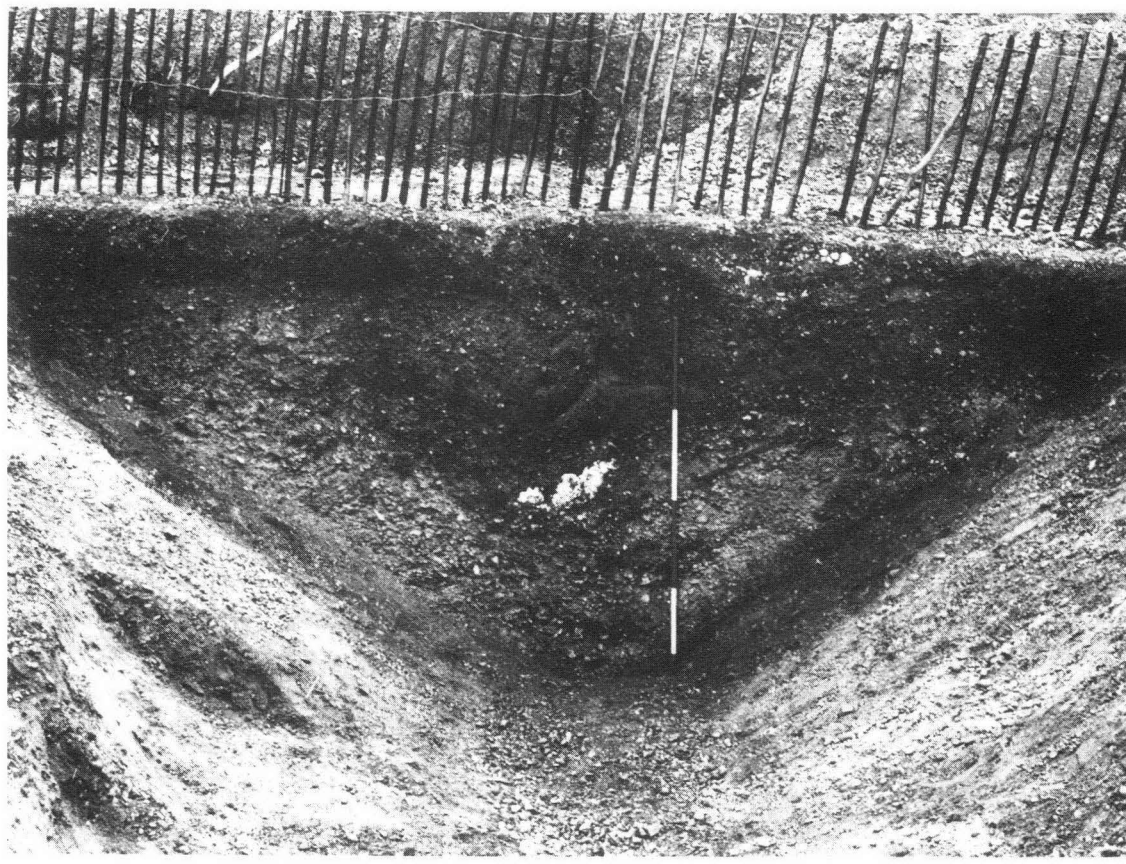


PLATE V. The Ceremonial Enclosure ditch a short distance east of the entrance, looking north-east. The thick deposit of rapid gravel silt can be seen, overlain by backfiled gravel and sealed by the chalk surface laid down in period 5.

remains of kiln floors, and of the luting required to seal the kiln and attach the fire bars (Swann 1984, 65). Other kiln debris, such as fire bars and pierced slabs, is totally absent however, and so on balance it is more probable that the fired clay at Folly Lane is simply the remains of domestic hearths and ovens.

Analysis of burnt vegetation in the ditch suggests that the immediate area was open and unwooded, with a high proportion of arable and grassland species (p. 387–8). Grains of oats, barley, spelt and emmer were also present. The ditch also produced most of the animal bones of this date. They all appeared to be domestic food debris, and the assemblage was dominated by sheep/goat, in contrast to later deposits on the site where cattle and horse were the main species represented (see below, p. 325).

There is evidence for widespread burning on the site at the end of period 2. Structure C1 was burnt to the ground, and the stakes to the east of the period 3 shaft were also burnt *in situ*. Vegetation that had grown over pre-Roman deposits in the base of the late Iron Age ditch also appears to have been cleared by fire. A dark, heavily charred layer covered the base and wall of the ditch over at least 100 m from the western side of area A to area D. The associated pottery is too early for this destruction to be explained in terms of the Boudiccan revolt, and the obvious inference is that it was the result of deliberate clearance of the site at the start of period 3 (PL. II). The possibility that the burning marks destruction at the time of the Roman conquest cannot be discounted either, but the absence of any similar evidence from neighbouring sites occupied at the same time argues against such an interpretation.

PERIOD 3: THE CEREMONIAL ENCLOSURE

Shortly after the Roman invasion of A.D. 43 a rectilinear ditched enclosure was laid out at the centre of which were the remains of a sunken, funerary chamber, traces of a pyre, and a burial pit containing exceptionally rich pyre offerings.

THE MAIN ENCLOSURE DITCH (FIG. 8, sections 60, 113, 126/7, 204, 290; FIGS 13–14; PLS IV–VII)

The Ceremonial Enclosure covered an area of just under 2 hectares (19,890 sq m). It was defined by a substantial ditch, the south-western arm of which coincided with the change in the slope above the relatively steep valley side; north-east of this the ground sloped more gently for some 65 m before reaching the comparatively level plateau top. The enclosure was rectangular in plan, 170 m by 117 m, with the long axis running north-east/south-west. Although the west corner, and most of the south-east side of the enclosure lay under modern pathways outside the 1991/2 site, geophysical survey and trial trenches confirmed the ditch's position on the north-east and north-west sides (FIG. 8 and Appendix 1).

Altogether a length of 100 m of the enclosure ditch was totally excavated in 1991/2; the excavations were concentrated on either side of the entrance and at the south corner of the enclosure, although sections were also dug through the north-west arm of the ditch. A significant length of ditch is still preserved, undisturbed, beneath the existing playing field north of the 1992/3 development.

The enclosure ditch was very substantial. It was between 2.3 and 2.9 m deep, with a wide, U-shaped profile. On the south-west side it was nearly 6 m wide at its mouth. This may have been partly due to weathering of the sides during the Roman period but on the north-west side the mouth of the ditch was only 3.2 m wide and it appears that the ditch had always been larger on the south-west than elsewhere. The ditch was dug into the plateau gravels, and in view of their unstable nature the primary silt in the ditch, consisting of bands of clean sand and gravel, must have accumulated very rapidly. Humic deposits, or anything suggesting the formation of turf layers, were totally absent from the lowest layers of the ditch fill.

Both the primary and the secondary silts were largely devoid of finds. Over the 100 m excavated less than 100 g of pottery was recovered from the primary and secondary silts; it was only after 0.5–0.75 m of silt had accumulated that any pottery occurred, and even this was

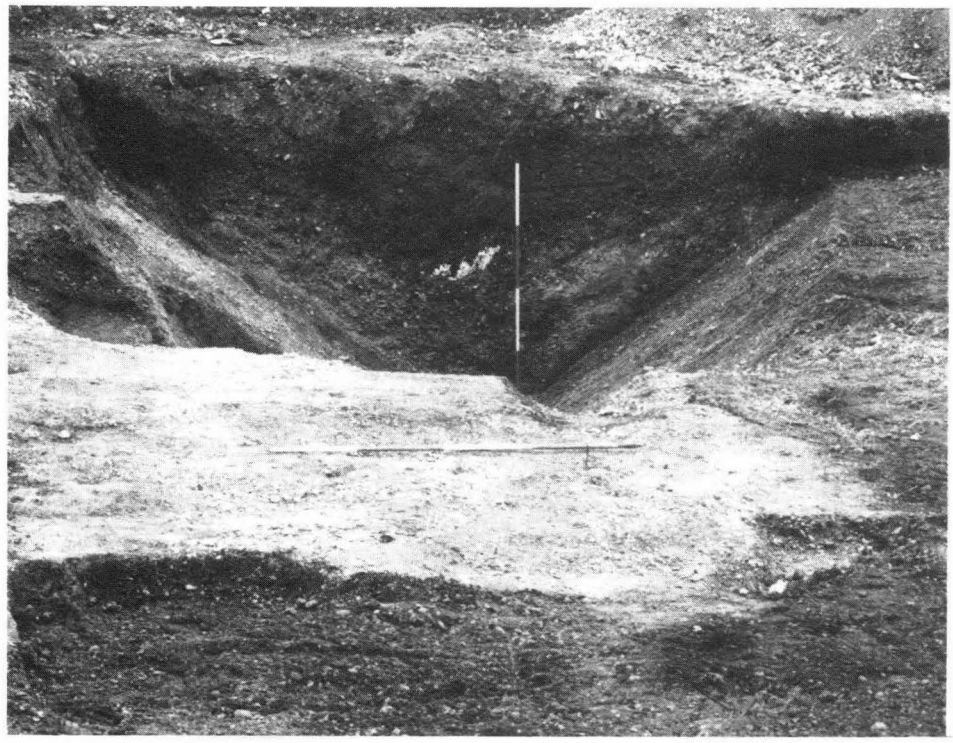


PLATE VI. The entrance to the Ceremonial Enclosure, looking south-west.

PLATE VII. The enclosure ditch during excavation.

found only rarely (p. 240 below). A small quantity of animal bone was found in the primary silt; this consisted almost entirely of fragments from the long bones of cattle (p. 326). It is difficult to avoid the conclusion that during periods 3 and 4 the ditch was kept deliberately free of rubbish. The only exception to this general dearth occurred in the ditch terminals, on either side of the entrance.

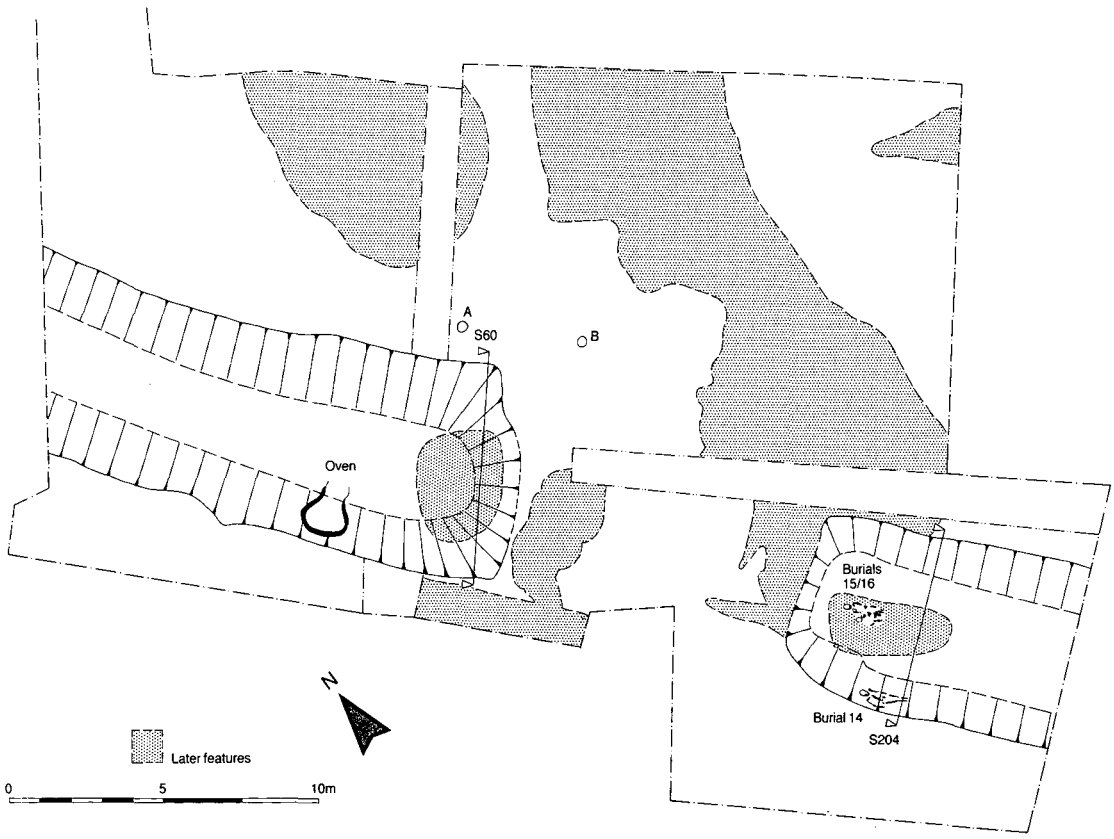


FIG. 9. The entrance to the Ceremonial Enclosure, period 3.

THE ENTRANCE

There was a single causewayed entrance in the centre of the south-west side of the enclosure. Trial trenches across the north-east and north-west arms of the ditch confirmed the absence of corresponding entrances here. The entrance consisted of an unbroken causeway, 3.8 m wide, flanked by the carefully squared terminals of the ditch (FIG. 9; PL. VI). The causeway had been surfaced with small, water-rounded pebbles set in a sandy clay matrix, but it is uncertain whether this was an original, mid-first-century feature, or whether it dates from a subsequent phase. The entrance area had been particularly badly disturbed by post-medieval gravel extraction, and much of its eastern half had been lost. No evidence was found to suggest that the entrance had included any substantial timber structures, such as a gateway or façade. When the site was first excavated a number of circular and linear discolourations were noted on the surface of the causeway. At first these were thought to mark post-pits, stakeholes or slots, and some appear as such in the site archive. Subsequent excavation however showed that apart from three small stakeholes, all resulted from natural variations in the subsoil; similar features were found throughout the excavation, and indeed are common features all over the St Albans district. It is possible that the two small stakeholes, on the west of the entrance causeway, (FIG. 9, features A and B) are the remains of a structure at the entrance; post-medieval disturbance on the east side of the entrance would have removed any corresponding features here. Their very shallow depth (less than 0.1 m) argues against a substantial structure. On the other hand, the presence of an unusually large, *Augenfibel* brooch in the base of the otherwise sterile feature A, may well be an indication that these features had a ritual significance. The triple pairs of stylized eyes stamped on the wings and foot of this brooch (p. 220 and FIG. 72, no. 4) could be seen as giving it a tutelary function, perhaps corresponding to that of the triple burials on the east side of the entrance. The third stakehole (FIG. 12, feature C) seems to have belonged to a later phase, possibly post-dating the use of the enclosure (p. 27).

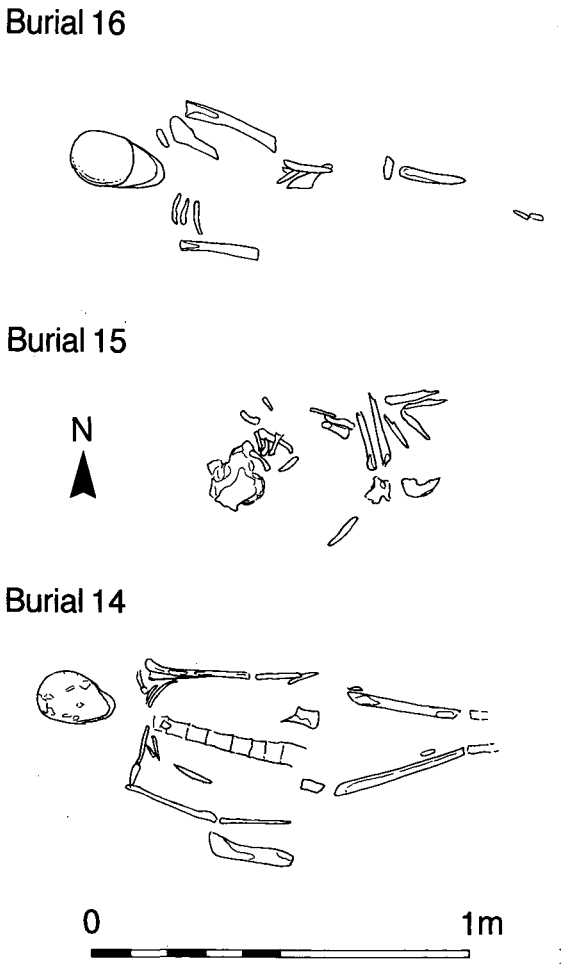


FIG. 10. Burials in the enclosure ditch, period 3.

THE EAST TERMINAL

Three human inhumation burials were found close to the butt end of the ditch on the eastern side of the entrance causeway. All three were contemporary with the original construction of the ditch.

Burial 15 (FIG. 10, PL. VIII)

This was represented by the moderately well preserved remains of a crouched inhumation burial, the body lying on its right side with the head towards the north-west. The skeleton was probably of a female, aged between 20 and 30 years. There was no sign of a cut into the ditch, and the body must have been placed directly onto the floor of the ditch. The absence of any silt on the ditch floor, in spite of the very loose nature of the subsoil, indicates that this took place immediately after the ditch was cut. This skeleton is of particular interest in view of the suggestion that the individual suffered from tuberculosis, in which case it would be one of the earliest cases in the country (p. 311).

Burial 16 (FIG. 10, PL. IX)

This lay directly on top of burial 15, with no intervening deposit. The body had lain extended, on its back, with the head towards the north-west. It also was probably female and aged between 35 and 45 years. There was no sign of a grave cut for burial 16, and like the other two burials in the east terminal, it must date from the time of the ditch construction.

Burial 14 (FIG. 10)

This comprised an extended inhumation, probably aged between 30 and 50 years and possibly female, lying on its back with the head towards the north-west. It lay 2.5 m south-east of burials 15 and 16, on a shallow step cut into the southern face of the ditch. The step was clearly

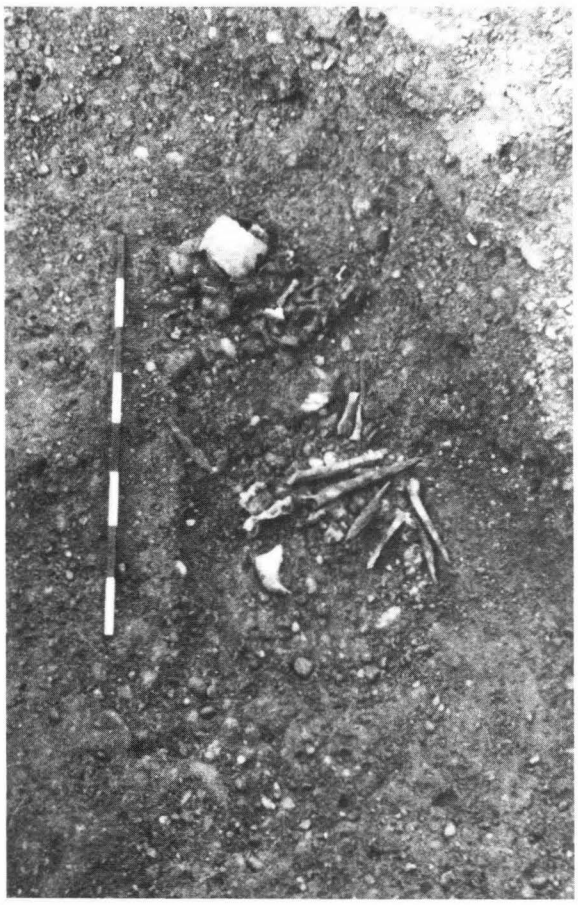


PLATE VIII. Burial 15 on the east side of the entrance, period 3.

PLATE IX. Burial 16 on the east side of the entrance, period 3.

contemporary with the original cutting of the ditch (FIG. 13, section 204) and like burials 15 and 16, the body had lain directly on the unsilted surface of the step, with no sign of a grave cut. A fragment of an ox humerus lay near the right hand of the skeleton, but it is uncertain whether or not this represents a deliberate grave offering.

All three burials had been covered by a deposit of sterile, sandy gravel — clearly redeposited subsoil. Whether this represents deliberate burial of the remains, or whether the bodies had been left exposed in the base of the ditch, to be quickly covered by natural slippage from the side of the ditch must remain a matter for conjecture.

THE WEST TERMINAL

The base of the west terminal was filled with 0.45 m of sand and gravel, the result of rapid silting and slippage from the ditch wall. No burials were found in the base of the ditch, but a second-century pit (FIGS 12 and 13, context BJC) which cut through this silt contained an isolated human humerus. All the human bone in the early layers of the ditch had been very badly weathered in the soil, and this single bone might be all that survived of a fourth burial; it certainly was not derived from any of the burials in the east terminal. Most of the small quantity of cattle long bone fragments from the primary silt came from the west terminal.

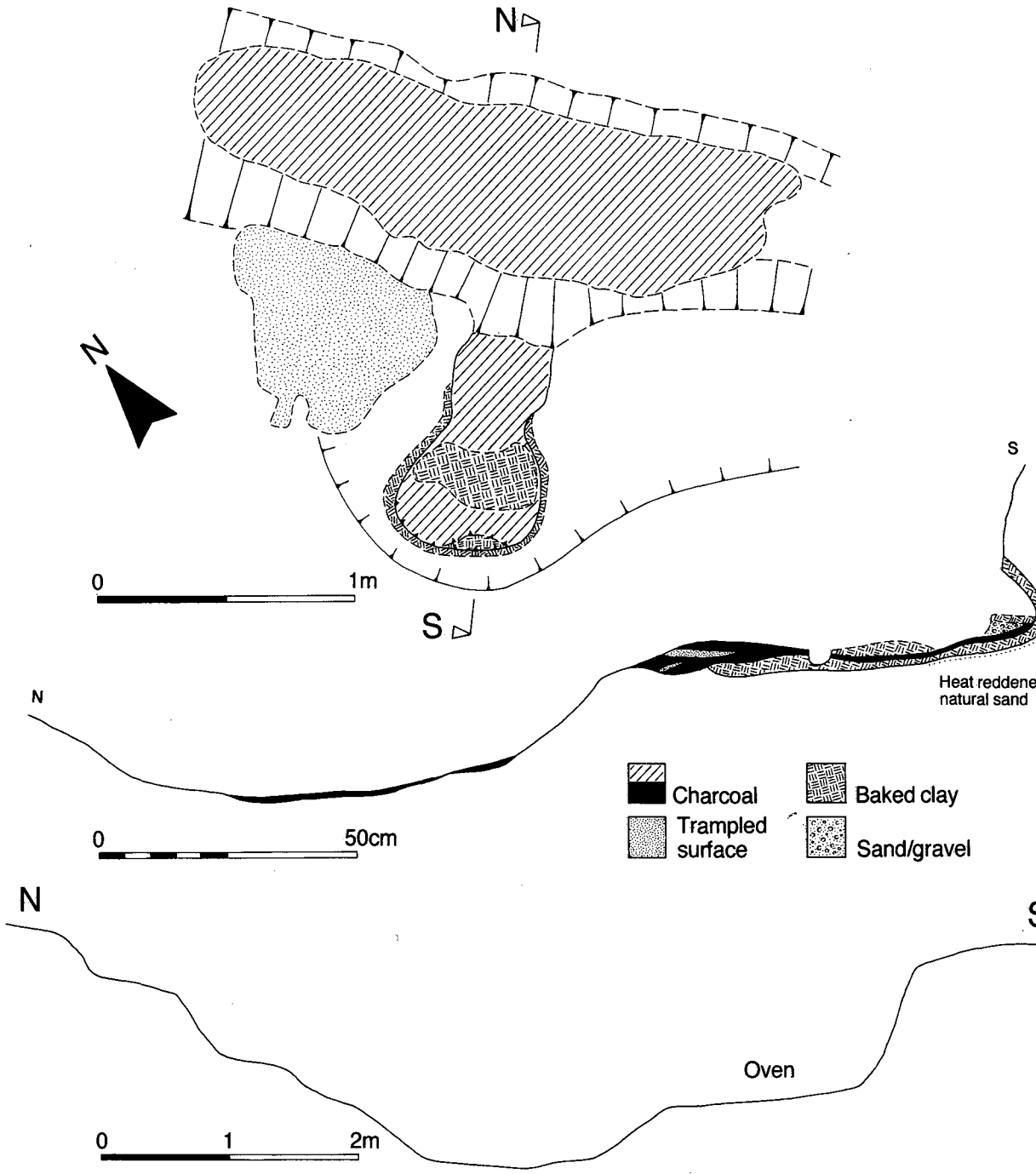


FIG. 11. Oven 1, in the enclosure ditch, period 3.

The oven (FIG. 11; PL. X)

One metre north-west of the western terminal an oven had been cut into the southern face of the ditch, 0.25 m above its base. The oven was well preserved and occupied a shallow step contemporary with the construction of the ditch; the heat of the oven had scorched the unsilted side and base of the ditch, and charcoal raked out of the mouth of the oven lay on the unsilted ditch floor and was sealed by the primary, rapid silt of the ditch. A sample of the charcoal yielded an accelerated radiocarbon date of 2055 ± 45 B.P.[3] The back of the oven had been cut into the ditch side, which was here of rather clayey sand, and which had enabled the wall of the ditch to be slightly undercut to form the back wall of the oven, and part of its roof. The burnt material remaining in the mouth of the oven and on the floor of the ditch was all retained and wet-sieved. No seeds or cereal grains were recovered, nor were there any indications as to what the oven may have been used for: its plan and dimensions (0.8 m by 0.9 m and at least

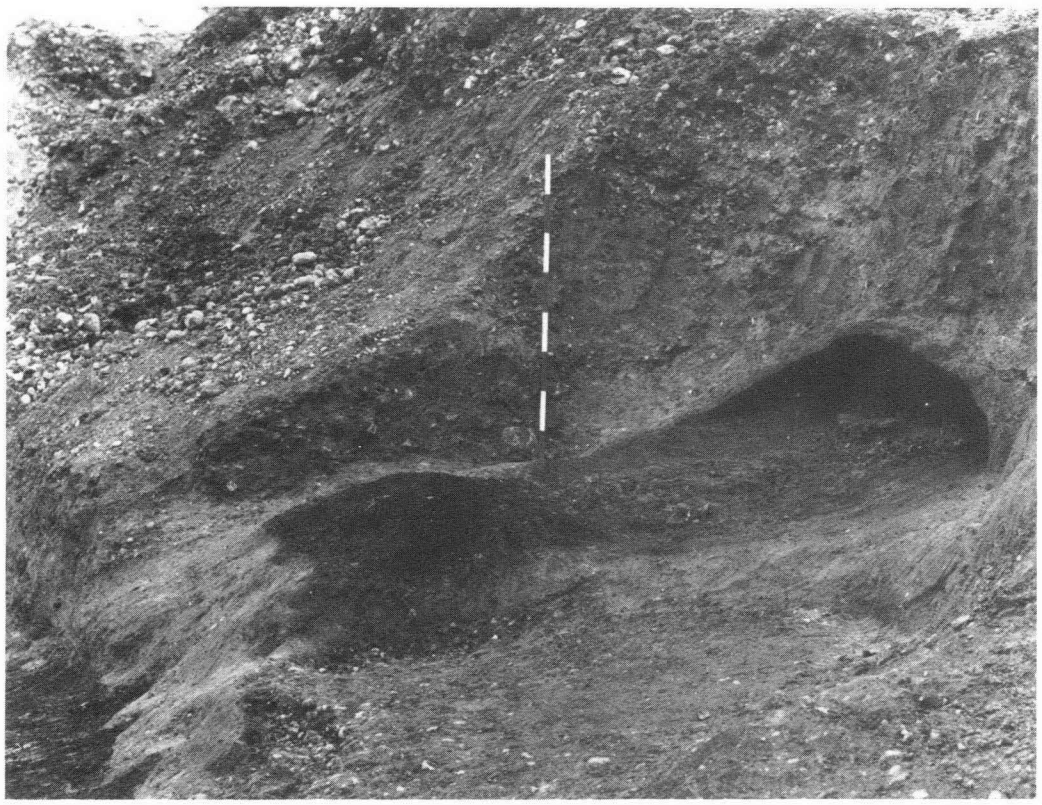


PLATE X. Oven 1, period 3.

0.4 m high) compare well both with the late Iron Age ovens from Prae Wood (Wheeler and Wheeler 1936, 44 and pl. LXVIA), and the domestic bread ovens from Saint-Contest (Calvados) (Jigan 1993). The Prae Wood ovens have been tentatively identified as pottery kilns (Thompson 1982, 918–19; Swann 1984, 56), and it is possible that this was the function of the Folly Lane example. Dr Foster has suggested that at least some of the metal objects in the central burial had been specially made for the funeral. It may be that the locally made pottery from the funerary shaft was made in the oven, specifically for the funeral rites.

THE BANK

Presumably the material dug out of the ditch was piled up to form a bank, but the effects of erosion and gravel extraction had been so severe that it was not even possible to be sure on which side of the ditch the bank had stood. Nevertheless there were faint indications which, while insufficient in themselves to provide anything like proof of an internal bank, taken together suggest the probability of a bank on the inside edge of the enclosure ditch. The reasons for suggesting this are as follows:

1. A step, or ledge, was observed along the south-west edge of the main enclosure, cut 0.25 m into the natural gravel slope, 0.7–1 m north-east of the inner edge of the main enclosure ditch (FIG. 13). The function of this step is unknown, but it was invariably masked by a distinctive deposit of clean pebbles. At Calidu (Picardy) the front of the bank had been faced, or reveted, with nodules of chalk set in a clay matrix. It is possible that the step in the Folly Lane ditch represents the base of a clay, turf or flint kerb, that eroded away causing pebbles in the bank behind it to collapse forward.
2. As mentioned above (p. 10, FIG. 4), Gully 2 stopped 7.5 m east of the line of the main enclosure ditch. This could be taken as evidence for the existence of a bank on the inner side of the ditch at the west end of gully 2, although this assumes that gully 2 belongs to period 3 or later, rather than period 2.
3. The palisade slot associated with the period 4 temple precinct lay 10 m from the main enclosure ditch on the north-east and north-west sides of the enclosure, and 22 m from it

on the south-west side (FIG. 8). The position of the palisade trench may have been influenced by the presence of an internal bank which presumably would have been broader and higher on the south-western side of the enclosure reflecting the much wider ditch here.

4. There was no indication or suggestion of a bank on the outside edge of the ditch. The position of the main Colchester road in area C (see below p. 76) rules out the presence of a sizeable external bank on the east side of the enclosure during the Roman period.

It is suggested, therefore, that the bank lay on the inner edge of the ditch although it cannot be claimed that this was ever proved. Nevertheless the north-eastern part of the enclosure remains intact, and it is to be hoped that this point may be finally resolved at some time in the future.

DATING EVIDENCE FOR THE PRIMARY PHASE OF THE ENCLOSURE DITCH

Although a total length of 100 m of the ditch was excavated, establishing its initial date proved extremely difficult. Except for the deposits of human and animal bone on either side of the entrance, the primary and secondary silts were almost completely devoid of finds. It also proved difficult to establish conclusively the ditch's relative date in respect to other early features on the site. No stratigraphical evidence existed to demonstrate that the enclosure ditch was later than the late Iron Age ditch of period 2, or contemporary with the period 3 structures at the centre of the enclosure.

On the other hand the most likely explanation must be that the funerary ceremonies evidently carried out at the centre of the enclosure provided the reason for the construction of the ditch, and that the late Iron Age ditch, 55 m further south-west, was filled in at the same time. Evidence is discussed in a later section which suggests that the funerary rituals could have been prolonged over several years. In this case it is likely that the enclosure ditch was dug early in the process rather than later. The reasons for this supposition can be summarized as follows:

1. A radiocarbon date of 2055 ± 45 B.P. was obtained from carbonized brushwood associated with the oven near the west terminal of the ditch. Although this shows that the enclosure ditch could well predate the funerary rites, it is unlikely that the ditch was cut long after they had taken place.
2. The small quantity of pottery in the rapid silt of the enclosure ditch included a sherd in Verulamium Region white ware, which is unlikely to date from earlier than the middle of the first century A.D. (p. 240). The absence of pre-conquest material from the lower levels of the ditch implies that debris resulting from the period 2 occupation on the site had already been cleared away by the time the ditch was cut.
3. The construction of the enclosure reflects a complete change in emphasis on the site. The late Iron Age ditch, with the bank apparently on its downhill side, coupled with the absence of any entrance through it, seems to have been designed to cut the top of the plateau off from the valley floor. In contrast the Ceremonial Enclosure, with its wide entrance on the south-west, implies that it was designed to be approached from the valley. The greater width of the ditch on this side of the enclosure also suggests a desire to make it particularly impressive to anyone entering it from the south and south-west. Furthermore, a line on the central axis of the enclosure, if prolonged, leads through the entrance to the so called 'timber tower' on the opposite side of the river, 600 m further south-west (Anthony 1970). This is discussed in more detail in a later section (p. 411), but the 'tower' is dated to the mid-first century A.D. and appears to have been an entrance into the early Roman town (Niblett and Thompson forthcoming). It is difficult to avoid the conclusion that the enclosure was designed to be accessible from the early Roman town, while the most likely occasion for such a radical change in the plan and outlook of the site must surely be that of the remarkable funerary rites held in the centre of the enclosure in the middle of the first century.

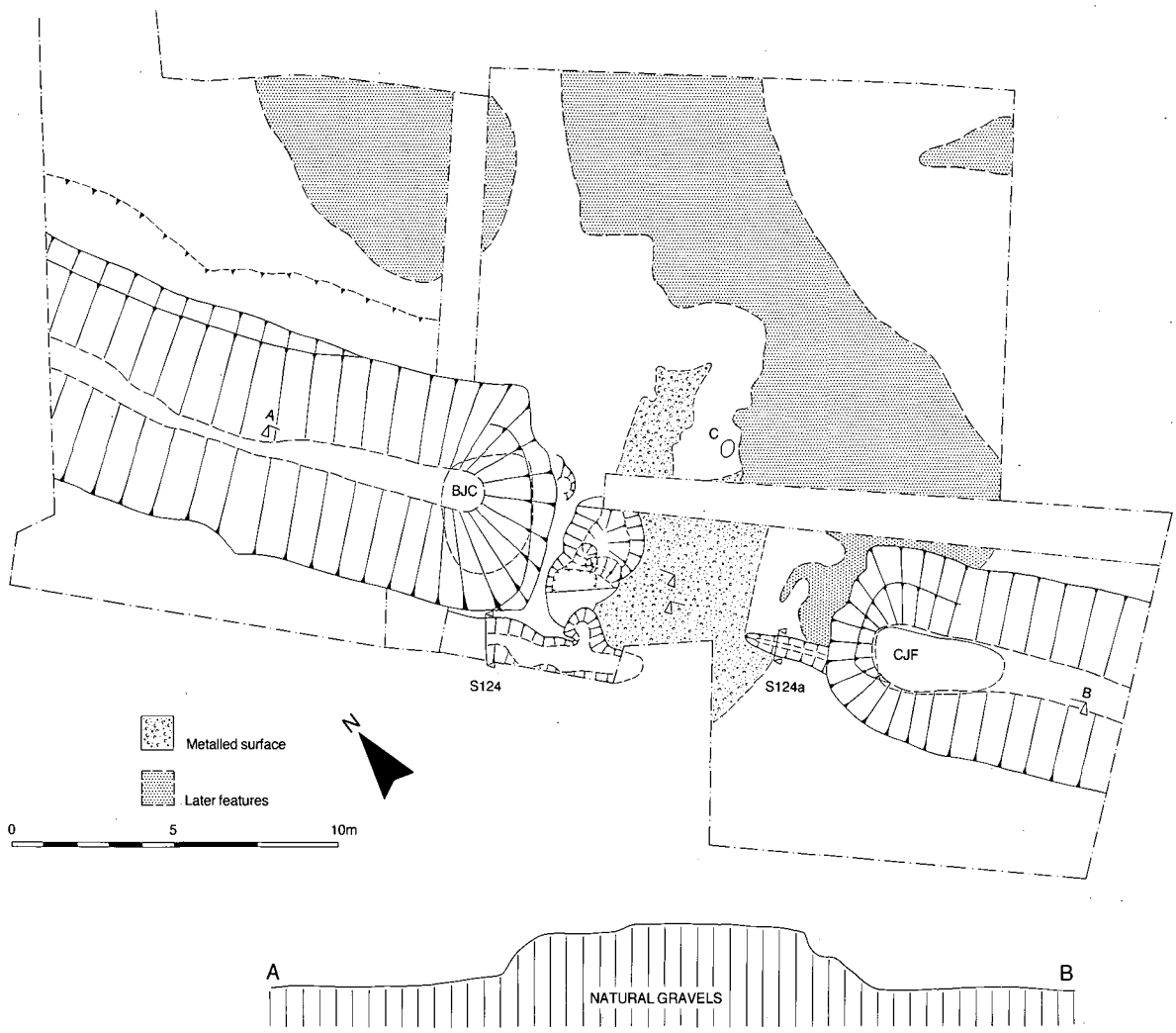


FIG. 12. The entrance to the Ceremonial Enclosure, periods 4–5.

THE CEREMONIAL ENCLOSURE DITCH IN THE ROMAN PERIOD

Period 4: early second century

As already noted, the absence of finds in the primary silt (apart from the inhumations at the entrance) made the task of dating the construction of the ditch very difficult. This difficulty persisted for much of its early life. After approximately 1.8 m of gravel and sand had accumulated in its base, two pits both approximately 0.5 m deep were dug on either side of the entrance (FIG. 12, contexts CJF and BJC, FIG. 13, sections 60 and 204). Pit BJC in the western terminal may have disturbed an earlier inhumation since it contained the human humerus referred to above (p. 21, burial 32, p. 323). This pit also contained a small amount of Hadrianic pottery (Pottery Assemblage 1, p. 242, FIG. 75, nos. 1–3), a deposit of horse bones, possibly all from one animal, and cattle bones and horn cores (p. 326). The bones had been placed in the base of the pit, which had then been backfilled with gravel. Pit CJF on the other side of the entrance contained no finds, and had also been backfilled before any silt could accumulate in it. The purpose of both pits is uncertain. It is possible, although unlikely, that they were post-pits for uprights on either side of the entrance. An alternative, and in view of the bones in pit BJC, a more likely explanation, is that both pits had a ritual function.

Away from the entrance, the secondary silt contained few finds apart from occasional sherds of early second-century pottery, and it is difficult to avoid the conclusion that the ditch continued to be kept clear of rubbish, even though silt was allowed to collect in it.

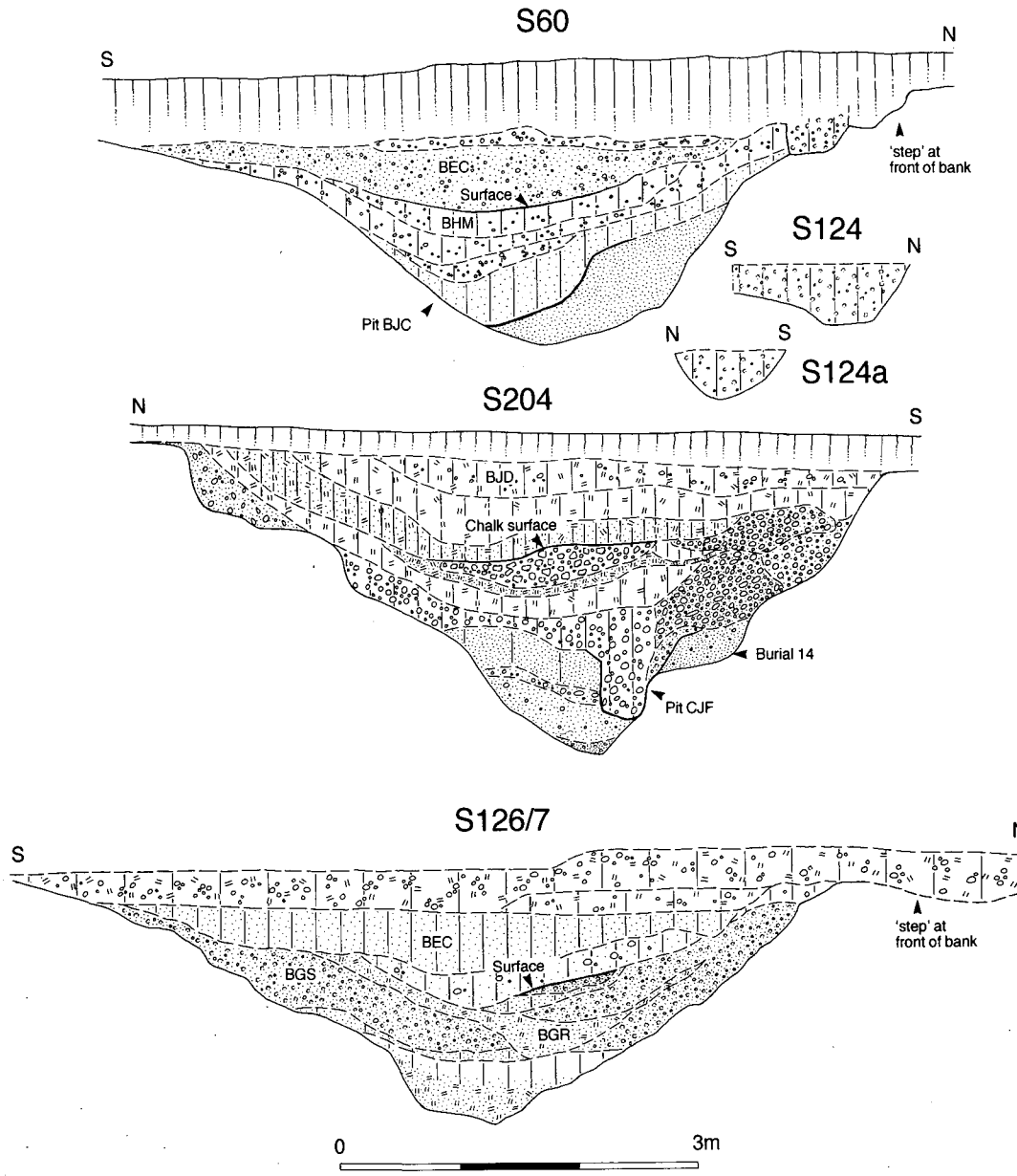


FIG. 13. Sections through the Ceremonial Enclosure ditch. For position of the sections see FIGS 8, 9 and 12.

Period 5: late second-mid-third century

After 0.8–1.0 m of silt had accumulated in the ditch, it was sealed by substantial tips of clean gravel, flints and sandy clay, interspersed with occasional dumps of rubbish dating from *c.* A.D. 140–60, (FIGS 13 and 14, sections 126/7, 290, contexts BGS, BGR, BTZ, CHD, CND). These deposits clearly resulted from a deliberate backfilling of the ditch, presumably using material from the bank. Unfortunately it was not possible to determine from which side of the ditch the material had been thrown. The ditch was not completely filled in this way, as the levelling deposits were only between 0.5 m and 0.7 m thick. It is possible that originally there were two, modest sized banks, one on either side of the ditch, and that only one of these had been used to provide material for the backfilling operation.

The trial trenches across the north-east arm of the ditch were not excavated to sufficient depth to show whether the backfilling had extended to this side of the enclosure, but the other three arms all contained similar deposits of redeposited natural clay and gravel.

The levelling material included tips of flint nodules: near the south corner of the enclosure, a layer 0.4 m thick, entirely made up of large flints was found over a length of approximately 14 m (FIG. 14, context BTN, section 113). These concentrations of flint indicate they had been

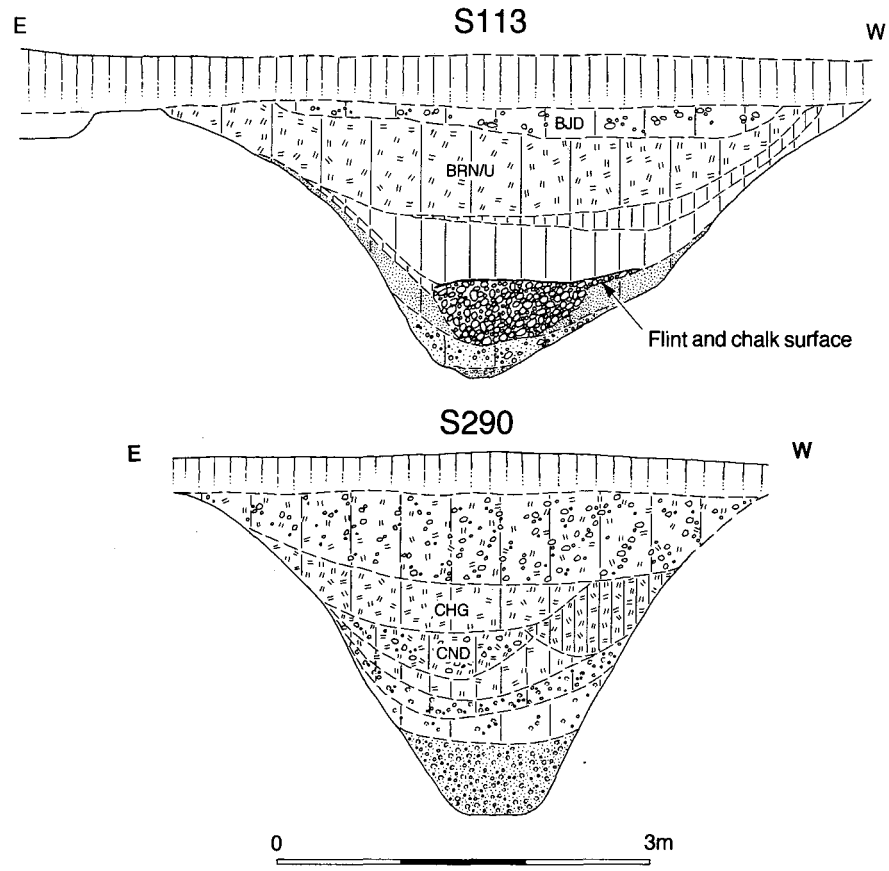


FIG. 14. Sections through the Ceremonial Enclosure ditch. For position of the sections see FIGS 8, 9 and 12.

deliberately collected, and it may be that the bank had had a flint core. Alternatively, it is possible that the bank had been faced with flint, or had been provided with a flint kerb, perhaps set in the 'step' noted above. (p. 23).

The redeposited material, including the flint tips, rested in a shallow depression in the upper surface of the secondary silt in the ditch. This depression may represent a partial recutting or cleaning of the ditch prior to the levelling, but it is more likely that it was the result of the compaction of the underlying silt beneath the weight of the redeposited bank.

The redeposited material contained a small quantity of mid-second-century pottery (Pottery Assemblage 2, p. 242, FIG. 75 nos. 4–6, samian vessel 15, *c.* 125-50) and was overlain by a thin band of dark silt, with a high humic content; in places this included small quantities of charcoal and occasional small deposits of rubbish dating from the early Antonine period, (e.g. context BHM, FIG. 13, section 60).

Contemporary with the backfilling of the ditch was a reduction in the width of the southern entrance. The surface of the entrance causeway was cut by two narrow gullies or slots, running 0.85 m and 1.45 m from the outer edge of the east and west ditch terminals, respectively and reducing the width of the causeway by over half, to 1.4 m. The western gully (context BPQ) contained a small quantity of relatively unweathered pottery dating to the early Antonine period (Pottery Assemblage 3, p. 242, FIG. 75, nos. 7–13), suggesting that the reduction in the width of the causeway was roughly contemporary with the in-filling of the ditch. A later recut of this gully itself cut through a series of small scoops in the causeway which were interpreted as shallow gravel pits. The small stakehole in the centre of the causeway (FIG. 12, C) probably belongs to a still later phase, since it contained sherds of late fourth-century pottery in its fill, and these themselves may be residual.

Even after the levelling, the ditch would still have been visible as a shallow depression. Nevertheless on the south-west side of the enclosure the line of the ditch was carefully marked by a layer of chalk nodules (FIGS 13–14, PLS XI–XII). The deposit appeared to have been

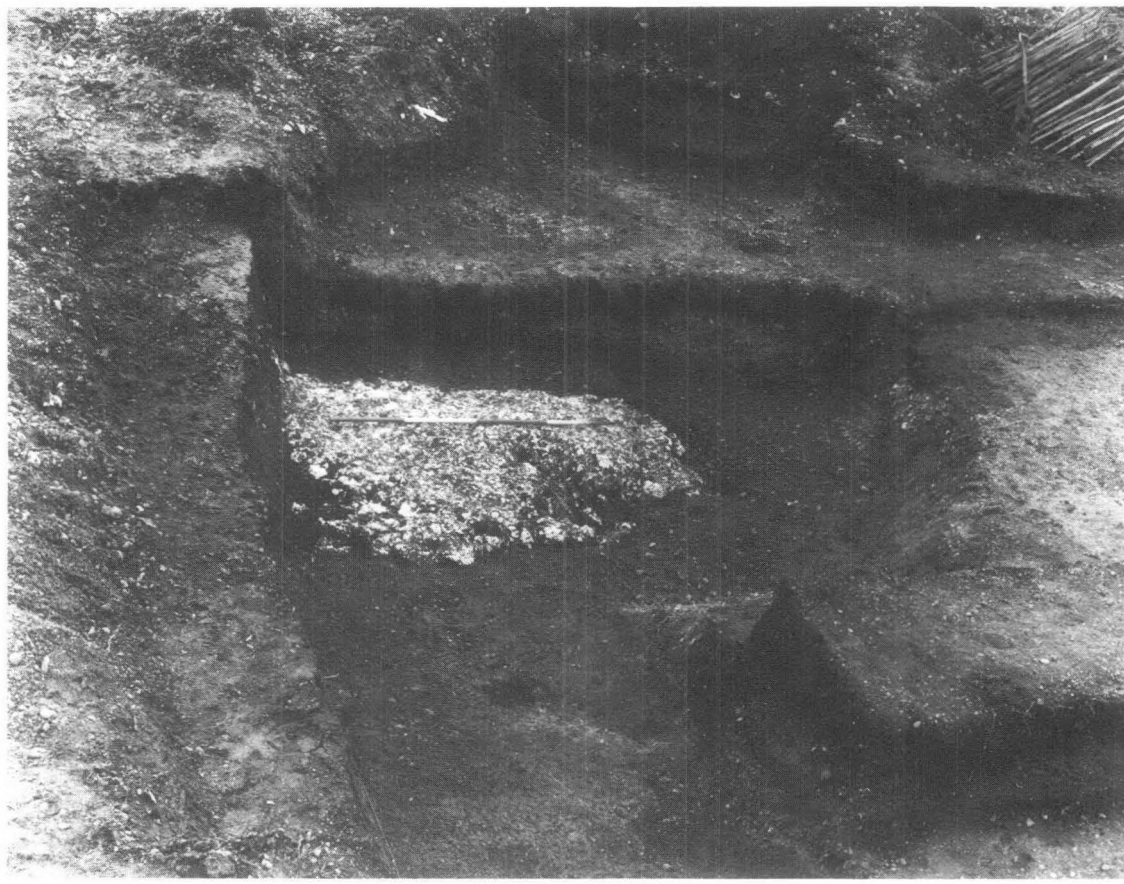


PLATE XI. The chalk surface over the enclosure ditch on the east side of the entrance.

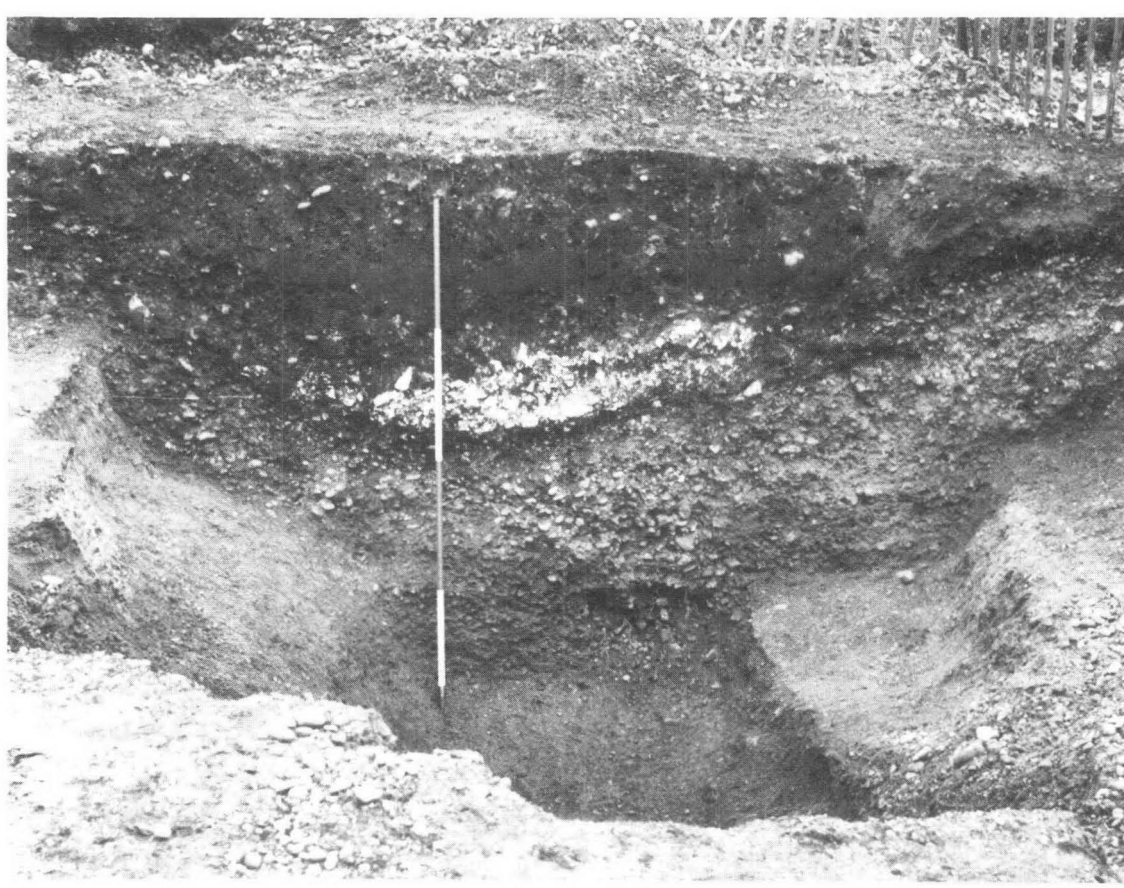


PLATE XII. Chalk surface over the partially filled enclosure ditch a short distance to the south-west of the entrance.

carefully levelled to form a surface and was particularly well preserved over the length of ditch between the entrance and the south corner of the enclosure; the chalk surface was also traced west of the entrance as far as the limit of the site, but it was thinner here, and had a greater admixture of flint. The purpose of the chalk surface seems to have been to ensure that the line of the original ditch continued to be a distinctive landmark to anyone approaching the enclosure from the town. Indeed, from the centre of Roman Verulamium, it would have been clearly visible as a white band along the south-west side of the Ceremonial Enclosure. By contrast, on the south-east and north-west sides of the enclosure — areas invisible from the town — the chalk was absent. Here the redeposited bank was overlain by layers of silt and charcoal; these layers may simply represent natural silting and rubbish deposition after the backfilling of the ditch but it is equally possible that they were virtually contemporary with the backfilling and represent rubbish cleared from the site at the same time as the bank was levelled (contexts CJE, CHX). The small quantity of pottery from the dark silt layers is similar in date to that from the redeposited bank and on balance this suggests that the dark silt layers represent the final tips in the ditch before the chalk levelling was laid over its south-western arm.

Period 6: the late third century

The chalk band marking the south-western arm of the enclosure ditch was kept clean until the mid-third century; only then was gravelly silt, incorporating a substantial amount of pottery, allowed to accumulate on it (Pottery Assemblages 4–5, p. 243, FIGS 75–6, nos. 14–46; contexts BRV, BEC, sections 60, 113, FIGS 13–14). By the end of the third century the line of the ditch must have been almost obliterated and large quantities of rubbish accumulated over it (Pottery Assemblages 6–7, p. 245, FIG. 76, nos. 45–58; FIGS 13 and 14, sections 204, 113, contexts BGA, BJD, BFL). Originally the rubbish over the south-western arm of the ditch was probably mounded up in heaps which had been eroded and contaminated during later use of the site. Nevertheless the material in the top silt levels of the ditch and in the midden over it included significant quantities of earlier pottery, much of it dating from the Antonine period (Pottery Assemblage 4, nos. 14–20). This survived in large unweathered fragments suggesting that it had previously lain undisturbed for over a century, before being finally dumped in or over the ditch. Similar dumping of earlier material in the early fourth century was apparent in pits and shafts elsewhere on the site, and suggests that there was a large-scale clearing and levelling operation here in the late Roman period. It is suggested below that this comprehensive clearance took place at the end of period 6, when the latest ritual pits went out of use, the ritual complex was abandoned and the lower slope largely turned over to agriculture. The reasons for this dramatic change in the use of the site can only be speculated on, but if the *raison d'être* of the site was to honour a particular family (as suggested below) its abandonment could as well be due to the disgrace or extinction of the last descendants as to any wider social, religious or cultural changes.

THE CENTRAL SHAFT AND ITS ASSOCIATED STRUCTURES

The Ceremonial Enclosure lay immediately above a marked change in slope from the relatively steep valley side. Above the 98 m contour which was approximately on the line of the south-western arm of the enclosure ditch, the ground sloped more gently for some 65 m before reaching the comparatively level plateau top. On the edge of this plateau, in area G of the 1991–2 excavations, were the remains of the most remarkable structures found on the site. These consisted of a large shaft, with the remains of a timber structure in its base, a pit containing a high status cremation burial, dating from shortly after A.D. 55, and an eroded mound.

THE SHAFT

The shaft lay 5 m south-east of the centre of the Ceremonial Enclosure (FIG. 8, PL. XIII). As originally dug it was 6.9 m square and 2.9 m deep with a flat base and vertical sides reveted with timber. In places the base of the shaft penetrated to the underlying chalk bed rock, but over most of the floor the chalk was overlain by 0.5 m of natural sand or gravel.

PLATE XIII. The funerary shaft at an early stage in its excavation. Dark stains from the revetment can be seen on the left hand side of the photograph.

At the end of its life the structures in the shaft had been systematically demolished. This had led to the collapse of much of the shaft revetment which in turn had caused the collapse of parts of the shaft wall, resulting in the enlargement of the mouth of the shaft to over 11 m across. Substantial quantities of clean, redeposited sand, gravel and pudding stone from this collapse were found in the base of the shaft, particularly round its edges. Finally the shaft had been filled with a massive deposit of laid turf, which originally almost certainly extended above ground level to form a stack.

THE SHAFT STRUCTURES

The nature of the evidence

As noted above, the subsoil over this part of the excavation was extremely unstable. On the top of the plateau the underlying chalk was overlain by about 3 m of loose gravel and sand. In area G this material contained numerous boulders of Hertfordshire pudding stone, sometimes in excess of 2 m across. The very considerable weight of these large boulders rendered the subsoil still more unstable, and it was no surprise to find that the original builders had found it necessary to erect a very substantial timber revetment to prevent the collapse of the vertical shaft walls. In the well drained acid soil no wood survived, but much of the original timber had been replaced by iron and manganese compounds forming black stains where the wood had rested. Where best preserved the stains produced remarkably clear impressions of the wood; it was often possible to detect not only the dimensions of the timbers, but even the direction of the grain. Preservation, however, was very variable and in places, particularly near the west corner of the shaft, the wood stains were sparse and indistinct. The best preserved staining was generally found against the solid gravel on the faces of the shaft, or at the base of the turf where it overlay the redeposited gravel and sand thrown in during demolition. In the centre of the shaft, where the turf rested directly on the natural gravel or chalk, timber staining was less distinct, while within the redeposited gravel itself no trace of timber staining survived. Similarly there were no traces of timbers within the main deposit of turf filling of the shaft, but as timber stains were found in the base of the turf filling, their absence further up the fill presumably reflects as genuine absence of timbers there in the first place. A few minute fragments of mineralized wood were preserved on the south-western edge of the shaft, but were too degraded for the species to be identified.

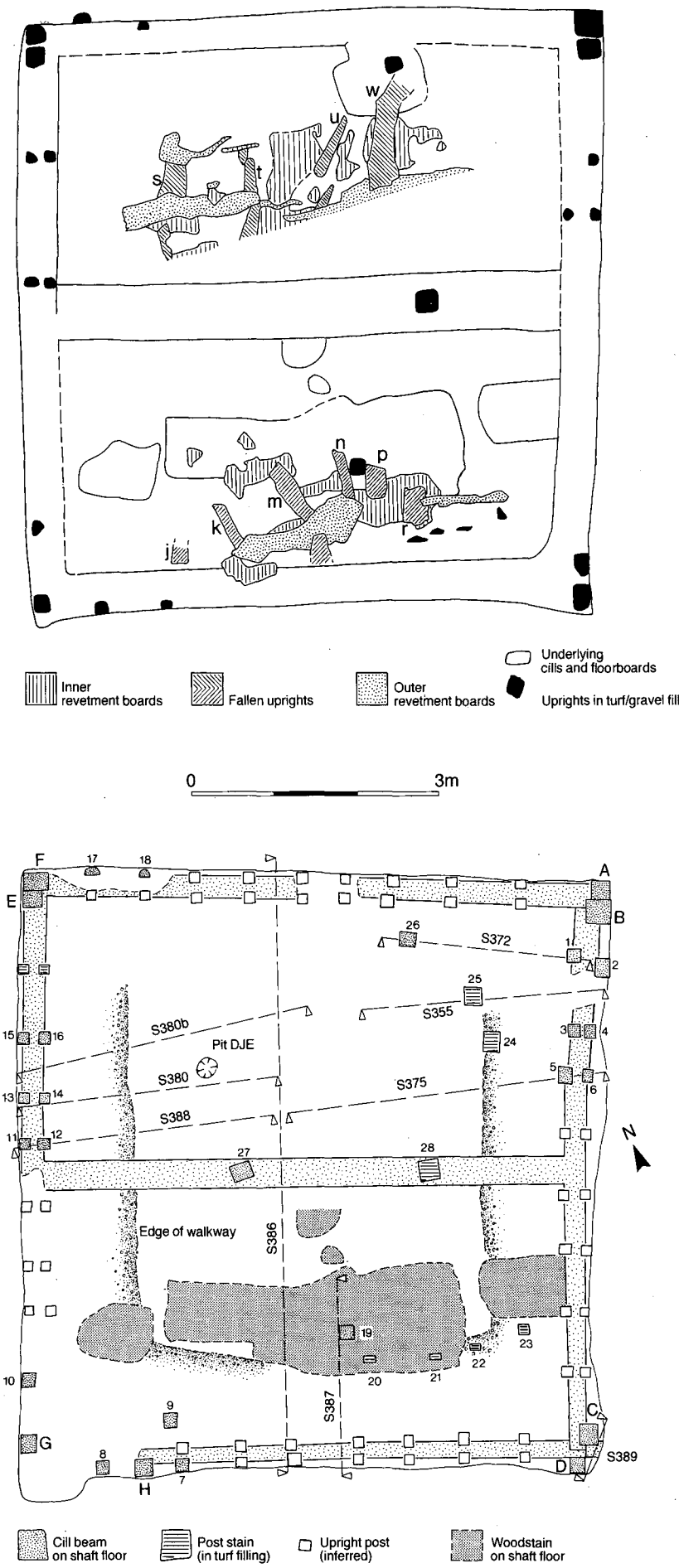
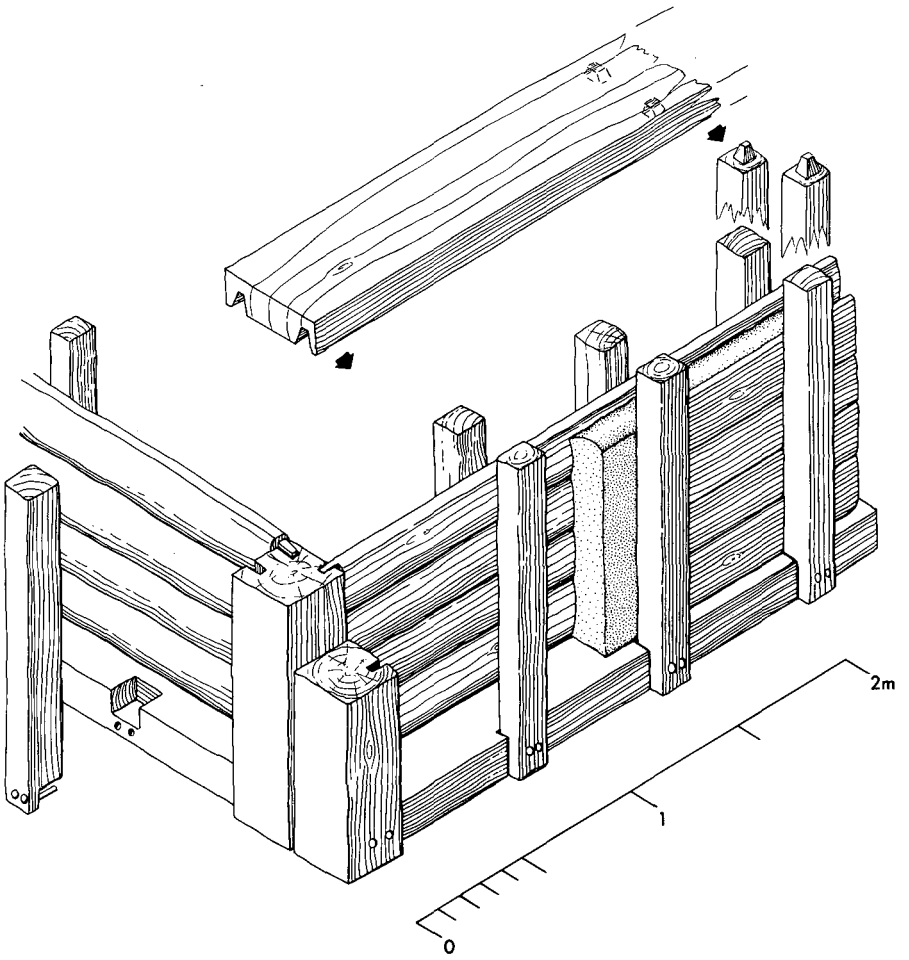


FIG. 15. Plan of the Funerary Shaft: *a.* (above) the collapsed timbers, *b.* (below) features on the shaft floor.



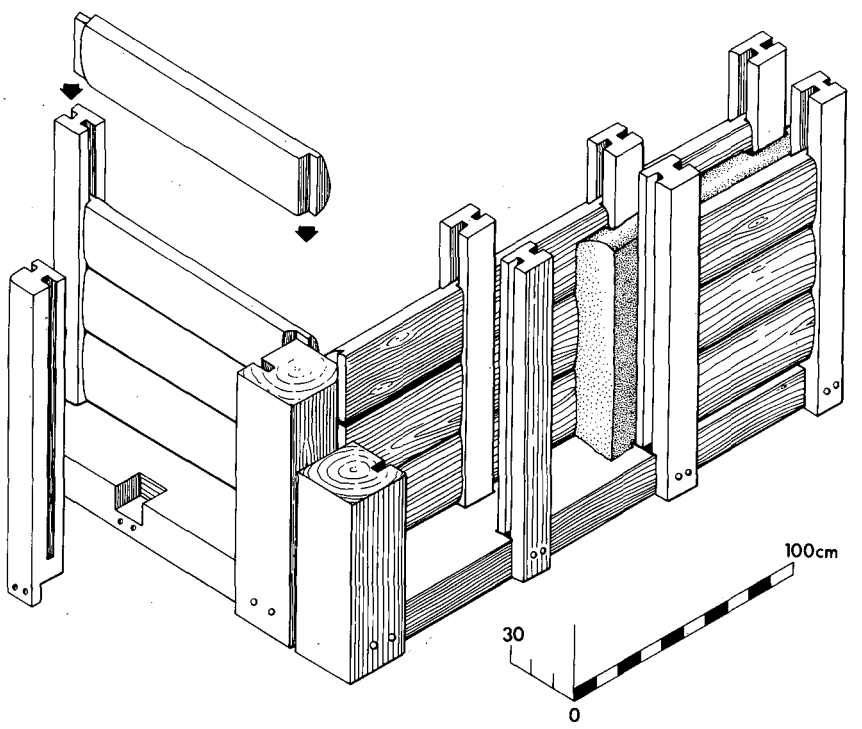


FIG. 16. *a.* and *b.* Diagram to show the possible construction of the revetment wall in the funerary shaft. *Drawn by Alex Thorne.*

THE REVETMENT

In spite of the rather variable degree to which the evidence survived, it was possible to recover or infer details both of the revetment against the faces of the shaft, and of the structure that had stood on the centre of the shaft floor.

The cill beams and the central beam (FIG. 15*a* and *b*)

The shaft revetment rested on wooden cill beams which had been laid 0.07–0.20 m inside the vertical shaft walls. These were either set in shallow slots up to 0.07 m deep or laid directly on the floor of the shaft. The beams were 0.2–0.3 m wide; slight differences in the alignment of the beam at either end of the south-west and north-east walls suggest that more than one beam may have been used on these sides. It must be remembered however, that even timbers that remained more or less intact, almost certainly shifted substantially during the demolition of the shaft.

Running across the centre of the floor of the shaft, from south-east to north-west, was a substantial beam, set in a slot 0.15–0.2 m deep (PL. XIV). The edges of the slot showed signs of collapse which quite possibly occurred during construction as the sandy gravel subsoil at this point was particularly loose. This means that it was difficult to arrive at a precise dimension for the slot, although it was certainly at least 0.3 m wide. In the reconstruction drawing (FIG. 21) it is suggested that the central slot was joined to the cill beams of the south-east and north-west revetment walls by half mortice joints, and that the provision of a deeper slot for the central beam enabled the upper surfaces of the cill beams and the central beam to be set level with each other. Two uprights, set 2 m and 1.5 m away from the north-west and south-east revetment walls respectively, were set into the central beam. The uprights were presumably morticed into the beam; it is assumed that both uprights supported a roof.

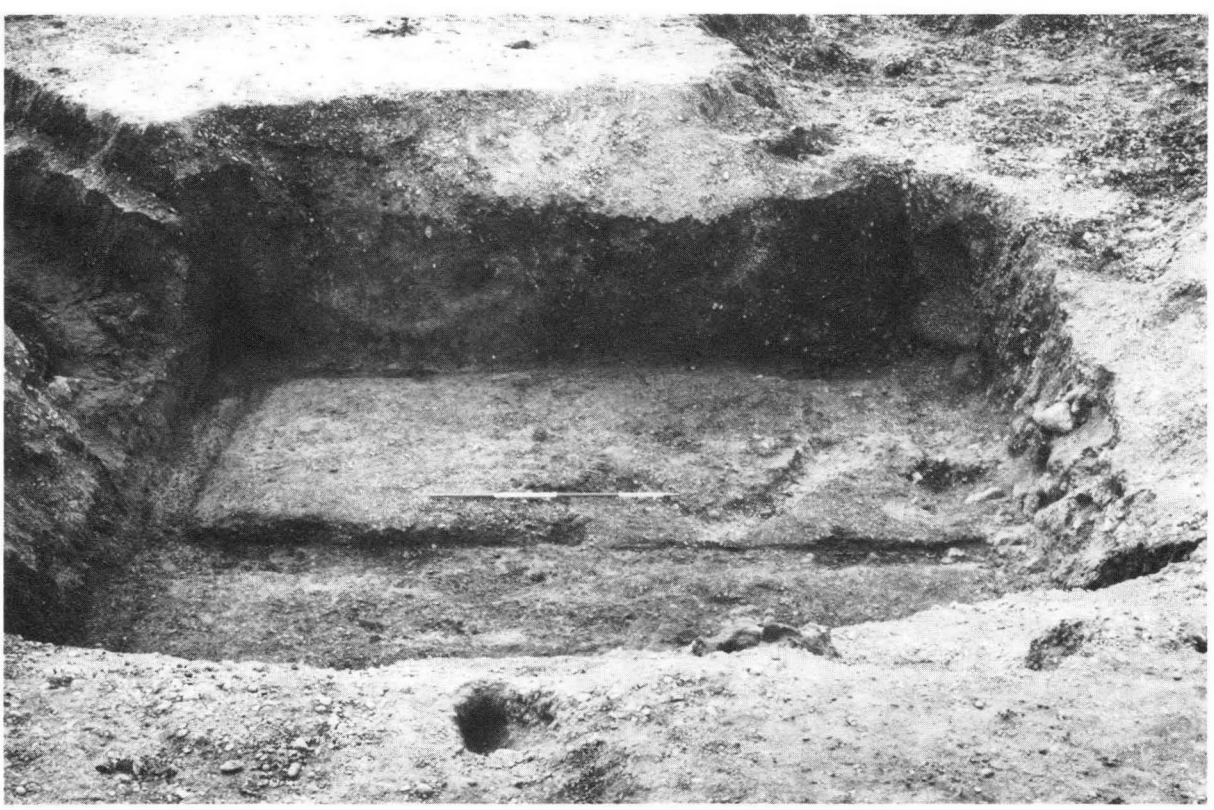


PLATE XIV. The base of the funerary shaft, showing the central beam slot, and staining from the cill beams for the revetment walls and corner posts. The area of paler gravel in the right-hand corner of the photograph marks the possible entrance ramp in the west corner of the shaft.

The uprights

With the exception of the central beam, each cill beam supported a double row of uprights, partially off-set on either side of the beam itself. The detection of these uprights was particularly difficult, since none of them had been set in postholes, and all must have been pegged and morticed to the horizontal beams. The evidence for the majority of the uprights was in the form of stains on the shaft floor, but some also survived as stains on the face of the shaft wall or in the base of the turf that filled the shaft. The stains generally were very faint, but the positions of twenty-one were detected either on the floor of the shaft and/or on the face of the shaft walls (FIG. 15*a*, *b*). The posts of each row seem to have been set in pairs, at least 0.05 m apart and each upright projected 0.08–0.1 m from edges of the cill beams. Clearly there had been considerable variation in the spacing between each pair of uprights but the normal spacing appears to have been approximately 0.7 m. This spacing suggests that originally there would have been sixty-eight posts, eight pairs along the south-east and north-west sides of the shaft, and nine pairs along the north-east and south-west sides. FIGURE 15*b* shows only those posts which have been confidently detected and numbered; the positions of the hypothetical posts are indicated but have not been numbered. It was difficult to establish the original size of individual timbers as the weight of the overlying turf must had compacted and distorted the decaying wood; consequently the following dimensions should be regarded as minimum sizes. The posts were 0.15–0.2 m across (post 9 was exceptional at 0.25 m across); posts 17 and 18, near the north-west corner of the shaft appear to have been D-shaped, but all the other timbers in the shaft seem to have been squared (PL. XV).

The corner posts

At three corners of the shaft there were two large uprights (FIG. 15, posts A–F). A slightly different arrangement had been adopted at the west corner, which will be discussed below. The corner posts were particularly well preserved at the south corner where they survived to within 1 m of the modern surface (PL. XIV). The surviving stains suggested that each pair of corner posts comprised one post with a rectangular cross section, approximately 0.25 m by 0.3 m, and another slightly smaller post, 0.17–0.20 m square. Both posts of each pair projected 0.10–0.15 m beyond the line of the cill beams on the side adjacent to the wall of the shaft.

The horizontal wall boards and wall packing

The uprights had supported horizontal boards. Staining from these boards survived in places along the south-western face of the shaft (PLS XVI, XVII) and over short lengths near the bases of the shaft walls on the north-eastern and south-eastern sides. The horizontal boards on the extreme east of the south-western section of fallen wall (see below), close to post 22, appear to overlap one another and a similar impression of overlapping boards is gained from section 389 (FIG. 19*a*). In both instances, however, this may be due to buckling of the wall during demolition.

The space between the two rows of posts and boards was filled with packed clay or sand and occasionally gravel. On the south-west side of the shaft, this packing in the core of the double wall was nearly 0.5 m thick, but as the horizontal boarding decayed, the packing had doubtless expanded, and originally it was probably not more than 0.25–0.3 m thick, and slightly less between the paired uprights which were frequently only 0.04 m apart.

This elaborate method of construction was repeatedly observed around the base of the shaft on all four sides but it was particularly well preserved along the south-west and south-east sides, and at the centre of the north-west side. On the south-east side, part of the revetment wall, south-east of post 19, had slumped inwards as an intact block (FIG. 19, section 387; PL. XVIII). Although the horizontal boarding on the outer face survived only as a thin black smear against the wall of the shaft, the packed wall filling was clearly preserved as a block of sandy clay; a band of pale orange clay close to the face of this block appears to be the remains of plastering or render. At the south corner itself, the double wall had been forced back against the wall of the shaft, which was slightly enlarged at this point. Remains of boards, 0.5 m wide, along the inner face of the revetment, were also clearly detectable. The orange sand filling in the core of

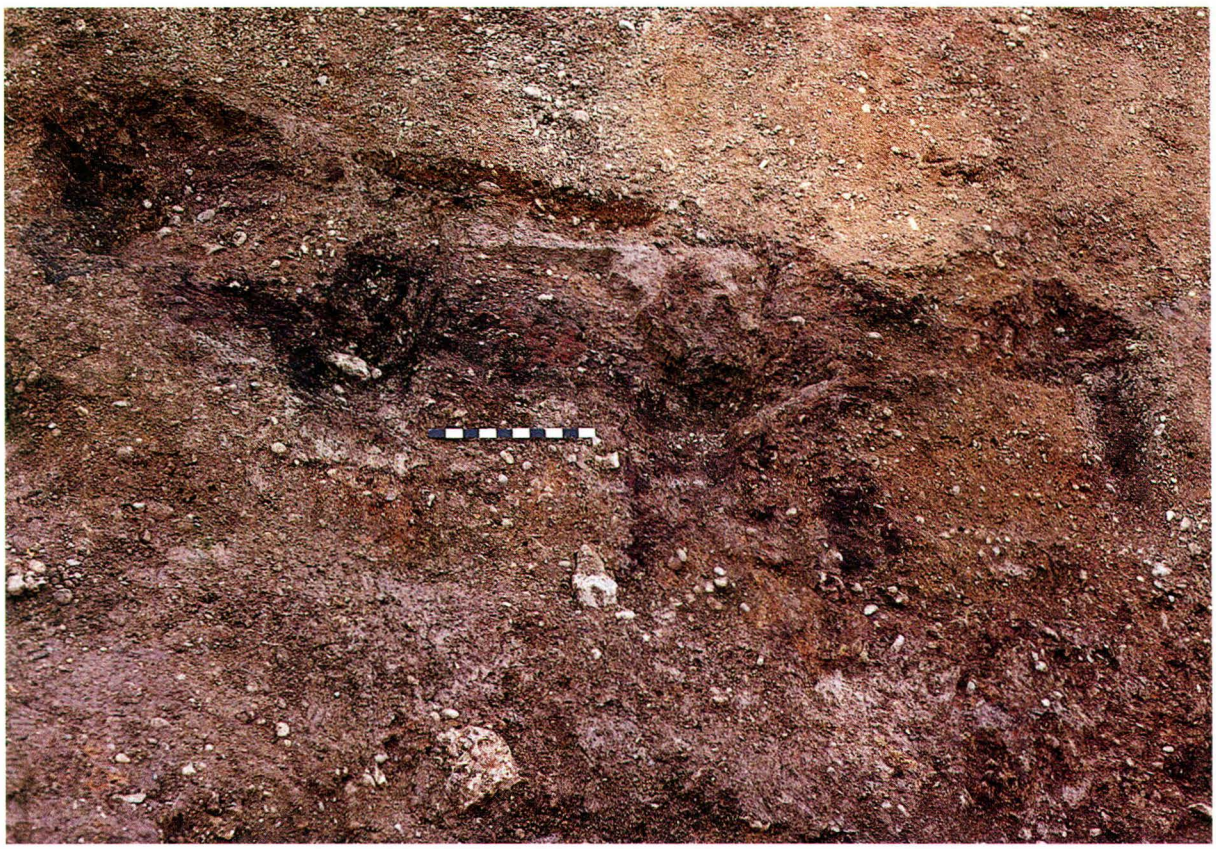
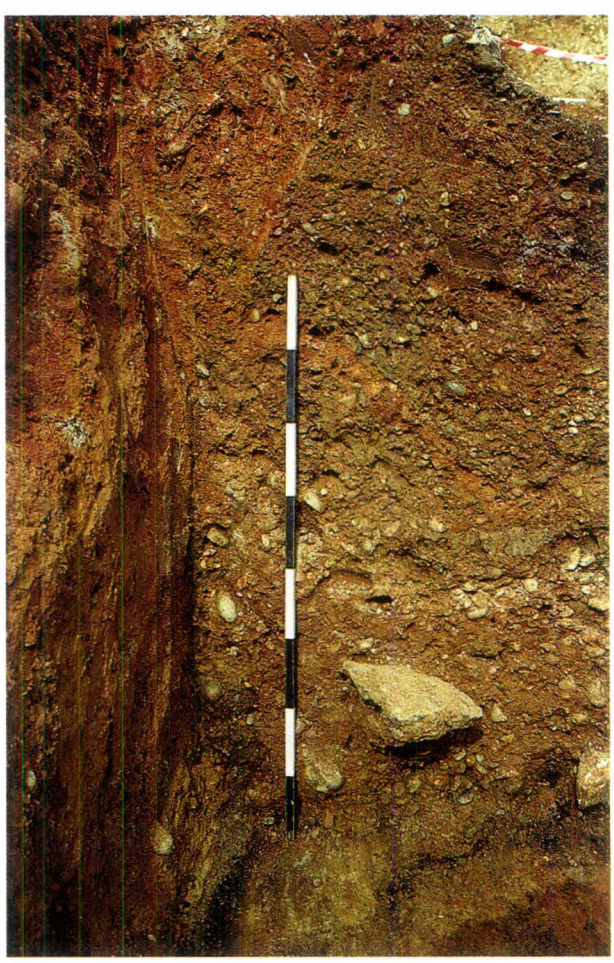


Plate XV. Remains of the timber revetment on the south west side of the shaft, showing bands of horizontal boards, and three uprights.

Plate XVI. Stains from revetment boards at the south corner of the shaft during excavation.

Plate XVII. The double revetment on the south west side of the shaft.

Plate XVIII. A section of the revetment wall on the south west side of the shaft. The clay wall-packing can be seen tilting forward {above the top of the scale} with remains of detached rendering below it and to the right {behind the centre of the scale}.



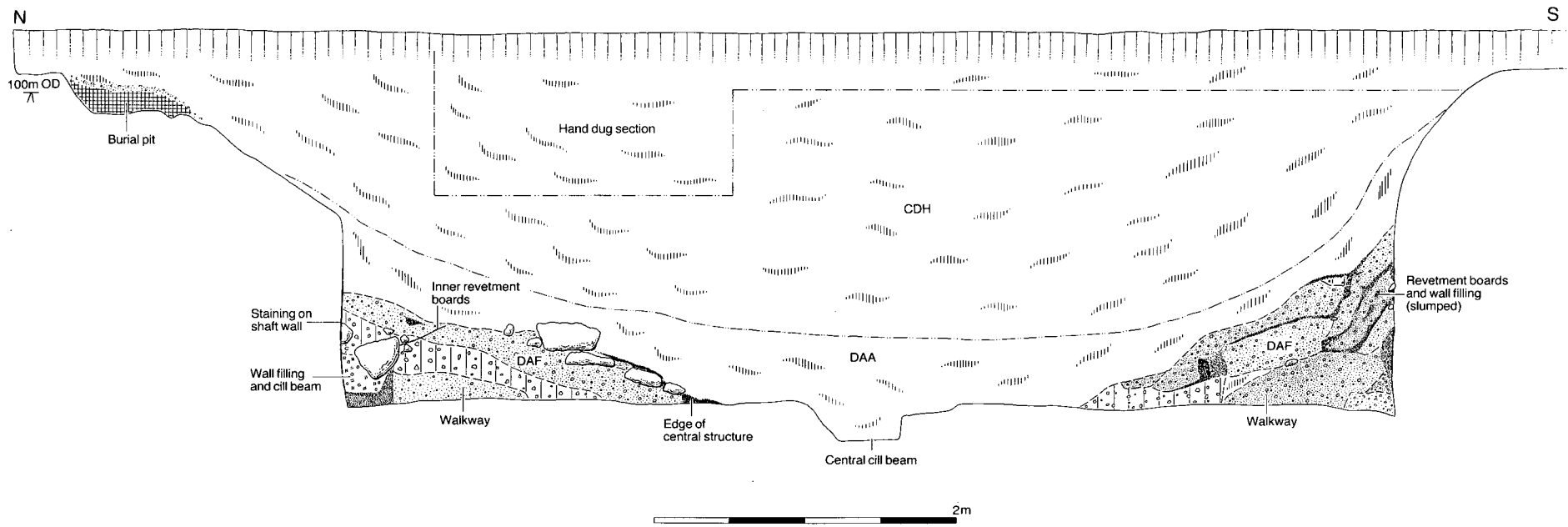


FIG. 17. North–south section through the funerary shaft and burial pit.

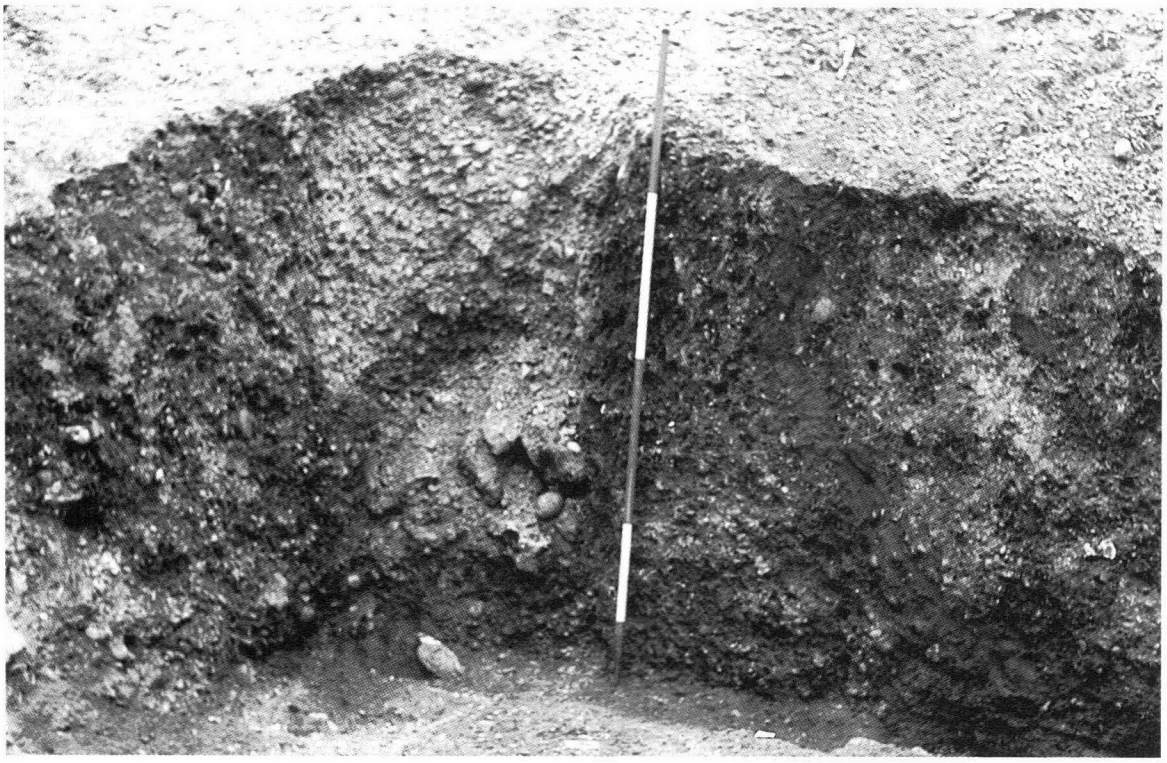


PLATE XIX. The west corner of the funerary shaft; the paler band marks the break in the revetment, possibly caused by the presence of an entrance ramp.

the wall, and the black stains of the boards on the outer face of the revetment against the wall of the shaft, were also well marked (FIG. 19, section 389). On the north-east side of the shaft the double revetment wall had split during the demolition. The inner face of the revetment had fallen forward onto the floor of the shaft, while the outer face remained in position against the shaft wall; a sizeable pudding stone boulder that was one of many that had fallen into the shaft during the demolition process, rested over the base of the wall core (FIG. 17, section 386; PL. XIX).

The fallen portion of south-west revetment (FIGS 15*a* and 21; PLS XV, XVII)

Two substantial areas of timber staining survived under the turf filling of the shaft. Both rested on deposits of fallen gravel in the base of the shaft and appear to derive from the upper parts of revetment walls along the north-east and south-west sides of the shaft (FIG. 20, S355 and S372).

This covered an area 4.5 m by 1.5 m on the south-west side of the shaft. Staining from six uprights with traces of horizontal boards on both sides of them survived. Because the timbers had clearly twisted as they fell it was not possible to determine which of the uprights were represented, although it seems likely that the sizeable upright in the centre of the area, timber *m*, represents the inner post of the fifth post pair west of the south corner of the shaft (FIG. 15*b*). Similarly timber *k* is probably the inner post from the sixth pair, and timber *j* the inner post opposite post 7; the (originally) upright timbers south-east of timber *m* (timbers *r*, *p* and *n*) are probably the inner posts of the second, third and fourth pairs along the south- west side from the south corner. There were stains from horizontal boards on both sides of these timber uprights and they were overlain by a thin deposit of sandy gravel, which may well represent the wall packing. There was no sign of fallen posts from the outer face of the revetment parts of which seem to have remained in position against the shaft face (see FIG. 19, sections 387 and 389). When excavated, all these fallen timbers appeared to be associated. While the most likely source for them seems to be the south-west revetment is possible that some (for instance timbers *n*, *p* and *r*) or all of them derive from the central structure (discussed below).

The fallen portion of north-east revetment (FIG. 15*a*)

On the north-east side of the shaft base, a slightly more extensive area of timber staining (approximately 4 m by 2 m) was similarly preserved at the base of the turf fill. This portion comprised remains of four fallen uprights (timbers *s–w*) again with staining from horizontal boards against both faces. It is probable that this portion represents the inner face of the revetment wall on this side of the shaft with timber *s* representing the inner post opposite post 18. The possibility cannot be discounted however that, like its counterpart in the south-west of the shaft, this whole section represents the wall of the central structure and that timber *w* is post 26. It is worth noting that timber *w* was traced for 2.2 m, and gives an indication of the minimum height of the shaft structures.

Method of construction

Due to the very thorough demolition that had been carried out at the end of the shaft's life, it was extremely difficult to reconstruct the original plan of the shaft structures, and the way in which they had been fitted together. Not only were the surviving traces of the wood very faint, but as the structures had collapsed they had twisted. The weight of the shaft filling overlying the remains had further distorted them. Much of the timber staining comprised only very short lengths, not more than 0.1–0.15 m long, and many more timbers survived only as barely distinguishable black smears. As a result much of what follows is conjectural. FIGURE 16 shows a reconstruction that fits the surviving evidence, and which seems to the excavator a reasonable one; it must be emphasized, however, that much depends on supposition, and that other reconstructions are quite feasible.

Apart from fifteen nails found strewn on the floor of the shaft, which were probably derived from furnishings and fittings, only nine nails were found close to timber stains on the line of the shaft revetment. This general absence of nails suggests that the shaft structures were mortised, pegged and wedged into position, rather than nailed.

All the uprights projected beyond the line of the cill beams, except for post 16 which had probably been displaced during demolition. This off-setting of the uprights implies that they were half-mortised into the beams. This explains why the bases of most uprights only projected 0.07–0.15 m from the cill beams, while staining further up the shaft suggests posts at least 0.15–0.25 m square.

The horizontal boards could have been wedged behind the uprights, or they could have been mortised. Both methods are illustrated (FIG. 16*a* and *b*). If the joints with upright timbers employed mortises, the horizontal boards could have lain flush with the outer faces of the uprights, and there would have been a tighter fit against the face of the shaft. It is assumed that all shaft structures were provided with top plates. Although no trace of these was found in the excavation, they would have been vital to the stability of the structures, and so have been included in the reconstruction drawings.

The double wall with the packing in its core called for special arrangements at the corners. At the north and east corners the two corner posts were set against one another, with the rectangular and square posts forming an L-shaped pattern. A similar effect would have been achieved by cutting a rectangular notch out of a single massive post. It is suggested that the horizontal boards were then mortised into it. For some reason, a different arrangement was adopted at the south corner. Here the corner posts, C and D were set 0.15 m apart, and the horizontal boards and orange sand core packing of the south-west revetment wall, continued 0.1 m east of the corner post D to the east face of the shaft (FIG. 19, section 389).

The west corner (FIG. 15. PL. XIX)

The arrangement of uprights at the west corner was abnormal. The south-western cill beam stopped short of the west corner so that corner post H, which stood at the end of the beam, was positioned 1.5 m south-east of the corner instead of in the corner itself, close to post G. Extra posts, posts 8 and 9 were placed 0.5 m west and 0.6 m north-east of post H respectively. There was no sign of the cill beam between post 8 and corner post G, but staining from a narrow

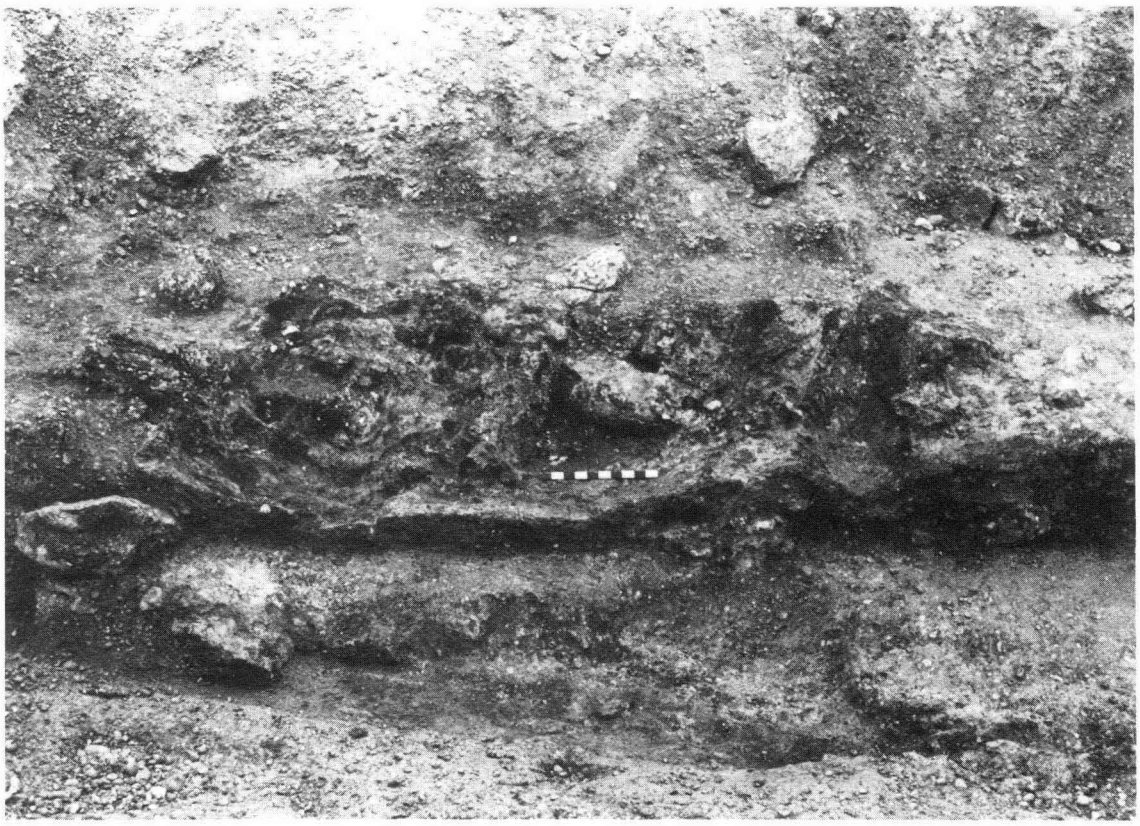


PLATE XX. 'Turf' slumped into the central structure. The rectangular outline of the structure, defined by the raised 'step' can be clearly made out.

PLATE XXI. View of the partly excavated shaft from the north-east. The unexcavated burial pit is on the right of the picture, and timber staining on the shaft wall is visible on the left of the picture. The base of the 'turf' filling on the floor of the shaft has been partly excavated.

PLATE XXII. The gravel step. The vertical edge of the step can be seen in the centre left of the photograph, with the gravel and pudding stone in the shaft fill, on the left.

PLATE XXIII. Timber revetment against the north-eastern side of the central structure.

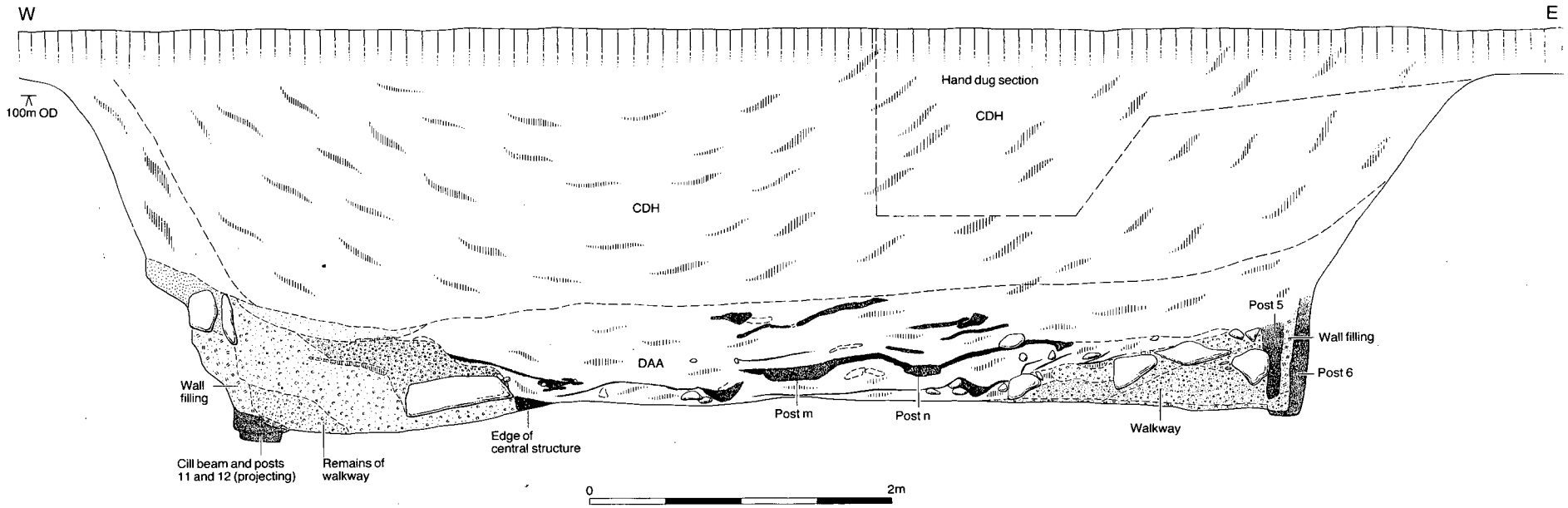


FIG. 18. East–west section through the funerary shaft.

length of board was recorded at the base of the south-west wall of the shaft over 0.5 m in the west corner. The explanation for the abnormal corner plan is uncertain, but it is possible that it reflects an entrance into the shaft. The 'extra' posts, posts 8 and 9, may have supported wooden steps or a steep ramp at this point. It must be admitted that no trace or these survived, but it is possible that the clean gravel filling in this segment of the shaft had been placed there during the life of the shaft in order to support a ramp or steps; posts 8 and 28 could have provided extra revetment for it (PL. XIX).

THE SHAFT FLOOR

The floor of the shaft had been carefully levelled. In a few areas there were distinct timber stains on the surface of the natural gravel that formed the base of the shaft. These covered areas 6 m by 0.8 m and 1 m by 1.2 m and appeared to be the remains of flooring, rather than collapsed wall sections. The grain of the wood indicated that the boards ran parallel to the central beam, and were at least 0.30 m wide. There were, however, faint traces of a timber, or timbers running at right-angles to the central beam over the south half of the shaft floor, and there may well have been a joist in this position, presumably with a corresponding joist in the north half of the shaft.

Near the north corner of the shaft floor was a small pit (context DJE) apparently cutting through the floor boards. This was only 0.5 m in diameter, 0.32 m deep, with a rounded base. It had been cut only shortly before the final infilling of the shaft, since its edges were fresh and unweathered. Its purpose is not known, but there were no timber stains to suggest it was a posthole. It was filled with gravel and contained fragments of cremated bone, pottery sherds and a copper alloy terminal with the remains of an iron shank (funerary find no. 14).

Round the edges of the base of the shaft the wooden floor was overlain by a deposit of clean, rammed gravel, up to 0.3 m thick and 0.8 m wide. This formed a slightly raised walkway and overlay the south-eastern and north-western ends of the central beam. A thin layer of grey silt lay on the surface of the walkway, and appeared to have been heavily trampled on. Webster has drawn attention to references to the Celtic practise of circumambulation of ritual areas (Webster 1995, 460), and it seems likely that the walkway was used in this way. The question is discussed more fully below (p. 59).

THE CENTRAL STRUCTURE

The rammed gravel ended at a vertical face around an area approximately 3.5 m square in the centre of the shaft. The vertical edge must originally have been reveted, and although the surviving evidence was very incomplete, there were faint indications of a double wooden wall

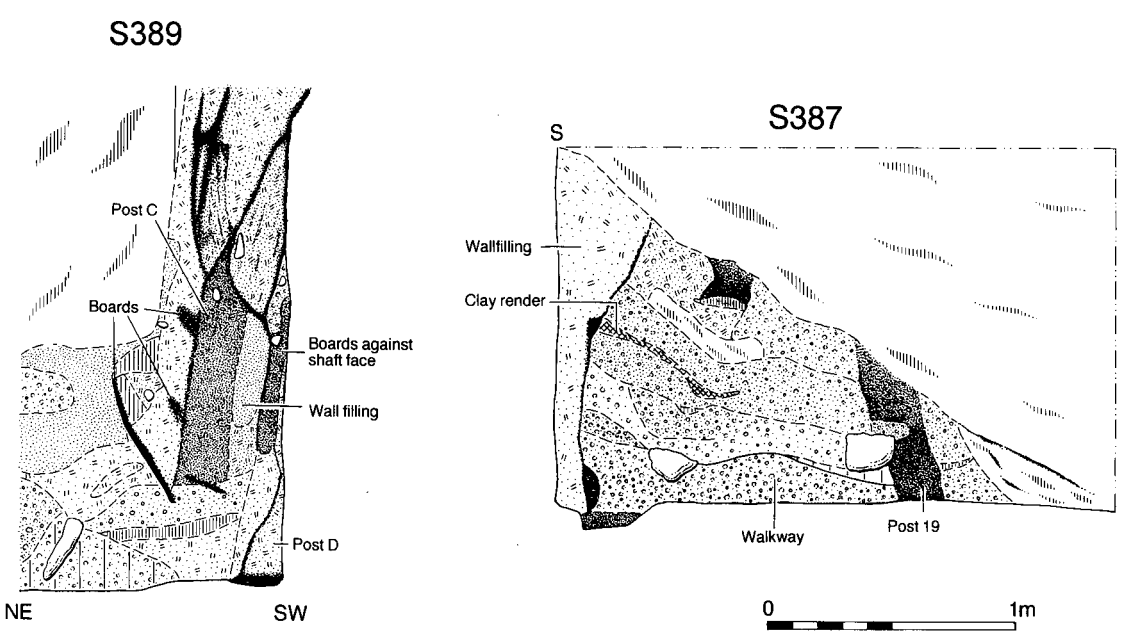


FIG. 19. Section showing the revetment wall at the south-east corner of the funerary shaft.

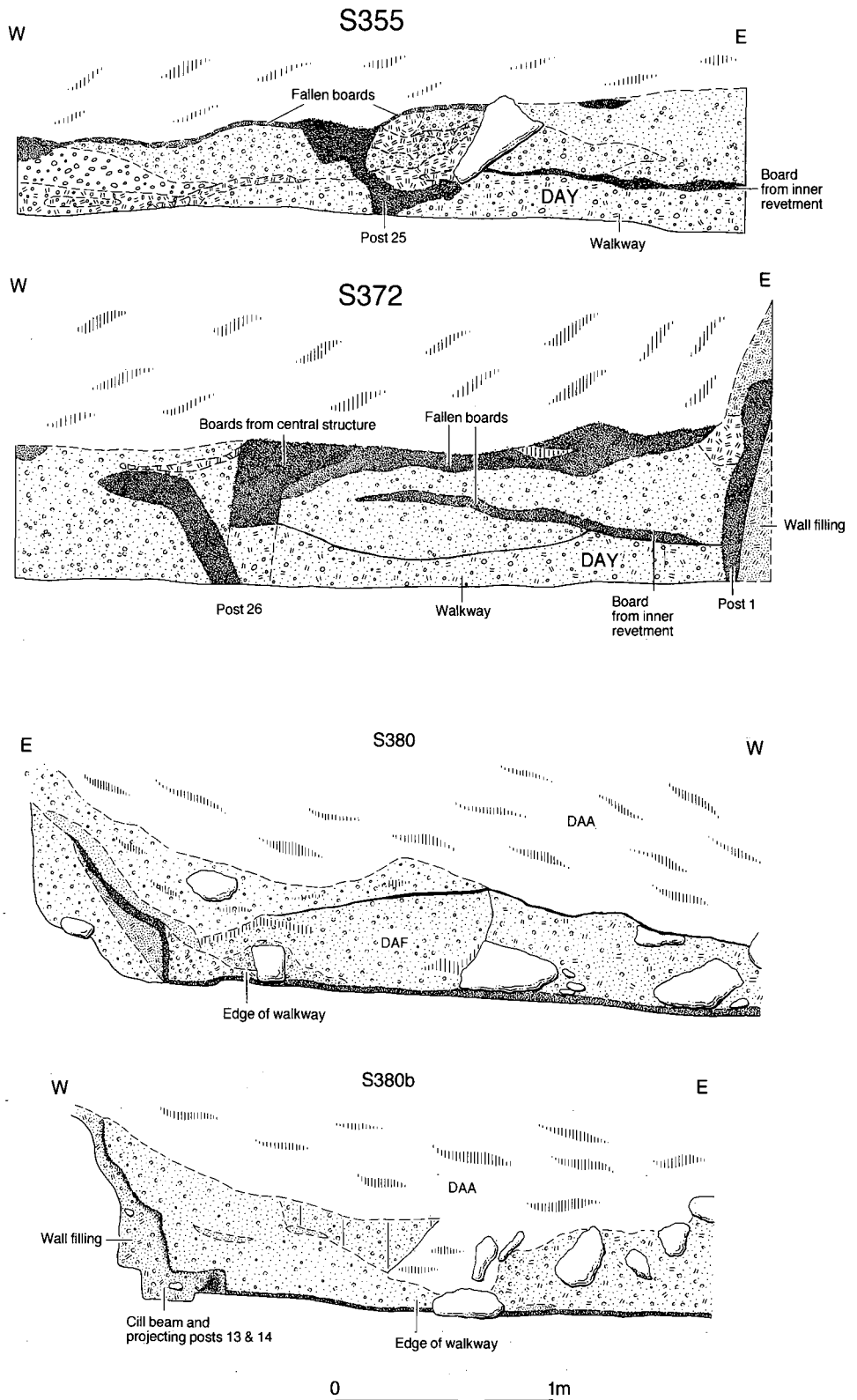


FIG. 20. Sections across the walkway surrounding the central chamber in the funerary shaft. For the positions of the section lines, see FIG. 15.

(PLS XX–XXIII). This wall was represented by traces of wooden boards and nine post bases, against the edge of the walkway. The best preserved evidence came from the south-west side of the shaft, under the area of staining from the collapsed south-west revetment wall (FIG. 15*a* and *b*). Evidence for the vertical face of the walkway was recorded in sections 355, 372 (FIG. 20) and sections 386 and 387 (FIG. 19). In sections 380 and 380b (FIG. 20) the face was in a

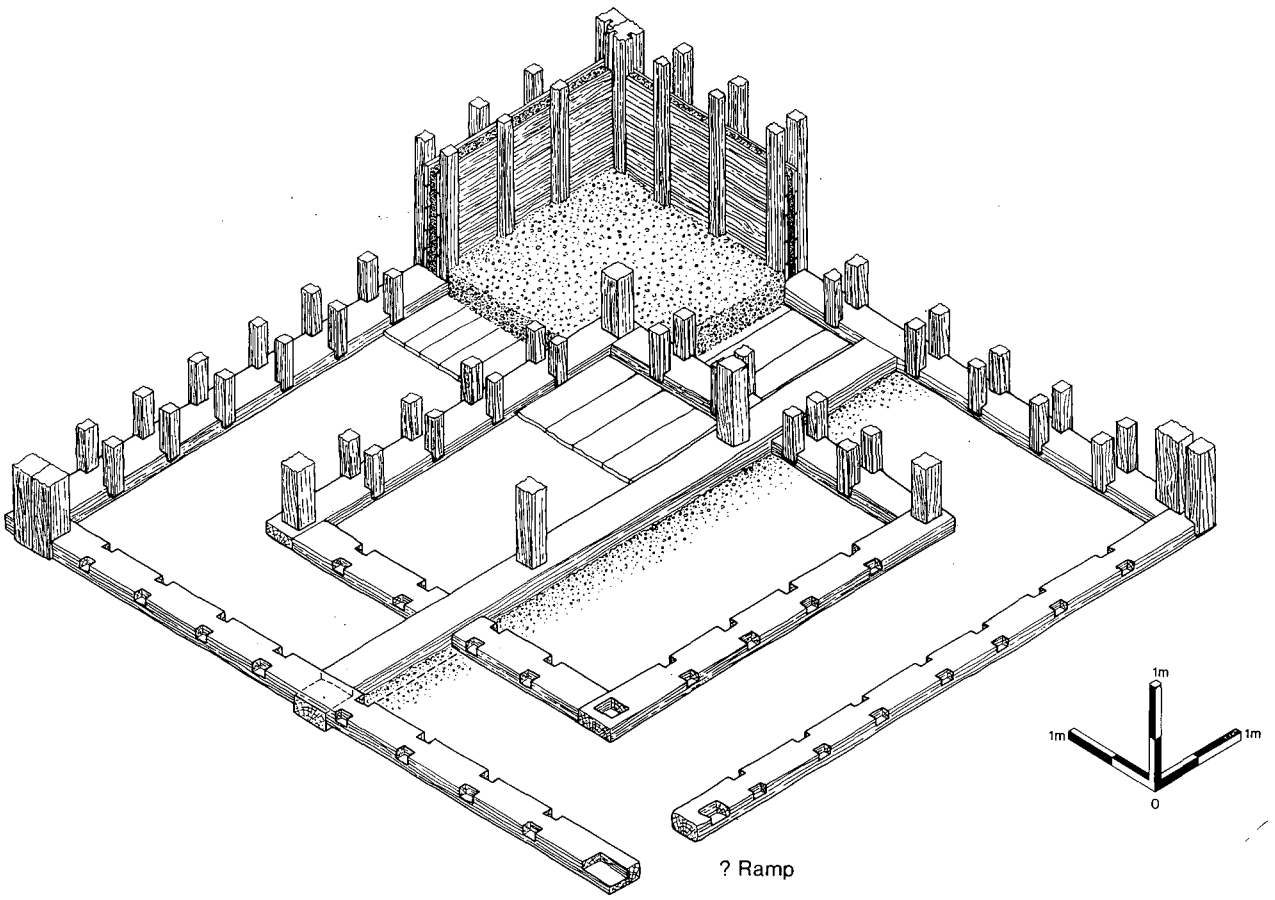


FIG. 21. Reconstruction of the base of the timber structures in the funerary shaft.

state of partial collapse, while in sections 372, 375, 385 and 388 (FIGS 18 and 20) it had collapsed completely. The staggered position of posts 24 and 25 has been taken to indicate a double row of posts, as may posts 19 and 23 which lie slightly north of the row of posts, 20–22. It is doubtless due to the collapse of edges of the step that traces of only a few uprights survived.

As none of the uprights stood in a posthole, it is assumed that they rested on cill beams. In the reconstructions illustrated here the timbers around the central area are shown continuing above the surface of the rammed gravel of the step or walkway to form a central chamber (FIG. 21). Such a chamber would have been similar in size to that at Clemency (see below, FIG. 110), which also had a double wall and central beam (Metzler 1991, fig. 22). However, an alternative reconstruction, in which the central area forms a shallow, reveted pit surrounded by a raised walkway, is equally consistent with the recorded evidence.

THE ROOF

Posts 27 and 28 were represented by very clear stains from large squared posts (0.25 m square) set into the central cross beam. Both were first detected in the base of the turf 0.2 m above the floor of the shaft, and both had fallen towards the north-west. These two uprights presumably supported a roof, but whether it was flat (as at Clemency) or pitched, and whether it was boarded, turfed or thatched, is not known. No timbers that could confidently be interpreted as roof remains were recognized in the excavation.

It is worth noting that silt was found on the rammed gravel surface of the walkway, but no silt was found elsewhere in the shaft. Although this may be evidence that the area between the edge of the shaft and the central structure was open to the sky, (as shown in the reconstruction, FIG. 22) it is equally possible that the 'silt' was simply material washed out of the turf, which then accumulated on the slightly less pervious surface of the walkway.

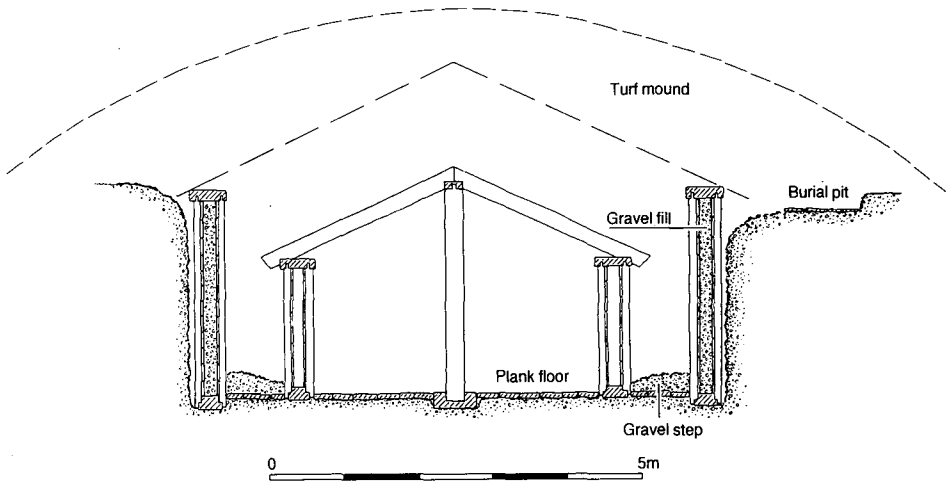


FIG. 22. Diagramatic section of the funerary shaft, burial pit and turf stack.

THE CONTENTS AND DATE OF THE SHAFT

Lying on the floor of the shaft and on the surface of the walkway (contexts DAG, DAP), was a substantial quantity of pottery, fragments of metalwork, and a small quantity of cremated bone. This material is discussed in detail below (pp. 133–96), but its salient features are as follows.

The ceramics

Fragments of at least forty vessels were found (FIG. 63). Of these fifteen were in South Gaulish samian ware, five were Gaulish imports, and fourteen were in fabric imitating terra nigra. There were also fifty-six sherds (4418 g) from at least four and possibly six Italian amphorae (Dressel 2–4) in three fabrics, four vessels in local 'native' silty fabrics and part of a kostral in local sandy fabric. With the exception of three bowls and a grooved butt beaker, normal domestic vessels of the types characteristic of the period 2 occupation at Folly Lane were absent. A few weathered body sherds in grog-tempered fabric were found in the turf and redeposited gravel that filled the shaft, but these probably represent rubbish lying about in the area when the shaft was filled.

The pottery included six stamps, including four from samian vessels. With the exception of one samian stamp dated to A.D. 35–55, all date from the period A.D. 45/50–65, a date with which the rest of the material from the base of the shaft, and from the adjacent burial pit is in broad agreement.

The pottery was found scattered across the base of the shaft, although it was concentrated near the east corner, was sparse in the centre, and was absent from the west corner. It lay on the floor of the central structure, and on the surface of the walkway surrounding it. A few pieces were incorporated in the gravel back-fill and in the lowest courses of the turf, but none was found beneath the walkway (FIGS 27–9).

None of the vessels found was complete. Only two vessels had sherds making up more than 60 per cent of the original, while twelve were represented by only a single sherd. Nevertheless sherds from the same vessel were often found in widely differing parts of the shaft floor. For example, of the two sherds that represent samian vessel 2, one was found in a small group with sherds from samian vessels 1 and 13 on the north-west edge of the shaft near post 14, and the other associated with sherds of vessel 7 on the edge of the walkway near the south corner of the central structure. Joining sherds from the imported butt beaker were found on the floor of the shaft and on the surface of the walkway as well as in the backfilled gravel and in the lowest layer of laid turf over it. Although much of the pottery in the shaft was stained black by iron salts in the gravel, only three show signs of burning; all of these came from the backfilling of the shaft.

The metalwork

Over sixty small fragments of metalwork were found in the shaft. They were distributed in much the same way as the pottery. The majority of the metalwork consisted of small pieces of iron

(eight fragments, fifteen nails) and tiny fragments of silver and copper alloy; the fragments included twenty-two 'droplets' of solidified molten bronze. There were also a few recognizable objects — the copper alloy terminal from pit DJE, four small studs and rivets (funerary find nos. 29, 34, 36–7), a z-shaped iron bar, possibly a latch-lifter from a lock (no. 41), an iron terminal from a fire-dog (no. 13), an iron bar (no. 16) and a silver handle (no. 17). One object, a fragmentary iron plate, (no. 43) was sealed beneath the walkway. Apart from the 'droplets', none of the copper alloy from the floor of the shaft showed signs of burning, while in the case of the ironwork the question as to whether it had ever been burnt was not determined.

The cremated bone

There was less than 33 g of cremated bone from the shaft, all of it in a very chalky, friable condition. It was not possible to determine whether it was animal or human. Bone was found in the centre and south-eastern side of the base of the shaft, and in the filling of the small pit (DJE) near the north corner of the central structure. Five small deposits of bone were clearly sealed beneath the gravel walkway surrounding the central structure.

Flint

It is interesting to note the presence of a pressure flaked ovate dating from the late Neolithic or early Bronze Age (funerary find no. 52). This was found in the lowest layers of backfilled gravel, near the north corner of the shaft. It may simply be a chance inclusion, but its distinctive appearance suggests it may have been picked out as a curiosity and deliberately included. It invites comparison with the Middle Bronze Age palstave found in the Lexden tumulus (Foster 1986, 77–80, fig. 28f).

THE DEMOLITION OF THE SHAFT

The shaft structures appear to have been deliberately demolished, rather than simply to have fallen down through decay. The major part of the shaft was filled with a massive deposit of soil and turf (contexts CDH, DAA). Below this were clean tips of sand and gravel (FIGS 17–18, contexts DAF, DAZ, DFT, DFV; PLS XXI and XXXI). This material was clearly redeposited natural, but as it contained no silt lines such as would be expected in the course of natural silting, it presumably resulted from a single, dramatic collapse of the shaft walls. As remarked above, the mouth of the shaft had been enlarged considerably. That this took place very shortly before the final infilling of the shaft is demonstrated by the total absence of any sign of weathering or silting of the cut back edges. It is difficult to avoid the conclusion that this cutting back was undertaken in order to undermine the revetment, which then fell into the floor of the shaft, to be followed almost immediately by the collapse of the shaft itself. Numerous large boulders of Hertfordshire pudding stone were found in the floor of the shaft. Although some of these no doubt fell in along with the shaft itself, the numbers represented suggest they had been deliberately collected and thrown down onto the shaft structures in order to break them up.

It is noticeable that remains from the north-east and south-west revetments were better preserved than those of the south-east and north-west. This was probably simply because the former were the last to fall in and so were less broken up than the others.

THE MOUND AND FUNERAL PYRE

North-west of the shaft the surface of the natural gravel was extremely uneven (FIGS 31–2, contexts CUK, CMZ). This was probably the result of trees and bushes being grubbed up during the clearance of the area; pudding stone boulders, which were particularly common on this part of the site, may also have been dug out. The whole area was then levelled by a thick deposit of mixed sand, gravel and loam (FIGS 31–2, contexts DEB, DEF, CEF). Although including occasional scraps of grog-tempered and flint-gritted pottery, the bulk of the deposit clearly consisted of redeposited natural sand and gravel, which was interpreted as material dug from the shaft. The entire deposit was removed in the course of the excavation in order to ascertain that there were no major features beneath it or adjacent to it.

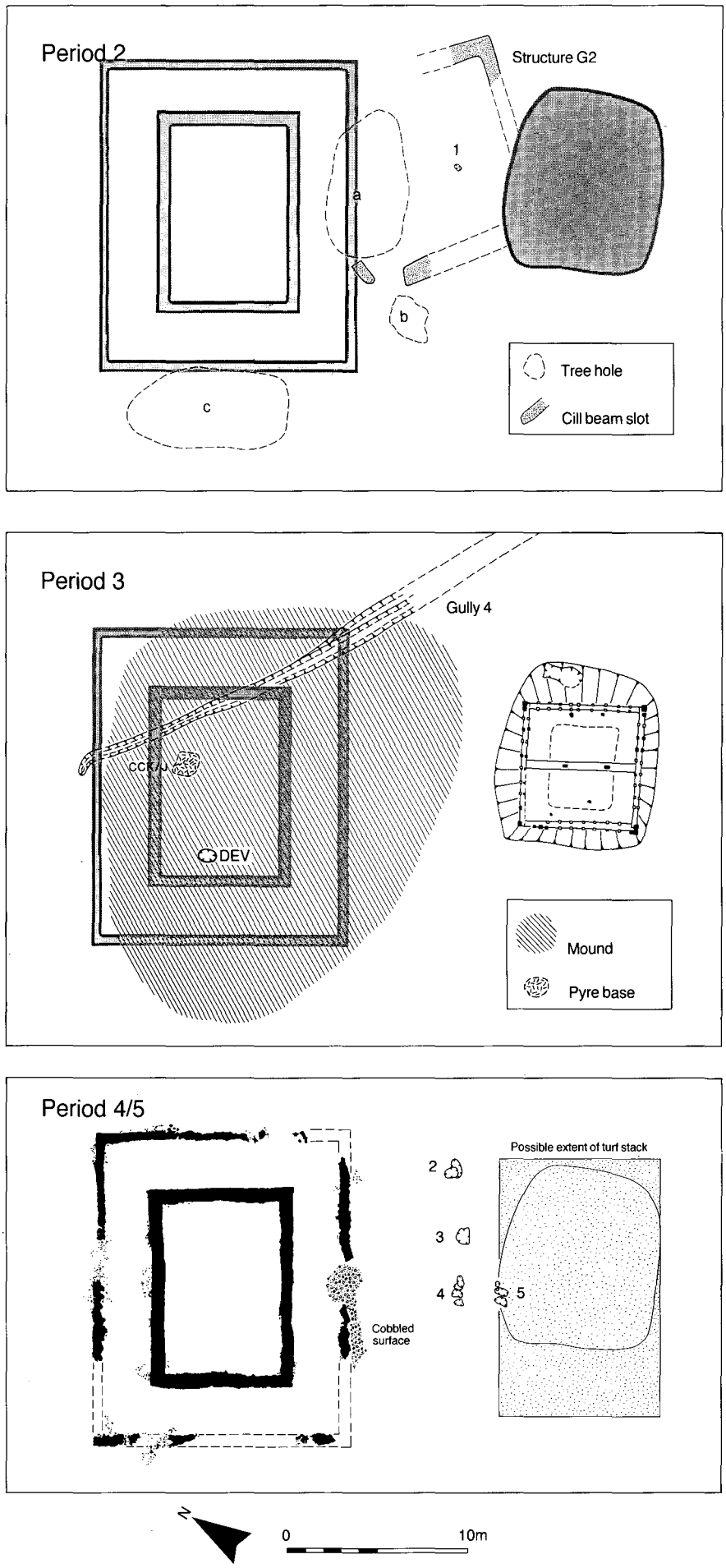


FIG. 23. The Romano–Celtic temple, funerary shaft and turf stack.

The deposit filled the tree holes and extended over an area approximately 22 m in diameter and formed a low mound up to 0.7 m thick (FIG. 23). The mound must have suffered considerable disturbance, and no doubt levelling, when the temple was built over it in the later first century; subsequent erosion also took a heavy toll. Eighteen metres north-west of the funerary shaft the surface of the mound had been scorched or baked and embedded in it were a few small scraps of molten copper alloy (FIGS 23 and 31, context CCJ/K). This presumably represented the remains of the pyre, on which the material in the burial pit had been burnt. The heat generated by the pyre must have been in excess of 900° C, and it may be that this scorching only represents the base of a rather thicker layer of burning. The numerous pieces of burnt clay and fused metal and gravel that were found in the burial pit suggest that much of the base of the pyre had been removed and buried, along with the cremated material. The surviving area of burning lay near the north edge of the mound; this was probably all that remained of a much larger area of burning, remains of which was removed when the temple was built over it in period 4. There was no sign of a pit or slot at Folly Lane, comparable to the sub-pyre features at Westhampnett and elsewhere (Fitzpatrick 1994, 108); presumably the slightly raised position of the pyre on the mound itself provided sufficient updraught.

The mound partially sealed three of the tree holes already referred to (PL. XXIV and above). Even allowing for the extra material needed to fill the tree holes, a mound which, even in its original, unweathered state, was probably not much more than than 1 m high and *c.* 20 m across, would not account for the estimated 1800 cubic metres of material dug out of the shaft. There was no sign of a revetment or surrounding ditch nor indeed any indication as to whether the mound was square or round in plan. Nevertheless it is difficult to avoid the conclusion that not all the material excavated from the shaft was used for the mound; some may have been carted away to add to the bank surrounding the enclosure.

On the top of the mound, slightly to the south-west of the centre of the enclosure, was a small

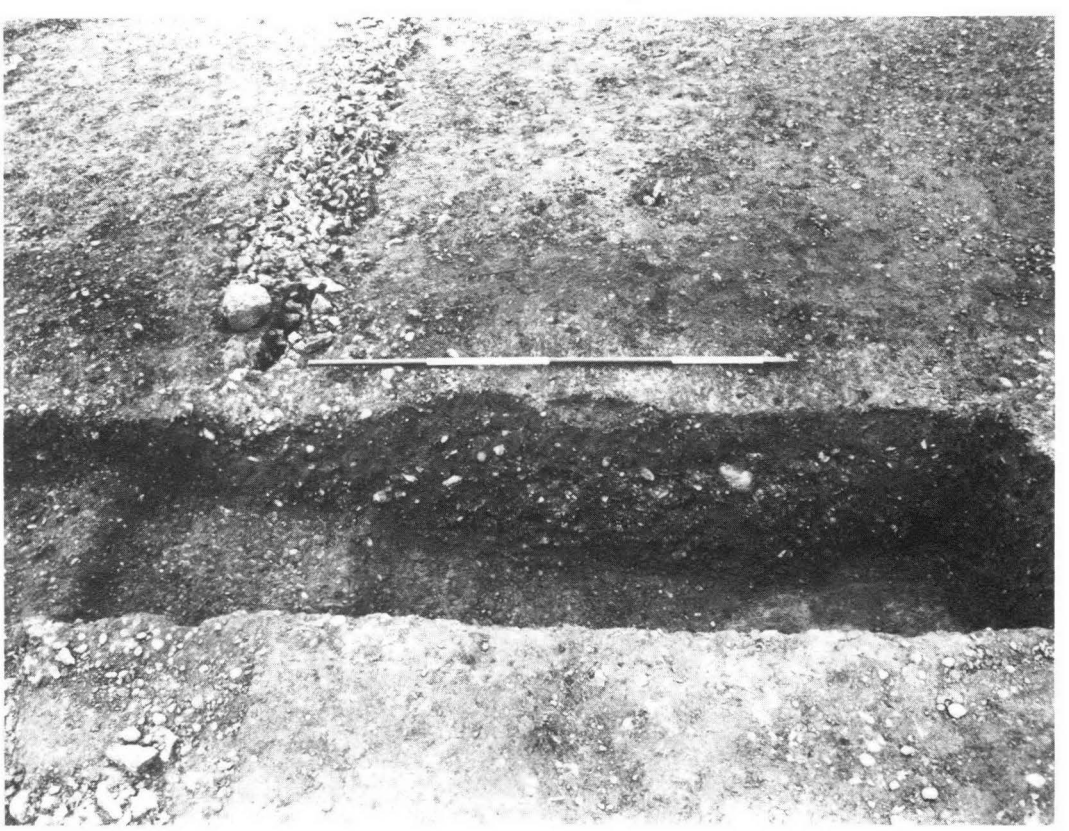


PLATE XXIV. Gravel upcast presumably from the funerary shaft, filling a shallow 'treehole' (context CUK, FIG. 32 and 'a' FIG. 23) and cut by the north-eastern ambulatory wall of the temple. Compare the shallow depth of the ambulatory wall with the footings for the cella wall, PLATE XXXIV.

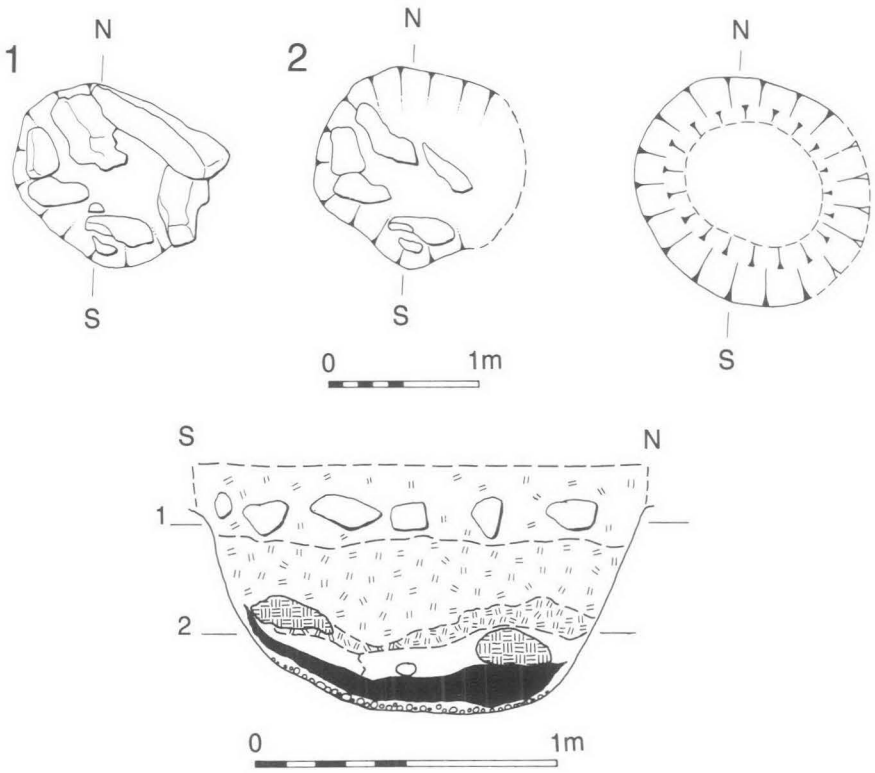


FIG. 24. Plan and section of posthole marking the pyre site.

post-pit (context DEV), 0.45 m in diameter, 0.3 m deep with vertical walls and a shelving base (FIGS 23 and 24; PLS XXV and XXVI). In its base were two fragments of molten silver, part of a bronze ring (funerary find no. 47) a fragmentary moulding of a bird's feet, possibly from a priestly head-dress (funerary find no. 48) and an iron object of unknown use (funerary find no. 49). These objects were contained in a deposit of burnt daub, similar to the burnt daub fragments found in the burial pit; all this material was presumably derived from the funeral pyre. There was no sign of scorching on the pit sides or base, so there is no question that the daub was burnt *in situ*, and it was presumably placed here when it was already cool. Nine undressed lumps of millstone grit had been placed over the burnt daub, apparently as packing for a substantial post. The base of the post would have rested on the burnt daub. The posthole was later sealed by the make up for the floor for the period 4 temple (FIG. 31, context DEV).

Cut into the north-eastern edge of the mound was a small gully, gully 4 (context CFS). This closely resembled gullies 1 and 2 of period 2 (p. 14 above), and was filled with similar stoney grey silt. Gully 4 clearly cut the mound, however, and so must post-date the construction of the shaft, and presumably, the main enclosure ditch also. On the other hand, since it was sealed not only by the make-up and footings of the period 4 temple, but also by a layer of weathering on the surface of the mound, it must belong to a late phase of period 3 (FIG. 31; PL. XXVII). Gully 4 produced a small quantity of locally produced grog-tempered pottery, exactly similar to that found in the period 2 gully 1, and in the filling of the Iron Age ditch. The purpose of the gully 4 is not known, but it is possible that it was simply dug to define the funeral area. It is noticeable that it appears to skirt the centre of the mound, and ends abruptly 11 m to the west of the post-pit DEV. The eastern end is not known, as it ran beyond the area of the excavation, but it may be significant that 4 m north of the shaft, gully 4 bends sharply to the north-east, as if to include the site of the burial and the putative turf stack above it. There are signs that it was recut at least once over this stretch, but there was nothing to indicate whether the recutting took place in period 3, or later.

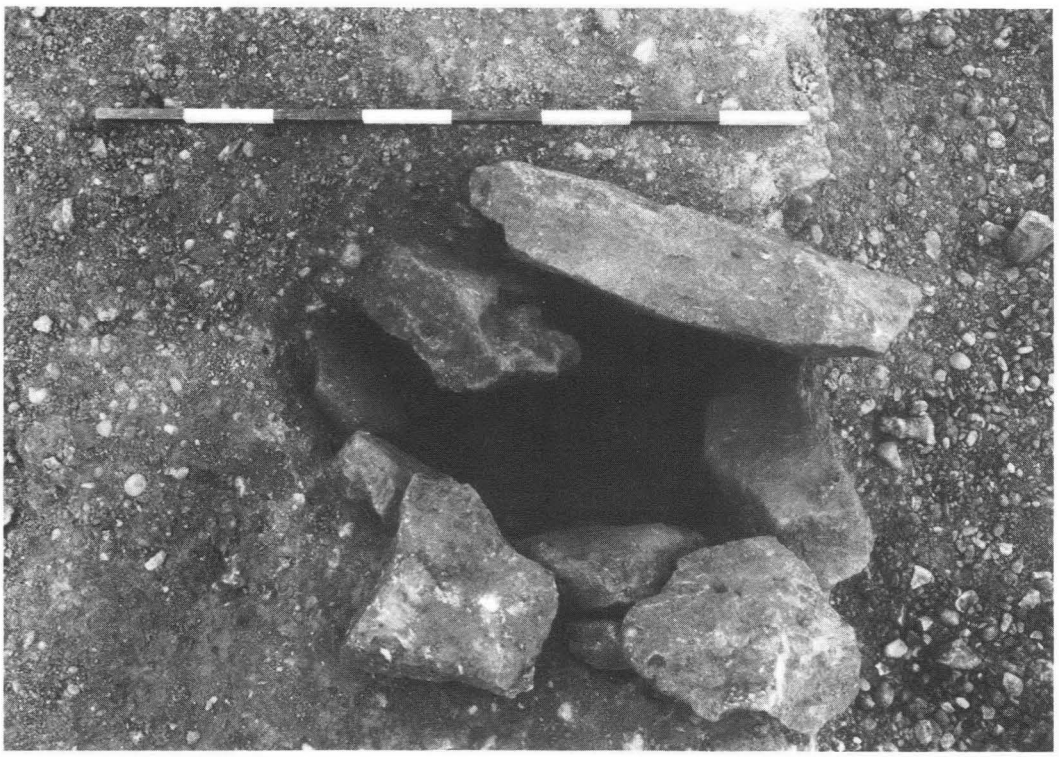


PLATE XXV. Millstone grit packing of posthole (context DEV).

PLATE XXVI. North–south section, looking west, showing the south cella wall and posthole DEV cutting the gravel 'mound' from the upcast from the funerary shaft. (See also FIG. 31).

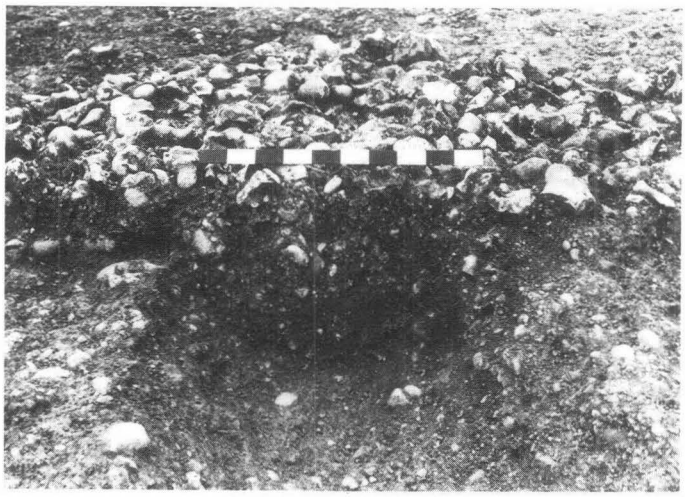


PLATE XXVII. Gully 4 beneath the ambulatory wall at the east corner of the temple.

THE BURIAL PIT

Half a metre north-east of the north-east wall of the shaft a pit, roughly kidney-shaped in plan, had been cut 0.7 m into the sandy gravel subsoil. It was sealed by the upper levels of the filling of the funerary shaft. With the exception of a small disturbance caused by burrowing animals (possibly a badger) on the eastern side of the pit, the turf continued uninterrupted across both the burial pit and the shaft, and it was clear that the two had been filled at the same time (FIGS 17 and 22; PL. XXVIII).

The pit measured approximately 2.7 m by 0.9 m with the long axis aligned roughly north/south. It was not possible to determine the original dimensions of the pit precisely since the south end had been destroyed by the collapse of the main shaft. However, it is unlikely that a substantial amount of the pit was lost in this way. The surviving walls were nearly vertical and originally the base had been almost level, although it had been disturbed to some extent by burrowing animals. There were traces of a turf lining along the south-east wall of the pit, suggesting that the unstable sand/gravel sides of the burial pit had been roughly reveted with turfs (FIG. 26).

In the centre of the pit was a mass of heavily burnt debris, up to 0.4 m thick, and consisting of charcoal, solidified molten copper alloy and silver, numerous fragments of iron and nails,

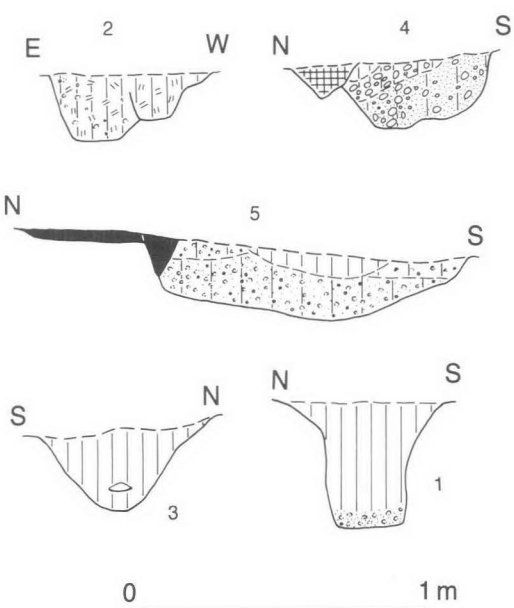


FIG. 25. Sections of stakeholes and scoops at the foot of the turf stack. 1 = context DFB (period 1); 2 = context CRF, 3 = context CRA, 4 = context CRJ, 5 = context CRE (all period 3–5).

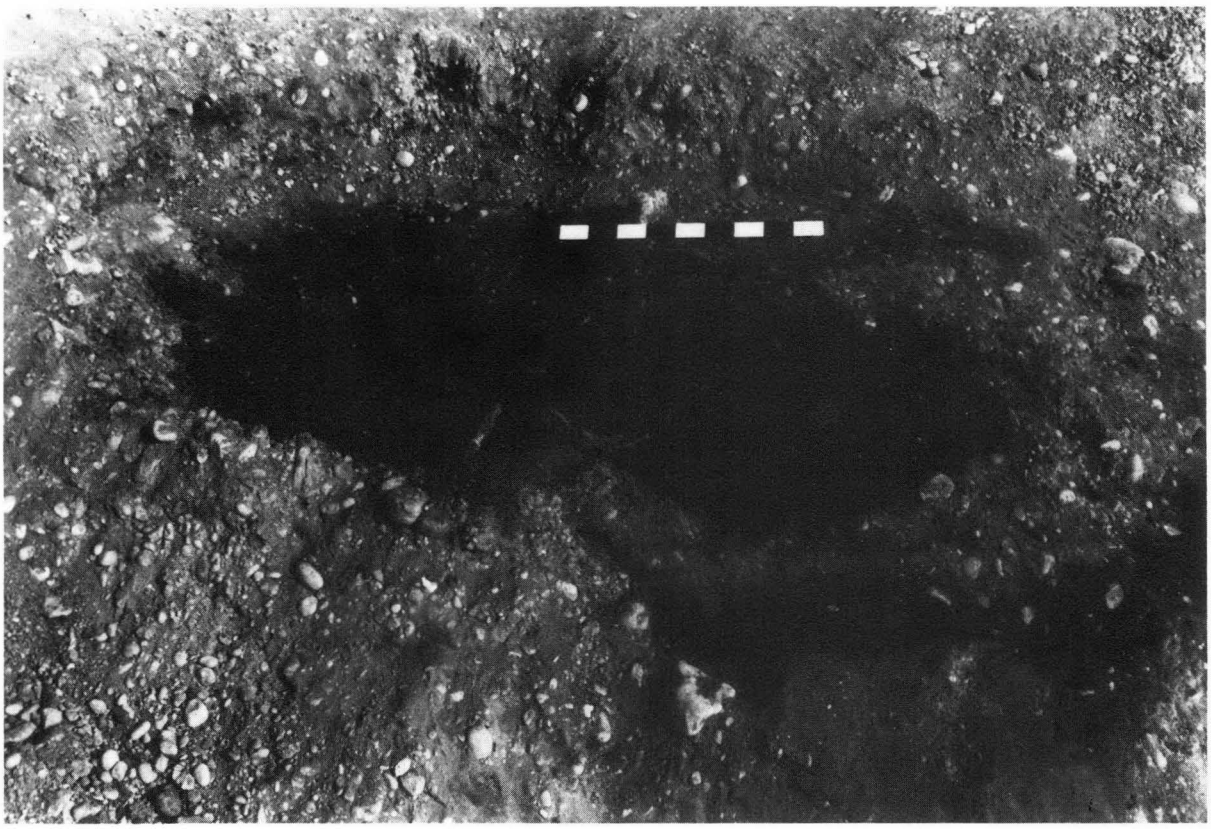


PLATE XXVIII. The main burial pit prior to excavation and still filled with pyre debris. The 'singed turf' can be seen as a grey band on the right-hand edge of the pit in the foreground of the photograph.

burnt clay, amphorae sherds and crumbs of cremated bone. This material had been heaped up in the middle of the pit, where it covered an area approximately 1 m in diameter. The north-western and south-eastern edges of the pit were filled with turf and loam, with spits of sand and gravel. Much of this material, together with the revetment of the pit, was charred, suggesting that the burnt debris was still hot when it was put in position.

Lying on the surface of the burnt debris were two well preserved objects: a two-link copper alloy bridle bit, inlaid with enamel, and a enamelled toggle (FIG. 26, nos. 9 and 10, PL. XXIX). Adjacent to the bridle bit lay a large bundle of iron mail. Apart from these items, the other objects in the pit were in an extremely fragmentary condition. Wherever possible the masses of solidified molten metal and iron fragments were lifted in blocks, and, after being X-rayed, were excavated in the laboratory of the Verulamium Museum. The remainder of the pit fill was removed and sieved in the Museum resource centre.

The material from the pit is discussed in detail below (p. 133). It included 1428 g of body sherds from at least two Dressel 2–4 amphorae in amphora fabrics 3 and 4 (p. 194 below); sherds in fabric 3 were also found in the turf filling of the funerary shaft, but sherds in fabric 4 were only found in the burial pit. The sherds in the pit, however, all showed signs of burning, in contrast to the unburnt sherds in the shaft. Other pottery from the pit was confined to four small sherds, all heavily burnt and two of which may have come from cups also represented on the floor of the shaft (see below p. 190). The bulk of the material from the burial pit, however, consisted of the remains of a large collection of high status objects of iron, copper alloy, silver, ivory and worked wood. Small quantities of cremated human and animal bone were found scattered throughout the deposit, with no concentration in any one place. The cremated bone amounted to only 165 g in total, 23 g of which was of animals (hare (or possibly cat), sheep/goat, cattle and horse). The whole deposit was interpreted as pyre debris from the cremation of a high status individual, which the style of identifiable metalwork suggests took place in *c.* A.D. 55. In the base of the pit the molten metal had fused with nails, gravel and burnt clay, and had

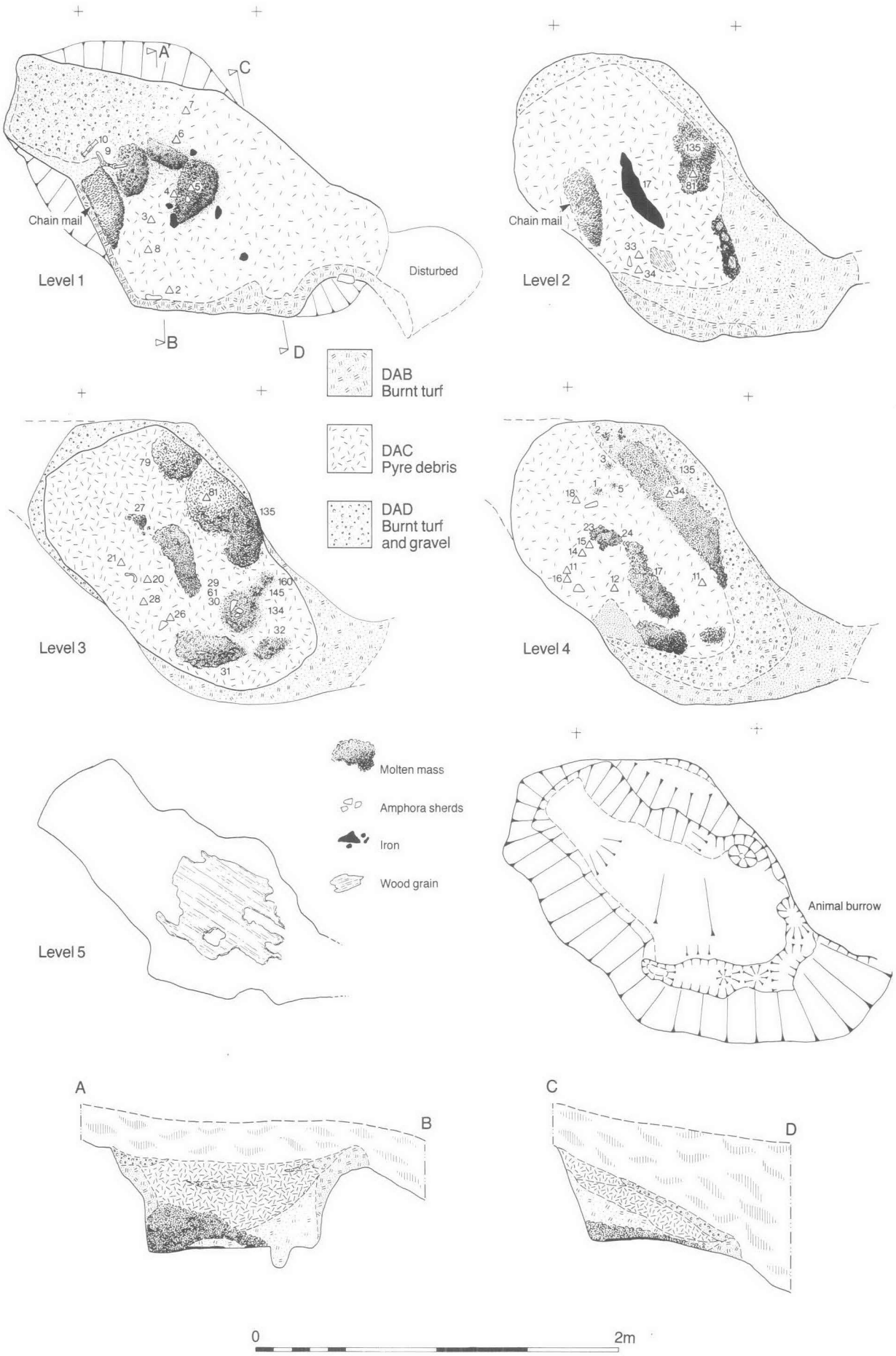

Level 1
Chain mail
Disturbed
Level 2
Chain mail
Level 3
Level 4
Level 5
Animal burrow
DAB
Burnt turf
DAC
Pyre debris
DAD
Burnt turf
and gravel
Molten mass
Amphora sherds
Iron
Wood grain
A
B
C
D
0
2m

FIG. 26. The burial pit. *Level 1* (0.1 m): 2, iron buckle **10**; 3–4, ?nave-band fragments; 5, bronze fragment; 6, bronze sheet (folded); 7, white metal sheet (folded); 8, bronze fragment; 9, bridle bit **1**; 10, toggle **2**.
Level 2 (0.25 m): 17, cremated bone, iron bar **16**; 33, tube fragment; 34, iron fragment; 51, iron and bronze fragments; 135, molten mass with nave-band fragments, horse brooch **3–5**, **7**, strap fastener **9**, ?lynch pin **22**, ?mask **23**.
Level 3 (0.40 m): 20, nave band **11**, rim **23**, bronze fitting; 21, flanged binding; 26, nail; 27, molten mass and washer **18**; 28, iron fragment; 29, bronze binding and hobnails; 31, pole-cap **12**, furniture foot **15**, rivet **32**, flanged binding, hobnails, band, much silver; 60, bronze sheet; 70, tubes **21**, folded bronze sheet, bronze droplets; 81, flanged binding, ivory; 134, horse brooch **6**, molten mass, ivory; 145, bronze droplets; 160, silver droplets.
Level 4 (0.45 m): 1–5, rivet **33**, hobnails, droplets; 11, bronze fragments; 12, nail; 14, bronze and iron fragments; 15, harness junction **8**; 16, sheet fragment; 17, molten mass fitting **24**, bar **45**; flanged binding; 18, iron and bronze fragments; 23, ?lockplate **42**, hobnails; 24, worked wood **46–8**.
Level 5 (0.5 m): Boards on floor of pit.
Lev*el 6* Floor of pit. (0.5 m)
NB The figures in heavy type refer to the catalogue numbers in the report pp. 133–82.

formed a solid, impervious layer 0.09–0.16 m thick. This rested on the remains of three wooden boards, laid on the pit floor (PL. XXX). The high concentration of metallic salts in this part of the pit fill had led to the preservation of the wood; the fact that the wood was unburnt, while the turf on the pit sides was scorched, was probably caused by an absence of oxygen beneath the mass of metal above it. Unfortunately, none of the wood was more than 3 mm thick, and it was not possible to identify the species.

Amongst the burnt debris was a number of unburnt acorn husks, and their survival also is presumably due to the high level of metallic salts in the centre of the pit. However, a radiocarbon date of 775 ± 50 B.P. showed that the husks are early medieval in date and so must indicate subsequent disturbance of the deposit, by burrowing animals. No sign of this was detected in the overlying turf but the uneven floor of the pit, particularly at the southern and south-eastern edges, is probably a result of this; the shallow holes and stained gravel immediately east of the pit, which at first appeared to be remains of small stakeholes, were also probably caused by burrowing animals. The filling in the northern and southern extremities of the pit may have been disturbed in the same way, but the absence of metal salts here would not have favoured the preservation of the acorn husks.

The pyre debris seems to have been heaped indiscriminately. Fragments of cremated bone were found throughout the deposit, as were amphorae sherds, nails and ivory fragments, while fragments from the same objects were found in different parts of the pit. Three small fragments of iron mail were found in the general mass of metal (FIG. 26, level 2, no. 135) near the north-east edge of the pit, although the main bundle of mail lay near the south-west edge. In the same way fragments of axle binding were found in two different areas (metal mass, FIG. 26, nos. 31 and 135). There was indubitably a certain amount of disturbance caused by burrowing animals, but there was no evidence for the deliberate positioning of certain categories of cremated material as has been detected in some late Iron Age cremations in Northern France.

THE BACKFILLING OF THE SHAFT AND BURIAL PIT

As noted above the structures in the funerary shaft appear to have been deliberately demolished. Numerous large pudding stone boulders lay on the floor of the shaft. These were surrounded with masses of clean gravel which was clearly redeposited natural gravel derived from the mouth of the shaft, which was much enlarged. This material was sealed by a massive deposit of cut turfs, filling the entire shaft (context CDH). The turfs had undergone considerable compaction, and a certain amount of slumping had taken place, while as with the timbers in the base of the shaft, organic remains had frequently been replaced by iron and manganese compound.

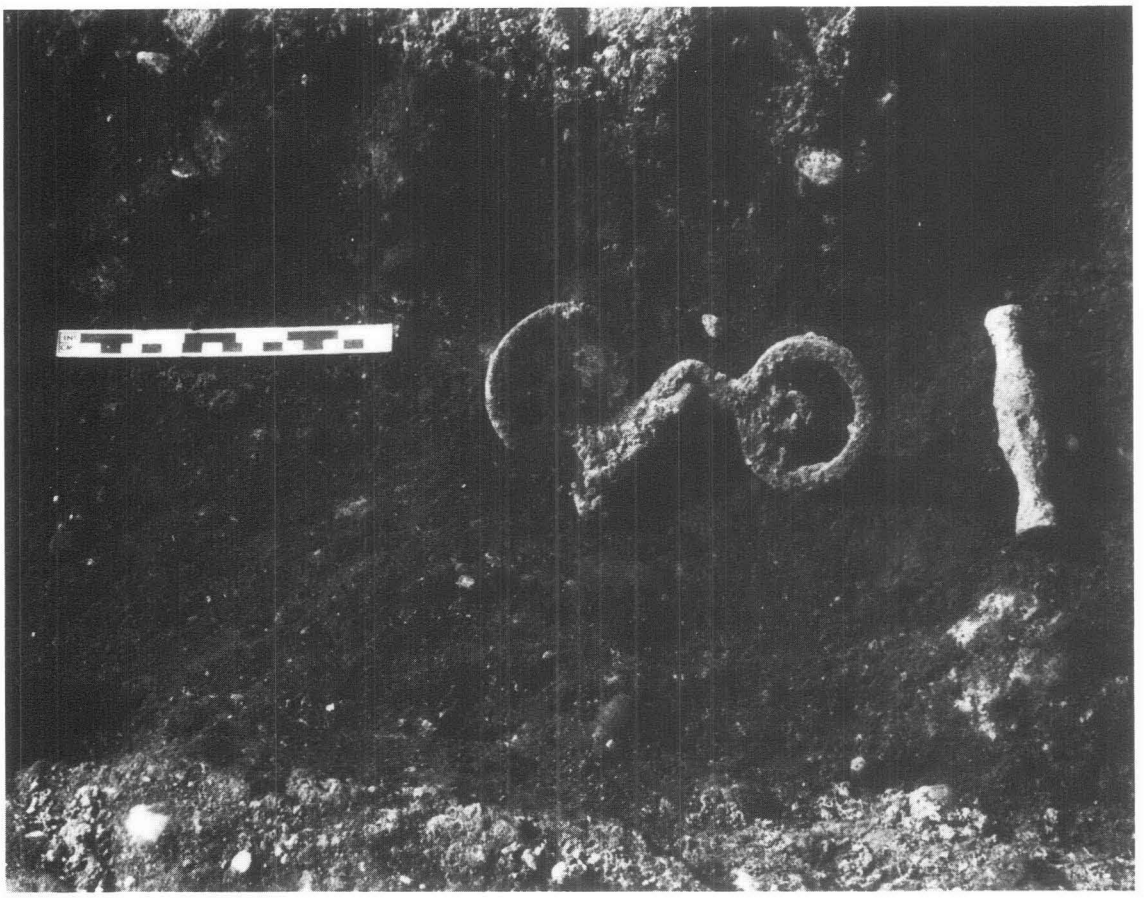


PLATE XXIX. The bridle bit and toggle *in situ*.

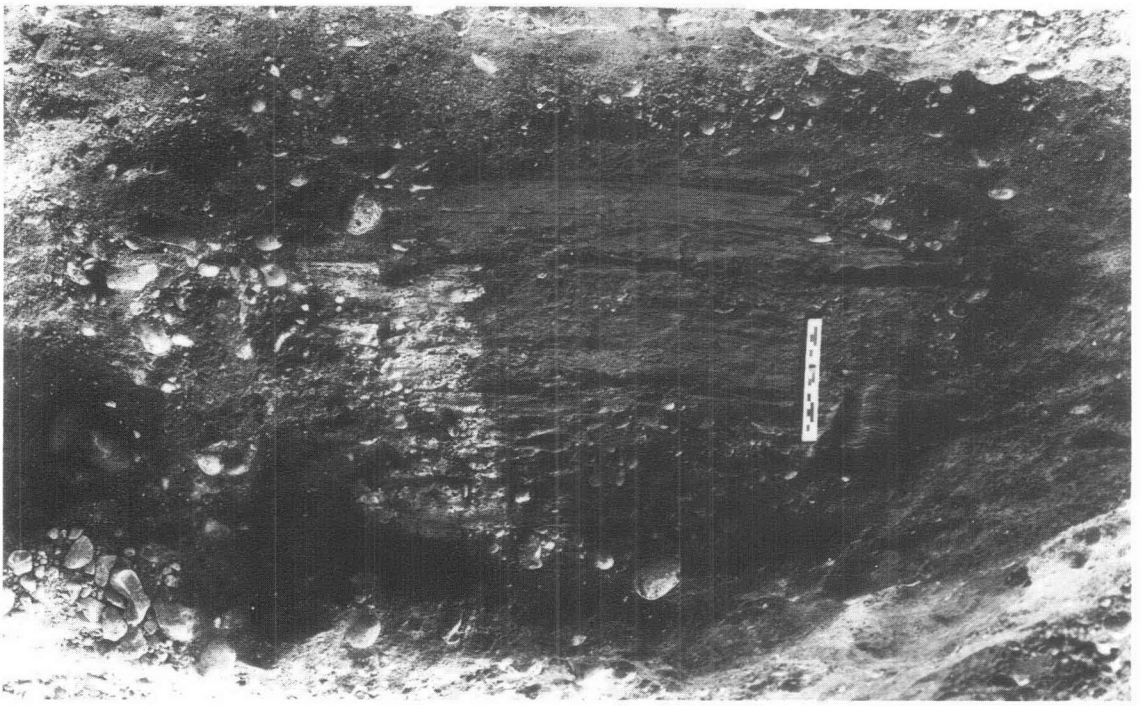


PLATE XXX. Boards in the base of the burial pit.

Nevertheless the deposit had not been disturbed, and it provided a substantial amount of environmental information (discussed in detail below, pp. 346–93), including evidence that the turfs were brought to the site from different locations. The layering of individual turfs was very marked (PLS XXXI, XXXII) and it was clear that they had been carefully laid in horizontal

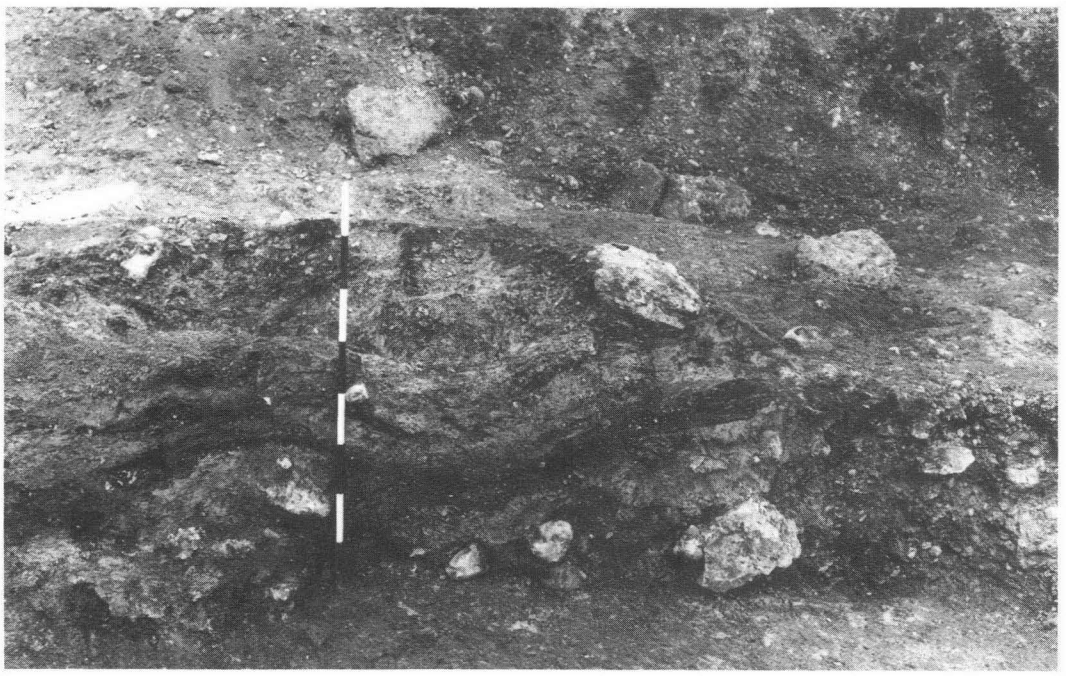


PLATE XXXI. 'Turfs' in the base of the funerary shaft.

courses. The lower courses (context DAA) included a certain amount of wood, represented by short lengths lying horizontally, but above a depth of 2.1 m no further timber staining was found. Also contained in the lower layers of turf were a few sherds from vessels represented on the floor of the shaft (samian vessels 1, 4 and 15, p. 192), occasional scraps of bronze and silver, including some molten fragments, two domed rivets, (p. 159, funerary find no. 35), and a curved bronze bar (p. 169, funerary find no. 46). The laid turf continued uninterrupted through the shaft and sealed the burial pit. The absence of any sign of weathering, either on the edges of the demolished shaft or of the north and east side of the burial pit, suggests that the turf was laid very shortly after the demolition of the shaft and the deposition of the pyre debris in the burial pit.

THE TURF STACK

The turf had been laid with extreme care and survived up to the mouth of the shaft. There had undoubtedly been a certain amount of sinkage and compaction of the turf (PL. XXXII) but when the modern topsoil was removed, the turf filling was found extending across the expanded mouth of the shaft, forming a roughly circular expanse, nearly 13 m in diameter with no silted hollow in its surface. Consequently, it is likely that the turf originally continued above ground level to form a stack. In the plan (FIG. 23) it is suggested that the stack was rectangular, measuring *c.* 9 m by 14 m. This is based on the assumption that the stack covered the whole of the extended shaft and the burial pit, and that the period 4 temple was placed symmetrically to it, with the entrance facing the centre of the stack. It must be emphasized, however, that this is an assumption based on the excavator's ideas of symmetry.

It is interesting to note a watercolour by J. Webster, dated 1745 and contained in Webster's notebook which is now in the library of the Society of Antiquaries (*frontispiece*). The picture is of the Folly Lane site from the north-east and shows what appears to be a large mound on the top of the hill. This is emphasized by the line of Everlasting Lane, which occupies a hollow-way across the slope, but even allowing for this, the mound seems far too large to be remains of a barrow over the burial. On the other hand, it is possible that this is an example of 'artistic licence' exaggerating a turf stack that was still in existence in the mid-eighteenth century.[4]

A number of stakeholes and small postholes were found on the north-west, north-east and south-east sides of the shaft. Some of these were certainly of recent origin, but a row 6 m long

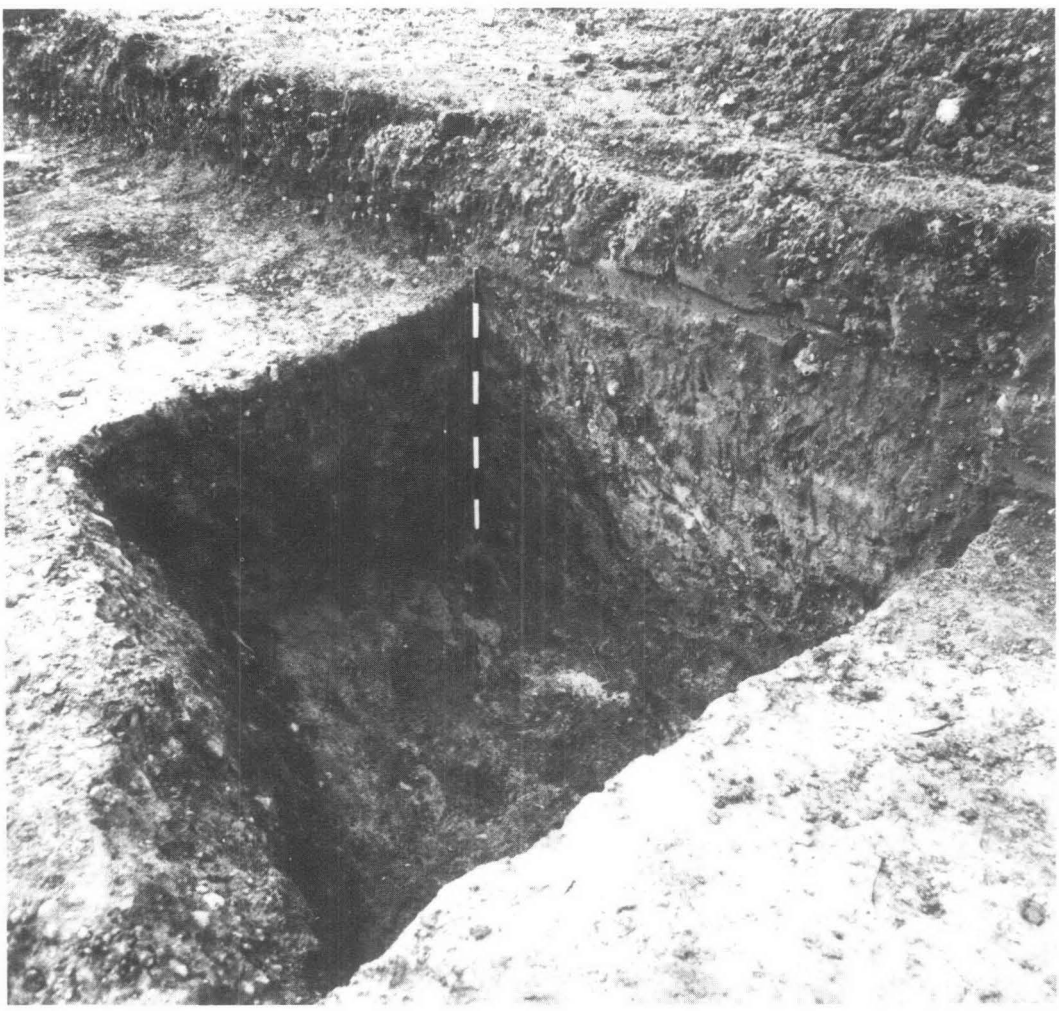


PLATE XXXII. 'Turfs' in the upper fill of the funerary shaft with signs of slumping.

on the north-west side of the shaft (FIGS 23 and 25, nos. 2–5) appears to date from the late Iron Age or early Roman period because the row followed the same alignment as that of the shaft structure and the period 4 temple. The repeated recutting of the holes (particularly features CRF, CQS and CRJ, FIGS 23 and 25, nos. 2 and 4) argues against their being random posts resulting from agricultural use of the site.

It is therefore likely that the features result from a row of small posts, repeatedly replaced, running between the turf stack and mound and the later temple. In some cases small charcoal filled scoops were cut through them, in other instances a small area of burning was recorded to one side of the stakehole. A shallow scoop, CRE (FIG. 23, no. 5) lay 1.5 m east of the row of stakeholes. This was cut into the edge of the turf filling the shaft, and clearly post-dates it, but it contained a small quantity of grog-tempered pottery and sherds of samian vessel 6, other sherds of which were found on the floor of the funerary shaft (see below, p. 190).

THE CEREMONIAL ENCLOSURE IN PERIOD 3: INTERPRETATION AND DISCUSSION

It was not possible to establish the precise chronological relationship between the funerary shaft and the Ceremonial Enclosure ditch. The most likely explanation is that the two were broadly contemporary with each other and represent a single monument. On the other hand it is possible that the enclosure ditch delimited a ritual site that predated the shaft and its associated features. Late Iron Age rectilinear ritual enclosures, surrounded by ditches, are well known on the continent. There the surrounding ditch was itself often a ritual feature containing votive deposits,

including bones and deliberately broken objects (Webster 1995, 458–9; Bruneaux 1996; Murray 1996). The interiors of these enclosures were frequently empty, apart from ritual features — pits or structures — at the centre.[5] Such an interpretation could well apply at Folly Lane; the enclosure ditch may have been dug in *c.* A.D. 25–35, and the shaft some twenty or thirty years later, replacing an earlier grove or a pre-existing structure (G2) within an existing enclosure (FIG. 23). Unfortunately nowhere on the site could the period 2 occupation be dated sufficiently closely to say whether it had ended in *c.* A.D. 25 or A.D. 55.

It is equally possible that the enclosure was not laid until some time *after* the construction of the shaft. It will be argued below (p. 58) that the shaft structures could have been used for several years, and the enclosure ditch may not have been dug until the shaft was finally filled in. The radiocarbon date from oven 1 (p. 22) means that is unlikely (although possible) that the ditch was significantly later than the mid-first century A.D.

In summary, it has to be admitted that it is uncertain whether the Folly Lane enclosure was a late Iron Age sacred enclosure which was later used as the site of a high status burial, or whether it was a funerary site from its inception.

Central to the enclosure was the low mound, which, as suggested above was the site of a funeral pyre, fragments from which were subsequently used as packing for a standing post. It is also reasonable to assume that the contents of the burial pit north-east of the post represent further debris from the same pyre. If it is also correct to assume that the mound was made up of material dug from the shaft, it follows that the shaft itself must have been dug before the cremation took place. Furthermore, the fact that the burnt material was placed in the burial pit while still hot, and that both pit and shaft were then immediately filled in, indicates that the shaft could only have been used before, or at the latest during the period, when the cremation was actually being carried out. The shaft and the structures within it had been deliberately smashed prior to the backfilling; there is no question that the destruction of the shaft and objects within it was the work of later grave robbers.[6] Fragments of the same pots (samian report nos. 1, 4, 5, 7 and 15; fine ware report 1, 2, 7 and 12) were found on the floor of the shaft, in the lowest layers of gravel within it, and in the turf filling in the upper part of the shaft. It is difficult to explain this except in terms of handfuls of pottery being thrown into the shaft at intervals during the process of infilling. The fact that the pyre material was still hot when the upper layers of turf were put into position, demonstrates that the destruction of the shaft took place at the same time as the funeral. The shaft structures did not collapse beneath the weight of turf, nor can the sherds on the floor of the shaft be due to the attentions of later robbers. For the same reason the shaft structures cannot have been used as a shrine or mausoleum after the funeral had taken place, although the fact that both shaft and burial pit were sealed by the same deposit of turf argues for a close connection between the two in the minds of people at the time.

THE FUNCTION OF THE SHAFT AND ASSOCIATED STRUCTURES

Although the shaft was filled in as soon as the cremation had taken place, it was not in itself a burial chamber. Timber-lined burial chambers are well known from the late Iron Age, both in Britain, for example at Welwyn Garden City (Stead 1967), and on the Continent. At Folly Lane, however, apart from a few crumbs of cremated bone, care was taken to deposit the cremated remains outside the shaft, in an adjacent, but quite separate burial pit.

It has already been suggested that the shaft was either used before, or during the funeral. Before proceeding further, it is worth briefly considering whether it was not simply a cellar beneath a building, and so similar to early, timber-lined cellars from Gaul.[7] The main argument against this interpretation is the plan of the base of the shaft, with its central structure surrounded by a 'walkway' which is quite different to the plan of a domestic building, although very close to that of a Romano-Celtic temple. It is possible that the insertion of the walkway and the central structure represents a modification to the original shaft and the possibility cannot be entirely ruled out that the shaft formed an underground shrine beneath a building on ground level. What is certain, however, is that such a building must have been demolished as soon as the cremation had taken place.

The nature of the ceremonies performed in the shaft can only be speculated on, but the most obvious explanation is that the shaft was used as a mortuary chamber in which to house the dead before the final funeral rites took place. It is, of course, impossible to determine reasons why this was necessary, but there are a number of possibilities:

1. To house the body until an auspicious year or season in which the funeral could take place (for instance at the winter or summer solstice, or at the end of a five- or thirty-year cycle (Ross 1995, 433; Bruneaux 1986, 49–50; Bruneaux 1996).
2. To allow time, and possibly a place, for initiation rites for a successor to be carried out.
3. To house the body while the whole tribe or *pagus* gathered together, and where visiting dignitaries and family members could pay their respects.
4. To provide a place for the excarnation of the body before the final cremation.

Of all these suggestions and possibilities, the last is the one for which supporting archaeological evidence might survive. The practice of exposing the dead prior to the final burial or cremation is well attested in prehistory, and there is evidence for it earlier in the British Iron Age (Cunliffe 1991; Hill 1995). Bruneaux, Lambot and Metzler have all suggested that it may have taken place in the late La Tène period in northern Gaul at Clemency and Thugny-Trugny in the Ardennes (Metzler 1989, 139; Lambot, Friboulet and Meniel 1994, 200; also Bruneaux 1996).

Hill and Cunliffe have stressed the widespread occurrence of isolated human bones on several Iron Age sites, and suggested that this is the result of accidental loss brought about by the practice of excarnation. It is suggested that the dead were exposed in pits or ditches, and once decomposition had taken place the remains were removed, and cremated. It is not unreasonable to suggest that the structure in the Folly Lane shaft was used for a similar purpose, with the corpse laid out on the ivory-mounted couch, and surrounded by the objects that were ultimately to accompany it on the pyre. Unfortunately the small quantity of cremated bone that survived was not sufficiently well preserved to determine whether or not it was already 'dry' when cremated.

DURATION OF THE PRE-FUNERARY RITES

The use of the shaft as a mortuary chamber would not necessarily preclude its use for some of the other purposes outlined above and the time required for these various possibilities obviously varies from several years to a few weeks. Although it is impossible to determine how long the shaft was used, two points suggest that it may have been open for a significant period:

1. The upcast mound on which the cremation took place was low, and somewhat irregular. Bearing in mind the very loose nature of the sand and gravel which composed it, the rather unimpressive character of the mound could be explained if it had been subject to five, ten or even twenty years of weathering before the final cremation took place.
2. The shaft revetment had been very carefully and stoutly built. Although there was no sign of timber replacement, the subsoil (sand and gravel over chalk) is exceptionally well drained and there is no reason why the timbers should not have stood for twenty years or more. This is not to say that either the mound or the shaft revetment actually stood for anything like so long. None the less it seems unlikely that so solid a structure as the shaft revetment would have been erected simply for the duration of the cremation itself.

If it is accepted that the shaft could have predated the final cremation by several years, the question arises as to whether it could not have been used for earlier cremations; was the final cremation, represented by the finds in the burial pit, the only one that had taken place here? The most striking evidence for the possibility of an earlier cremation having taken place on the site was provided by the very small quantity of cremated bone (none of it identifiable) that was found sealed beneath the gravel step of the walkway. This certainly implies there was at least one earlier cremation in the vicinity, although not necessarily associated with the period 3 shaft. It is worth considering the earlier structure G2 which stood on the northern side of the shaft during period 2 or early in period 3, and which had been largely destroyed by it. The remains

of this structure were extremely faint and fragmentary, but like the shaft structures, seem to have rested on cill beams. The plan and dimensions of structure G2 are comparable to the open-sided building at Calidu in northern France which is thought to have been used for the exposure of a body before being cremated nearby (Lequoy 1993a). If structure G2 had served a similar function prior to the construction of the shaft, it is quite conceivable that crumbs of cremated bone, left over from an earlier funeral, could have become sealed beneath the walkway.

THE FUNERARY RITES

The size of the shaft would accommodate at least ten or twelve people, although its hidden character and necessarily restricted space suggests that any rites performed here were reserved for a special section of society. The rites may have included processions or dances around the central chamber in the base of the shaft. The surface of the 'walkway' showed signs of trampling, reminiscent of the evidence for processing or dancing at Clemency (Metzler 1989, 142) and both Webster and Bruneaux have noted evidence for circumambulation rites in Celtic shrines (Webster 1995; Bruneaux 1986, 34–5). It is reasonable to assume that one of the final ceremonies performed in or near the shaft was the consumption of a funerary meal; early Irish traditions of feasting and dancing beneath mounds could be a distant memory of such rites. The substantial quantity of broken tableware and amphorae found on the floor of the shaft is certainly suggestive of feasting, while the date of the pottery shows that however long the body may or may not have resided in the shaft, this final meal took place in about A.D. 55. This date agrees with the metalwork in the burial pit itself, some of which was new at the time of burial and may even have been specially made for the funeral (see below, p. 136). Oven 1, in the base of the enclosure ditch, may have been used to prepare food for a funerary meal. The contents of the oven, and the burnt material derived from it in the floor of the ditch were all sieved, but apart from oak and brushwood charcoal, no organic remains (seeds, grains or animal bones) were recovered, so the type of food prepared in it is unknown. It is interesting to note that the oven was cut into the outer, possibly profane, side of the ditch.

THE CREMATION

The cremation of the human remains and of the pyre offerings took place more or less in the centre of the Ceremonial Enclosure, approximately 18 m north-west of the shaft, and on the top of the upcast material from it. Whereas the shaft structures were hidden, the site for the cremation itself seems to have been deliberately chosen for its commanding position. A pyre in this position would not only have been visible from Verlamion itself, but for considerable distances to the north, east and west. The siting of the pyre on a mound at the centre of the enclosure would have increased the visual effect and enabled large numbers of people to witness the ceremony; if the enclosure bank flanking the ditch was used as a raised viewing platform, or grandstand, several thousand spectators could well have been accommodated.

The pyre itself seems to have been constructed largely of oak, ash and hazel, along with bracken and a number of plant remains all of which may have been used as kindling material. In addition to cremated human bone, there was a significant amount of cremated animal bone. It is not unusual to find animal remains among cremated material from local burials, but the Folly Lane burial was exceptional in the number of animal species represented. In the King Harry Lane cemetery pig was the normal animal found, with sixty-four cremations producing fragments of cremated pig bone (Stead and Rigby 1989, 250). At Folly Lane at least four different species were represented, cattle, sheep/goat, pig and hare (or possibly cat).

THE BURIAL

Once the cremation had taken place a small quantity of the cremated bone and a few fragments of burnt pottery and metalwork were collected from the pyre debris and scattered into the shaft. Apart from this token amount, however, no attempt was made to sort the remaining cremated bone, animal and human, which was simply placed in the burial pit, mixed with pyre debris, molten metal and nails. The presence of substantial quantities of burnt clay in the burial pit has

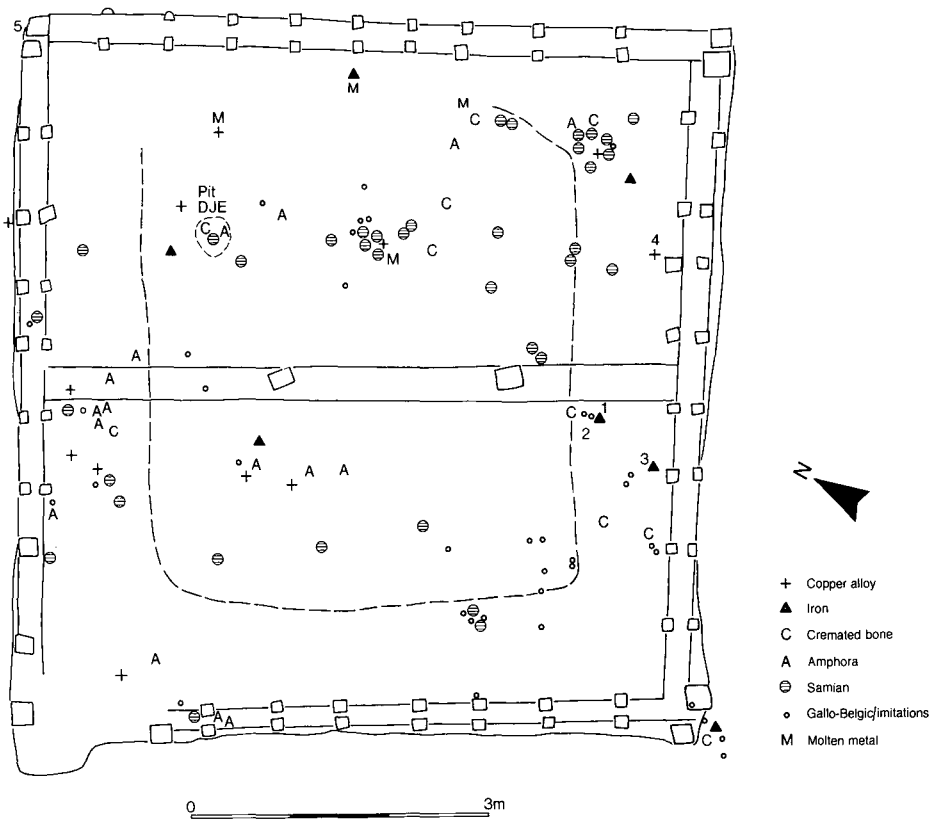


FIG. 27. Distribution of material on the floor of the funerary shaft.

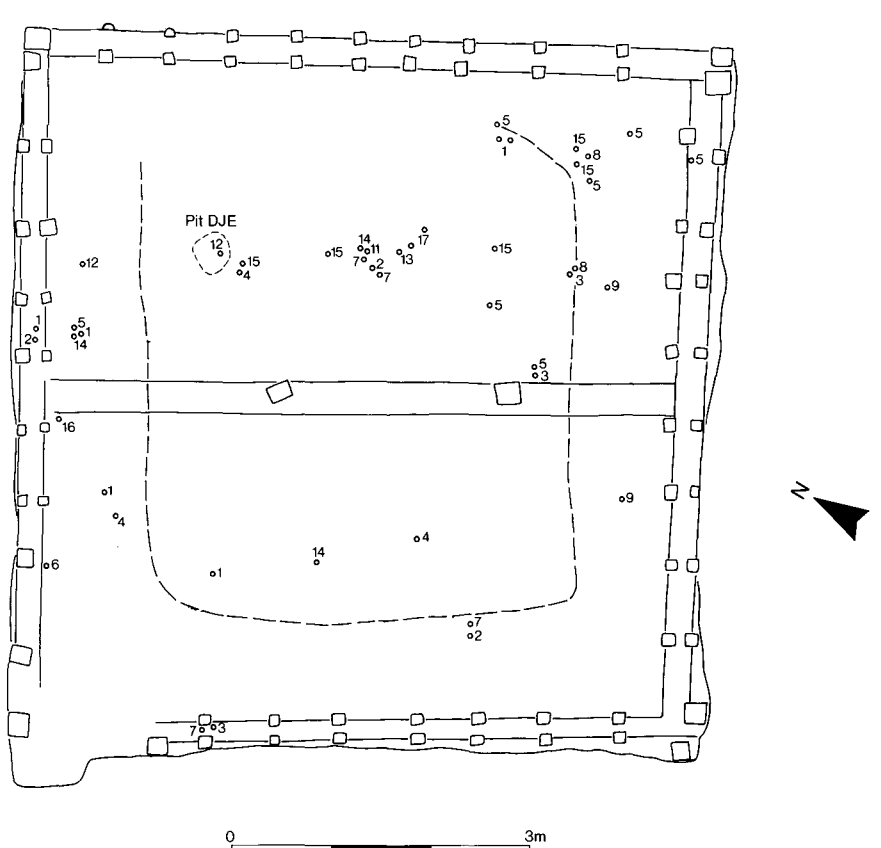


FIG. 28. Distribution of samian vessels on the floor of the funerary shaft.
The numbers refer to vessel numbers in the samian catalogue (pp. 192–3).

already been noted and suggests the base of the pyre had been scraped up, along with the rest of the pyre debris. Nevertheless, although the fill of the entire burial deposit was sieved, only 153 g of human bone was found, less than 25 per cent of the total bone to be expected from an adult cremation. It is worth pointing out that in the majority of the late Iron Age and early Romano-British cremations in the King Harry Lane cemetery only a small proportion of the cremated ashes had been collected and placed in the graves (Stirland 1989, 240). Similar token quantities of cremated bone have been recorded in late La Tène cremations in Northern Gaul (Lambot 1994), and from the near contemporary cremations at Stanway.[8]

It is equally apparent that not all the pyre offerings were placed in the burial pit. Even allowing for the fact that the copper alloy components could have melted beyond recognition, there were not enough of the iron elements from the furniture, fire-dog and chariot or cart to suggest that anything other than token portions of these objects had been placed in the burial pit. Similarly, of the forty-one vessels represented in the shaft, only sherds from two amphorae and (possibly) two cups were found in the burial pit. This practice of token burial was not uncommon in the late Iron Age in north Gaul, but has not been noted so frequently in Britain. The Lexden tumulus, however, certainly contained deliberately broken and incomplete items, and presumably reflects the same tradition (Foster 1986, 170) (see below, p. 395). It is possible that another burial pit, or pits, existed on the Folly Lane site (although certainly not in the immediate area of the shaft or beneath the mound). A geophysical survey of the unexcavated part of the enclosure[9] was undertaken in the autumn of 1996 and, as well as confirming the line of the enclosure ditch, this revealed several large anomalies in the north-east part of the enclosure. Although it is possible that these represent further burial shafts, their large size, 20–35 m in diameter, suggests they are a result of gravel extraction. In 1993 excavation staff maintained a careful watch when this part of the enclosure was regrassed and laid out as a new football pitch, but no archaeological features were detected. Nevertheless another small pit, or pits may once have existed south of the shaft, which could well have been removed during gravel extraction in the eighteenth and nineteenth centuries.

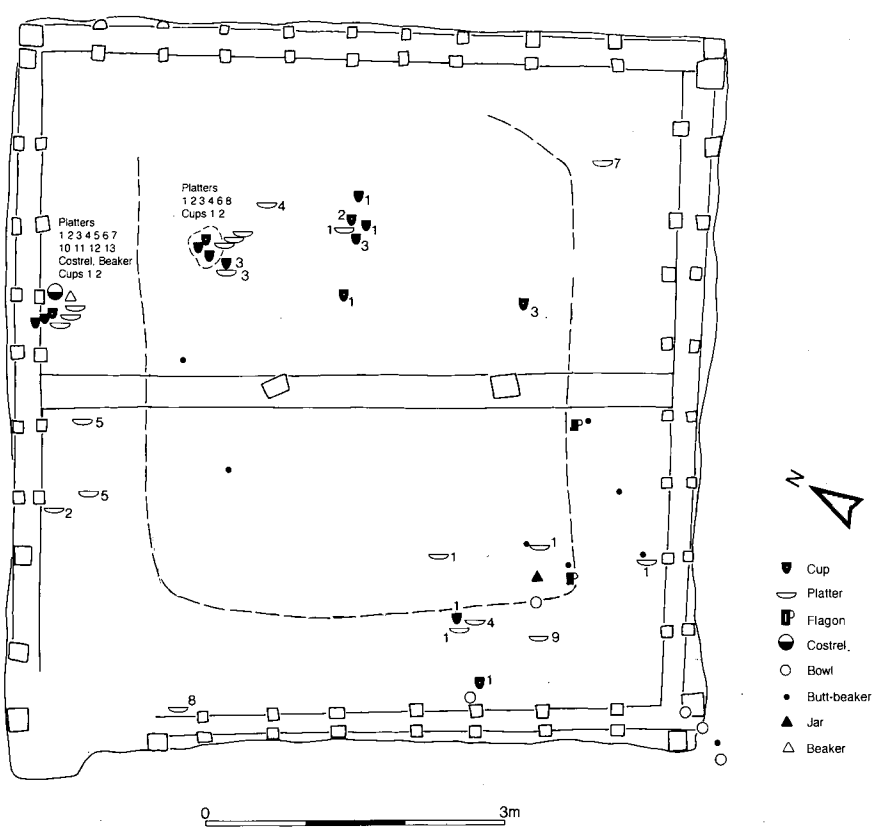


FIG. 29. Distribution of fineware on the floor of the funerary shaft (see p. 182).

THE DESTRUCTION OF THE SHAFT

The most numerous finds on the floor of the shaft were items of broken pottery, the majority of which lay on the surface of the walkway. None of the forty-one vessels represented was complete and sherds from the same vessel, and even joining sherds, were found widely scattered across the floor of the shaft, suggesting that they had been deliberately scattered (FIGS 28 and 29). That this was carried out systematically is indicated by the fact that although the sherds occurred in small concentrations, suggesting they had been thrown in handfuls, the groups tend to show a recurring association of sherds of samian, fine ware, amphorae and a metal fragment. This grouping occurred too frequently to be coincidental, and implies systematic and ritualized deposition rather than haphazard scattering. As with the material in the burial pit, only a small proportion of the broken sherds had been scattered in the shaft. The material on the floor of the shaft also included a small amount (23.7 g) of cremated bone. Unfortunately it was not possible to determine whether the bone from the shaft was human or animal.

The distribution of material across the floor of the shaft (FIGS 27–9) with a relatively empty area in the centre, supports a number of possible methods of deposition. It is possible that the material was originally confined to the 'walkway', where it had been dropped by people processing round the outside of the mortuary chamber, with some spilling into the central area during the subsequent destruction of the shaft. Alternatively, some of the material may have been thrown towards the edges of the shaft by people standing in the central structure. The absence of material in the centre of the shaft could be explained if something had stood there which was removed after the pottery was scattered, while the absence of material in the extreme west corner supports the suggestion that this was the site of an entrance ramp or ladder (see above, p. 41). The discovery of a small number of sherds within the lowest levels of the turf, and mixed with sand and gravel from the collapsed shaft walls (for instance fine ware platter 1, p. 186 below), shows that some material was still being deposited while demolition was taking place. It is interesting to note the small proportion of the sherds and metalwork from the lower filling of the shaft that had been burnt, in contrast to the material from the floor of the shaft none of which showed signs of burning. This is a further indication that the shaft was not demolished until after the cremation had taken place.[10]

THE FILLING OF THE SHAFT

The shaft must have been demolished and filled in with remarkable speed because by the time the filling reached the mouth of the shaft and the burial pit, the molten metal in the burial pit was still hot enough to singe and discolour the surrounding turf. While the demolition of the shaft structures themselves need not have taken very long, the speedy filling of the shaft argues for the involvement of a large number of well organized people, with ready stacked supplies of pudding stone boulders and cut turf.

Nevertheless the filling of the shaft had been carried out tidily and systematically and like everything else seems to have followed a careful, and no doubt ritualized, pattern. Originally the turfs had been laid horizontally, although subsequent compaction has led to a certain amount of slumping. There is convincing evidence that the material filling the shaft was collected from a number of different areas. Dr Macphail has argued that the inclusion of dung and heavily trampled soil suggests that some of the material was derived from stockyards (p. 382), while Pat Wiltshire has identified pollen from heath grassland species, the latter suggesting the presence of open meadows that were not heavily grazed and were possibly hayfields (p. 363). The evidence for marshland species found by both Pat Wiltshire and Peter Murphy (p. 385) implies that some material may have been brought from the valley floor, although it is possible that the remains originate from an (unlocated) cattle watering hole nearer the site, or in cattle dung. Nevertheless, it is difficult to avoid the conclusion that turf and soil was brought from a variety of locations, which were not necessarily in the immediate vicinity of the shaft. It may be that deposits were brought from various points in the person's estate or realm, symbolizing the extent of his power. In this context it is also worth noting the unusual variety of cremated animal remains that were

included in the burial pit (horse, cattle, sheep/goat and hare), albeit in very small quantities. It is possible that these remains also symbolized the extent and variety of the dead person's power.

THE POST-FUNERARY RITES

It has been argued above that originally the turf filling the shaft extended above ground to form a stack or barrow covering both the remains of the mortuary chamber, and the burial pit. Whether there was also a marker on the top of the stack is of course entirely a matter of speculation. However, the central position within the Ceremonial Enclosure of the standing post marking the site of the funeral pyre, implies that the pyre site had an importance at least equal to that of the shaft and burial site. The token amount of pyre debris that had been placed in the base of the post-pit also suggests that it was the actual ceremony of cremation — the destruction of the body and the possessions of the dead — that was considered important, rather than the final resting place of the remains.

A striking feature of the Folly Lane ceremonies was the almost obsessive care with which everything connected with the funeral was systematically destroyed. Not only were the pyre offerings broken and burnt, but the cremated ashes, both human and animal, were thoroughly broken up, and the funerary shaft itself totally destroyed. This destruction may even have extended to the burning of the period 2 occupation in area C, arguably the home of the dead person. The idea behind these rituals may have been that the destruction of the dead person's body, and everything pertaining to it, released the spirit; once this had been achieved the remains themselves were less significant, although the site of the final ceremonies remained important.

CONCLUSIONS AND SUMMARY

The significance of the Folly Lane burial and its accompanying rites is discussed in more detail below (p. 394). However, the main events in the Ceremonial Enclosure during period 3 can be summarized as follows:

1. There is a possibility that area G, and in particular structure G2, was already used as a sacred or funerary site when the funerary shaft was dug at some time in the second quarter of the first century A.D.
2. The shaft was dug sometime between *c.* A.D. 35 and 55, and the central structure in its base was used as a mortuary chamber. This was surrounded by a walkway, the hard-rammed surface of which suggests it may have been used by people processing round the mortuary chamber. Pre-funerary rites were conducted in the mortuary chamber, witnessed by a small and selected group of people. These rites may have been prolonged, and could encompass a variety of possibilities, including excarnation.
3. Unless the enclosure ditch was already in existence, it was probably dug in the weeks or months before the final funeral took place; in this case the human and animal remains on either side of the entrance and the *Augenfibel* brooch just within it, can be seen as ritual deposits contemporary with the funeral itself. Oven 1, in the base of the enclosure ditch, may have been used during the preparation of a funerary meal — either to prepare the funeral food or the ceramics on which to serve it.
4. Immediately prior to the cremation objects stored in the mortuary chamber were broken up. With the exception of handfuls of pottery sherds and a few pieces of metalwork, this material was then burnt, together with human and animal remains. The pyre was sited in the centre of the enclosure on top of the upcast mound from the shaft.
5. As the pyre was dying down, a few pieces of pottery, and a small quantity of cremated bone were thrown into the shaft. The shaft was then quickly demolished by hurling pudding stone boulders into it, and undermining the revetment by digging back the mouth of the shaft and pushing the timbers inwards.
6. When the pyre had died down sufficiently, a proportion of the smouldering debris was placed in the burial pit on the north side of the demolished shaft, and both shaft and burial pit quickly filled with soil and turf. This material had been stacked in readiness and drawn

from a wide area including stockyards, pasture land (possibly a hayfield) as well as heath and marsh land.

7. The site of the shaft and burial was marked by a turf stack. The site of the pyre was marked by a post, resting on a token deposit of pyre material. The post occupied a more central position in the enclosure than the turf stack.
8. In the early Roman period the site of the pyre and the post was covered by a Romano-Celtic temple, facing south-east, towards the turf stack; a series of scoops with traces of burning on the south-east of the temple, and close to the putative turf stack suggest that offerings continued to be made for much of the Roman period. In the second century the site seems to have become the focus for a cult involving substantial numbers of devotees, and associated with the cult of the skull (see below, pp. 99 and 100).

FIG. 30. The Romano-Celtic temple.

PERIODS 4 AND 5: THE ROMANO-CELTIC TEMPLE AND PRECINCT

A Romano-Celtic temple was erected on the site of the period 3 pyre, facing the site of the burial pit and shaft. A palisade was put up on three sides of the period 3 enclosure; in the pre-Flavian period a small cremation cemetery was established on the lower slope, south-west of the Ceremonial Enclosure, and a road was laid out leading from Verulamium to Wheathampstead, Welwyn and ultimately, Colchester.

THE ROMANO-CELTIC TEMPLE

At the centre of the Ceremonial Enclosure, the up-cast from the shaft, the pyre site and post setting were all overlain by a Romano-Celtic temple (FIGS 23 and 30; PL. XXXIII). The temple was rectangular with overall measurements of 14 m by 17 m. The *cella* measured 8 m by 10.5 m overall, leaving an ambulatory only 2.5 m wide. The long axis of the building ran north-east/south-west and the entrance lay in the centre of the longer, south-eastern side. The building was therefore slightly wider than it was deep, with the longer axis running from side to side of the building. This makes the plan somewhat unusual, but not without parallel among Romano-Celtic temples (Faudet 1993; Fell, p. 92, Theux-Juslenville (Belgium) p. 84). The narrow ambulatory is also somewhat unusual. Normally ambulatories in Romano-Celtic temples were approximately half the width of the *cella*, whereas at Folly Lane the ambulatory is less than a third the width of the *cella*.

The footings of both *cella* and ambulatory were of similar construction consisting of flint nodules and occasional fragments of pudding stone, set into a small amount of soft, sandy mortar. The sets of footings were contemporary. The footings of the *cella* were cut up 0.86 m into the underlying mound, and were 0.8 m wide. The footings for the ambulatory wall were slighter with a width and depth of only 0.5 m; they were also less well preserved, particularly on the south-west side where they had been severely damaged by agriculture (PLS XXVII and XXXIV). The entrance was marked by a 2 m wide gap in the centre of the east ambulatory. Although this area had been rather disturbed, it was clear that the wall footings had never existed here, and that their place was taken by a worn cobbled surface (context CDD). This surface extended 4 m east of the entrance, and occupied a slight hollow caused by subsidence into an underlying tree hole (FIG. 32, context CUL/K). On the external face of the north-east ambulatory wall, 2 m south from the north-east corner, the wall footings projected 0.4 m north of the wall line. This appears to be the base for a pilaster, or small buttress, 1.4 m wide, resting on slabs of millstone grit. The slabs had lain in a shallow cut against the base of the wall. Mortar here was very decayed, so it was not possible to say whether the stones had ever been bonded into the wall, but there was no indication that the cut in which they lay was different in date to the main cut for the ambulatory wall. No sign of any more pilaster bases survived, but the ambulatory wall was nowhere well preserved, and the absence of further pilaster bases cannot be taken as conclusive.

The wall footings overlay the fill of gully 4 (FIG. 31; PL. XXVII) and had been cut through a thin layer of greyish silt that overlay parts of the mound. The silt presumably represents weathering of the mound, combined with a certain amount of disturbance and levelling in the course of the construction of the temple. The weathered layer was in turn sealed by a thin layer of clay make-up which formed the base for the gravel floor of both *cella* and ambulatory. In a few places, where the *cella* and ambulatory walls were well preserved, this floor could be seen to overlie a narrow foundation offset.

THE DATE OF THE TEMPLE

Very little datable material was found associated with the temple. This must be very largely due to the very shallow depth at which the remains lay and the large amount of recent disturbance. Nevertheless the temple appears to date from the first century A.D., probably in the Flavian period. The dating evidence is admittedly small, and can be summarized as follows:

PLATE XXXIII. The temple from the south-west.

1. The make up material beneath the gravel floor, and in the weathered/silty deposit over the mound, contained 1323 g of grog-tempered pottery. This all dated from the first half of the first century A.D., differing in no significant detail from that associated with period 2. It was all very weathered, and no doubt was simply rubbish surviving from the earlier occupation. The absence of any post-conquest pottery however, suggests that the make-up layer was put down before the sandy wares of the second half of the first century were widely used.
2. The temple followed the same alignment as that of the mortuary chamber. There are two possible explanations for this. Either the turf stack over the shaft (or some other existing feature such as the row of stakes), perpetuated the alignment of the chamber, or the temple was constructed before the shaft and chamber were demolished. Of the two possibilities the first is the more likely. It has already been argued that the shaft was filled immediately after the cremation took place. On the other hand, the marking of the pyre site by a standing post suggests a certain lapse of time before the construction of the temple, even though this may only have been a few years or even months.

It is suggested, therefore, that the temple was not built immediately after the cremation had taken place. On the other hand, the absence of late first-century pottery from beneath the temple and the fact that the standing post on the site of the cremation showed no sign of renewal suggest that only a few years elapsed between the two events. Temple 2 at Colchester (Sheepen) has been dated to the later first century (Hull 1958, 224–36; Crummy 1997, 107) and the Romano-Celtic temple at Hayling Island is dated to the Neronian or early Flavian period (Downey *et al.* 1980, 299) and a similar date is suggested for the Folly Lane temple. This was a period at which several large buildings were being erected less than a kilometre away in the centre of Verulamium, and the raw materials and expertise for the construction of a sizeable flint and mortar building were obviously available. It is possible that the Folly Lane temple is even earlier in date, being built in the late 50s A.D. It is true that there is no sign of the Boudiccan destruction on the site, but in the case of a flint and mortar building, it is doubtful how far such destruction would be detectable.

THE RECONSTRUCTION OF THE TEMPLE

The temple remains lay within 0.25 m of the modern surface and centuries of cultivation had removed all trace of the superstructure, together with much of the original floor, making it very

PLATE XXXIV. Footings for the cella wall (compare with the shallower footings for the ambulatory walls, PLATES XXIV and XXVII).

difficult to arrive at any clear idea as to its original appearance. The floors of the *cella* and ambulatory were the same level, and a certain amount of levelling of the earlier mound must have taken place. Nevertheless, both *cella* and ambulatory floor were slightly raised above the surrounding area, and presumably a low step was provided at the entrance. It is uncertain how much of the Folly Lane building was constructed of mortar and flint, and how much of timber and plaster. The topsoil above the temple was almost devoid of building material, but this could be the result of careful robbing combined with cultivation. The gravel floors of both ambulatory and *cella* had been overlain by a layer of clean yellow clay, although due to the shallow depth of the remains, this only survived in a few places. The clay may well represent the base of a later floor, but it is possible that it represents the remains of a collapsed timber and plaster superstructure. Over a few stretches along both walls, the lowest course of carefully faced flints survived suggesting that both the *cella* and the ambulatory were provided with at least low cill walls above foundation level. Against these arguments is the presence of what appears to be a pilaster base on the north-east ambulatory wall; although it is possible that this feature was the base for a decorative timber upright, it is more likely that it was associated with a masonry wall.

The use of millstone grit for the pilaster base is interesting.[11] Locally millstone grit occurs in the form of small slabs in the glacial drift deposits. It is not a frequent inclusion, however, and these slabs must have been carefully collected. The stone certainly appears to have had a particular significance to the Folly Lane builders; it was deliberately chosen as packing material for the period 3 post on the site of the pyre, several burnt pieces were found in the filling of the period 3 oven in the base of the main enclosure ditch, and another slab was placed at the eastern terminal of the period 4 palisade slot (see below, p. 71). In the temple millstone grit was concentrated near the north-east corner of the ambulatory, as well as being the material used for the pilaster base. Its use has not been recorded within Verulamium itself.

As noted above, the footings for the *cella* were more substantial than those of the ambulatory. Since there is no sign that the floor of the *cella* was ever higher than that of the ambulatory,

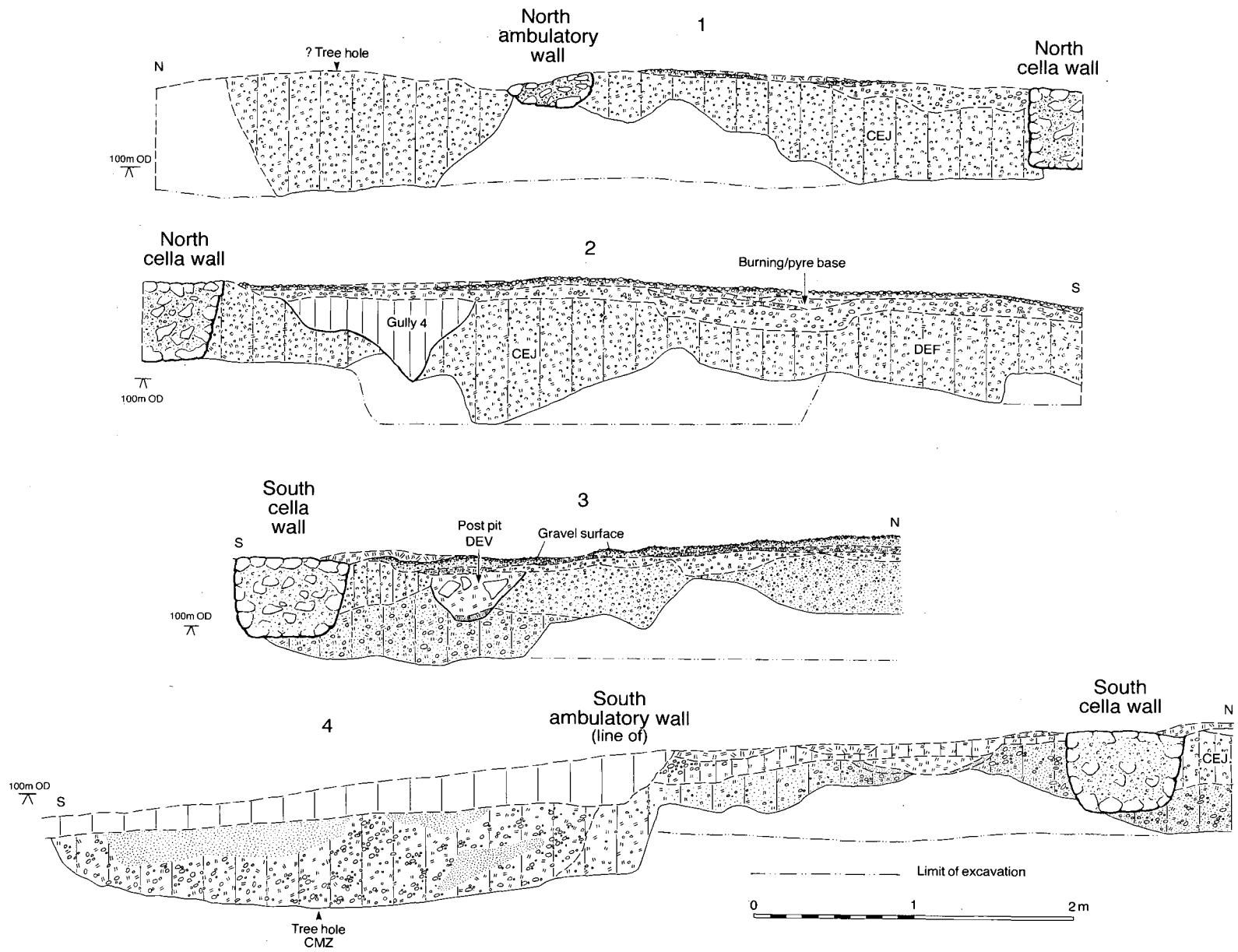


FIG. 31. North–south section through the temple.

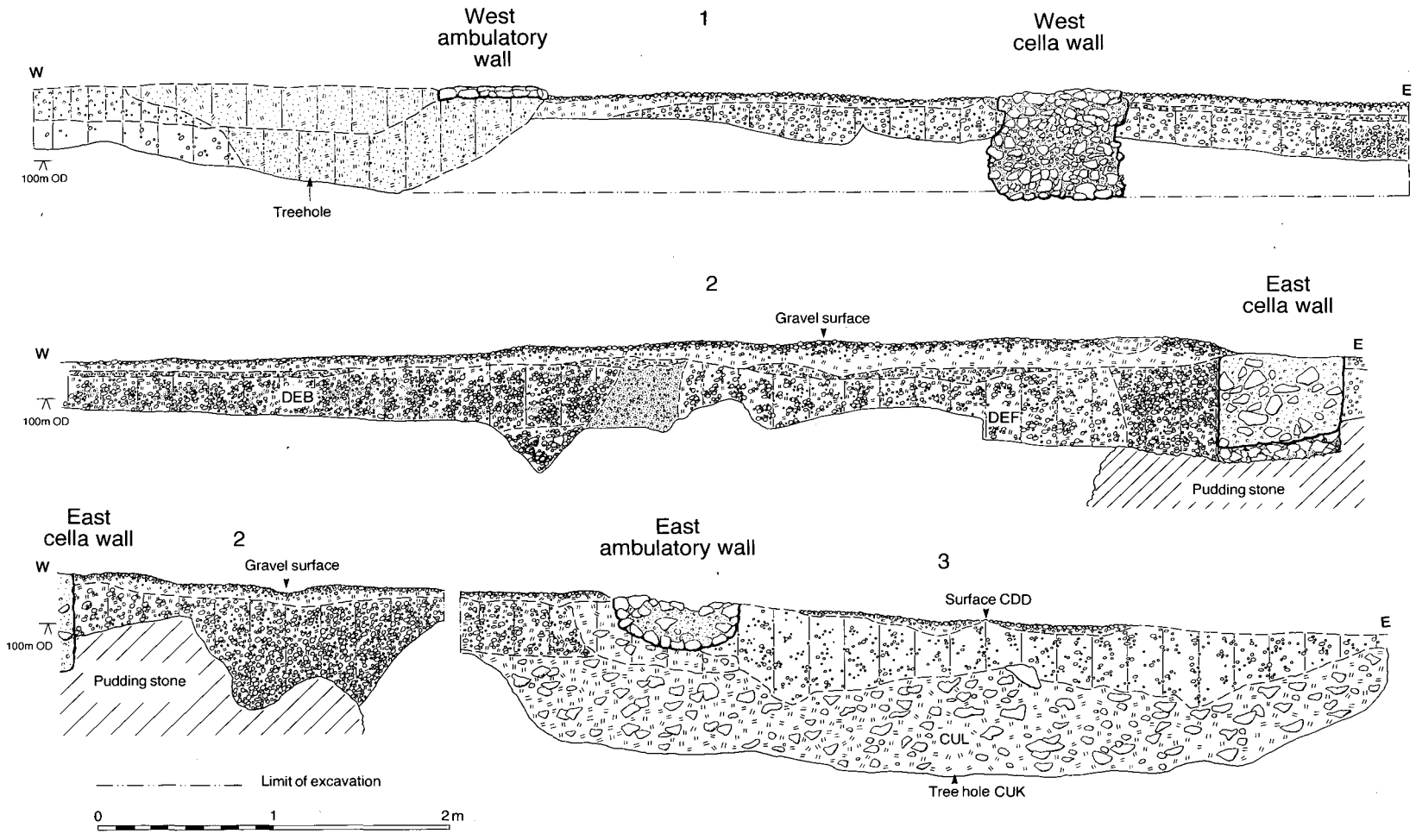


FIG. 32. East–west section through the temple.

there is no reason to suppose that the *cella* footings had to act as retaining walls for a raised floor. Consequently it is reasonable to suggest that the roof of the *cella* was significantly higher than that of the ambulatory, although with *cella* footings less than a metre deep it seems unlikely that it was ever a tower of the type suggested for building 1 at Wood Lane End (Neal 1984, 197 and fig. 3) or the *cella* at Uley (Woodward and Leach 1993, 310). As Neal observed, at Wood Lane End, the rectangular *cella* was probably provided with a triangular gable end, imitating the pediments of a classical temple. This could apply equally at Folly Lane.

THE DEDICATION OF THE TEMPLE

Although the temple stood at the centre of the Ceremonial Enclosure, it was aligned not on the enclosure ditch but on the earlier, and destroyed, structures in the base of the Funerary Shaft and there can be little doubt that the temple was built to respect the turf stack over the shaft and burial. Equally, it seems likely that it was deliberately positioned over the site of the pyre and that the spot had been marked beforehand by the post setting. Although facing away from the town, the temple, and before it the pyre, had been carefully placed in the centre of the enclosure, in a commanding position on the skyline, clearly visible from the valley below. There is no reason to suppose this siting was fortuitous. When viewed from the Roman town, the hill on which the temple stood is the dominant feature of the landscape, and the temple would have looked down on the Forum in the same way as the Capitol in Rome overlooked the Roman Forum. At Folly Lane, not only did the temple overlook the Roman town centre (PL. I), but it would have been visible on the skyline to anyone approaching the town along Watling Street as well as along the Colchester Road.

It is not certain to what extent the temple was a mausoleum. There was clearly a tradition among the local aristocracy in the later first century to build elaborate temple mausolea, as represented by the structures at Rothampstead (Lowther 1938), Wood Lane End (Neal 1983, 1984) and Welwyn Hall (Rook *et al.* 1984).[12] Those at Rothampstead and Wood Lane End were also situated at prominent positions on the plateau edge. Like Folly Lane, Wood Lane End was associated with a large precinct and a bath house, while the structure at Welwyn Hall flanked a major road and the precinct was bounded on three sides by a precinct wall, while being left open on the road side. The plan of the Folly Lane temple, however, with the entrance facing towards the site of the shaft, suggests that its purpose was the veneration of the shaft/stack, rather than as a commemorative monument in its own right. In this way it is comparable to the post-funerary shrines erected over late La Tène cremation graves at Thugny-Trugny (Champagne) (Lambot 1994). For this reason it is suggested that the temple was a heroium rather than a mausoleum.

The position of the Folly Lane site in relation to the town, no less than the wealth of the original burial, the size of the enclosure and the elaborate nature of the rituals conducted there, suggests that the burial was that of a local ruler. Bearing in mind the important link between kingship and tribal welfare in early religious belief, the burial site of a local king might well in time become a religious focus for the tribe. This seems the most likely explanation for the Folly Lane site. Among the animal bones from Folly Lane, Alison Locker has detected a slight, but marked, over-representation of horse bones in the filling of the ditch around the Ceremonial Enclosure, and in the filling of the votive shafts to the south-west of it (p. 343). This combined with the horse equipment in the burial itself raises the possibility that the person buried at Folly Lane was, in time, identified with the horse riding god evidently worshipped at Hayling Island (Downey *et al.* 1980) and Lamyatt Beacon. Certainly small brooches of the type found at both Brigstock and Lamyatt Beacon (Leech 1986, 316–19, fig. 34) have been found at Verulamium.[13]

Exactly what form the rites and observances on the temple site took, is very much a matter of conjecture. There is evidence from the lower part of the site for the ritual deposition of material in deep shafts for much of the Roman period. The cult of the head (both human and animal) was probably practised on the site in the second and third century, and there are hints of a dog cult as well (p. 343 below). Both practices have been seen to have connections with chthonic rites, and hence with ancestor worship and the cult of the dead (Ross 1968, 255–85;

Green 1986, 133). The question is particularly difficult to resolve as the temple site itself, the Ceremonial Enclosure, and the enclosure ditch were all kept largely free of rubbish during periods 4 and 5. Not only are there no votive objects, but there is an almost complete dearth of any associated material. There was a small quantity of pottery lying on a worn cobble surface outside the temple entrance (context CDD) but most of this consisted of weathered, grog-tempered sherds surviving from earlier site use. The cobbles were cut by the row of stakeholes and shallow scoops referred to above (FIGS 23 and 25, nos. 2–4) which had been repeatedly recut. It is possible that these features had a ritual purpose connected with libations and offerings at the foot of the turf stack in front of the temple.

Analysis of material further down the slope, suggests that in the later third century earlier middens were used to level the main enclosure ditch and some of the shafts. Where these middens originated is a matter of conjecture but it is possible that they come from the temple area; like the material in the votive shafts they contained a rather higher proportion of horse and dog bones than is normally found in contemporary rubbish deposits in the town. The pottery assemblages also were slightly unusual (see below, p. 300).

THE PRECINCT AND PALISADE

For much of the Roman period the Ceremonial Enclosure continued to enjoy a 'special', and presumably sacred status, forming in effect, the temple precinct. The ditch seems to have provided a potent boundary to the precinct; even after it had been partially filled in *c.* 140–60 its line on the south-west was carefully marked out by a band of chalk nodules that were kept clean until the end of the following century. None of the pits and shafts that covered the valley slope in the second and third centuries were allowed to spread inside the enclosure itself and it was only in the late third century, when rubbish was beginning to be dumped over the ditch, that two cremation burials were permitted just within the west corner of the enclosure.

The boundary provided by the enclosure ditch was supplemented by a wooden palisade which ran along the south-west, north-east and north-west sides of the enclosure. The palisade ran parallel to the line of the main enclosure ditch, 22 m within it on the south-west and 10 m inside it on the north-east and north-west sides. Its position on the north-east side of the enclosure was established by trial trenching, but there was no indication that it ever existed on the south-eastern side, nearest to the Roman road and there was a gap, not more than 25 m wide and probably just over 10 m wide opposite the enclosure entrance. The palisade was represented by a slot, (contexts DHW, DHQ, BWS; FIG. 33) 0.45 m wide and 0.5 m deep with vertical sides and a flat base, and recut at least once. The filling of the slot, which scarcely varied at all over the 74 m excavated, consisted of stiff, sandy clay with occasional dark staining indicating circular upright posts, set contiguously. It is possible that the small slab of millstone grit found in the base of the slot in area C was used as packing for a palisade post, just as millstone grit had been used in the post-pit beneath the temple. A fragment of a Dressel 20 amphora and

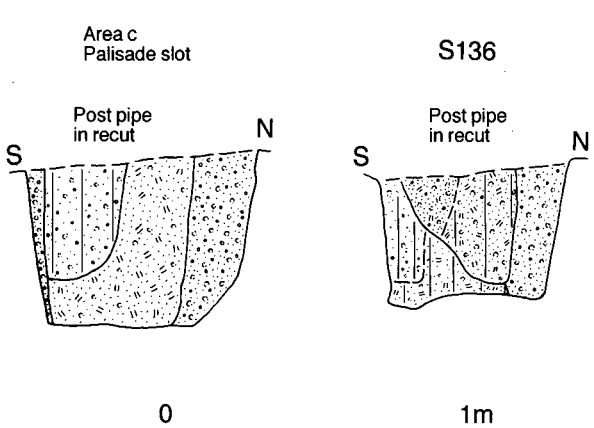


FIG. 33. Sections through the precinct palisade slot.

body sherds in Verulamium region white ware were found near the base of the slot in area B and on the north-west side of the enclosure the clay filling contained a number of fragments of Romano-British roof tile; these may also have been used as packing material for posts. None of this material was closely datable, but the palisade is likely to date from period 4 initially, for the following reasons:

1. In area C the palisade slot had cut through remains of the period 2 structure C1.
2. The wide gap in the palisade opposite the entrance into the enclosure implies that it predates the reduction in the width of the entrance at the start of period 5 in *c.* 140–60.
3. The absence of a palisade on the south-east side of the enclosure, along the main Roman road, echoes the plan of the temple, which also faces towards the north-east, and suggests that temple and palisade were planned together.

THE LATER HISTORY OF THE TEMPLE

In spite of the lack of stratified deposits it seems likely that by the early fourth century the temple precinct had fallen into neglect. Occasional finds of pottery in the hollow outside the temple entrance, in the general debris overlying the temple floor, and in depressions over the compacted fill of gullies 3 and 4, suggest that the temple continued to be visited until the early fourth century, but by then it was no doubt in decline (Pottery Assemblage 8, p. 248, FIG. 76). Its final fate is unknown, but the absence of building material suggests that ultimately it may have been deliberately demolished.

NOTES to Part I

1. By staff and students of the archaeology department, University of Cardiff, in 1988.
2. By C. Whelan of Geospace Consultancy Services Ltd.
3. I am grateful to Dr R. A. Housley of the Oxford Research Laboratory for Archaeology and the History of Art for providing this dating. The date is uncalibrated in radiocarbon years B.P. using the half life of 5568 years. Isotopic fractionation has been corrected for using the measured $\delta 13$ C values quoted (to $\pm$ 0.5–1.0 per mil relative to PBD). For details of the chemical pretreatments, target preparation and AMS measurement see *Archaeometry*, 31 (2) 99–113 and *Radiocarbon*, 34 (3) 306–11.
4. I am grateful to Mr David Dean for drawing my attention to this picture, and to the Society of Antiquaries of London for permission to reproduce it here.
5. For instance at St Maur, Gournay-sur-Aronde, Ribemont-sur-Ancre, and Estrées St Denis, all in Picardy (Bruneaux 1986, 34 and 1996).
6. As suggested for the destruction of grave goods at Clemency (Metzler *et al.* 1991) and Acy Romance (Lambot *et al.* 1994).
7. For instance, the timber-lined cellar at Bibracte, destroyed in the Augustan period (L. Bonenfant, *pers. comm.*).
8. I am grateful to Dr S. Mays and Mr P. Crummy for information on the Stanway material.
9. Full Magnetometer and Resistivity surveys were conducted over the playing field north-east of the site by Geoscan Services in November 1996. See Appendix 1 of this report.
10. Droplets of solidified molten bronze on the northern side of the shaft filling probably represent debris falling from the edge of the burial pit above.
11. Possibly millstone grit was used at Folly Lane for decorative effect in the same way as chalk, tile, greenstone and slate were used at Barton Hanger villa (Esmonde Cleary 1994, 280, fig. 12).
12. I am also grateful to the Herts Archaeological Trust for information on excavations on the Welwyn Hall site by Mr T. Macdonald in 1995.
13. One was found in river peat close to the 'timber tower' (see below p. 411), and two other examples in the Verulamium Museum are simply 'from Verulamium'.

PART TWO

THE LOWER SLOPE, SOUTH-WEST OF THE CEREMONIAL ENCLOSURE

By ROSALIND NIBLETT

The lower slope, south-west of, and downhill from the Ceremonial Enclosure was excavated over two seasons. Areas A, H, J, K and L were excavated in 1991/2 and areas M and P in 1993. No traces were found of occupation on the lower slope prior to the early Hadrianic period, although from the pre-Flavian period cremation burials took place south and south-west of the entrance into the Ceremonial Enclosure. In the mid-second century the main Colchester road was laid out, and a large number of shafts were dug, predominantly on the western half of the site alongside road 1. Many, if not all, of these appear to have had a votive or ritual function. The majority of the shafts were filled in the first half of the third century, although a few continued to be dug until the beginning of the next century. During the course of the third century a number of wells and cess pits were dug marking a period of industrial use of the area alongside the Colchester road. On the western half of the slope, gullies, postholes and a small corn-drying oven also date from the late third and fourth centuries and are probably associated with agricultural uses to the rear of workshops flanking the road. During the later second, third and fourth centuries the course of the Colchester road deviated considerably and by the end of the Roman period a hollow-way had developed, following a sinuous course up the slope near the eastern margin of the site; it was flanked by post-built structures. Scattered sherds of grass tempered and later Saxon pottery suggest occasional use of the site in the Saxon period.

In the course of the Roman period the lower slope was crossed by three different roads and had served four main purposes: for burials, the excavation of deep pits, industrial undertakings and agricultural activities. In the following sections the roads and the four aspects of site use are considered separately, and are followed by a consideration of the changing patterns of use for these areas during the course of the Roman period.

THE ROADS

The slope had been crossed by three successive roads, all leading out of Verulamium towards the north-east (FIG. 34).

ROAD 1

There is no evidence to suggest that the area south of the Late Iron Age Ditch was occupied in the immediately pre-Roman period, but it must be assumed that by the end of the first century B.C. a track existed somewhere on the north side of the river, linking the pre-Roman settlement at Verlamion[1] with those at Welwyn, Braughing and Camulodunum. An unexpected result of the 1991–3 excavation was the discovery of a previously unsuspected road running north-east/south-west across the lower slope, leading approximately in the direction of the pre-Flavian 'timber tower' on the other side of the river (Anthony 1970, 51–5) (see p. 410 for the current interpretation of the 'timber tower'.) In order to distinguish this from the other roads on this side of the river, it is referred to as Road 1 (FIG. 34).

The latest surviving surface of road 1 was up to 7 m wide, and was surfaced with rounded cobbles set in a stiff, clay matrix. There was no indication that the surface had ever been

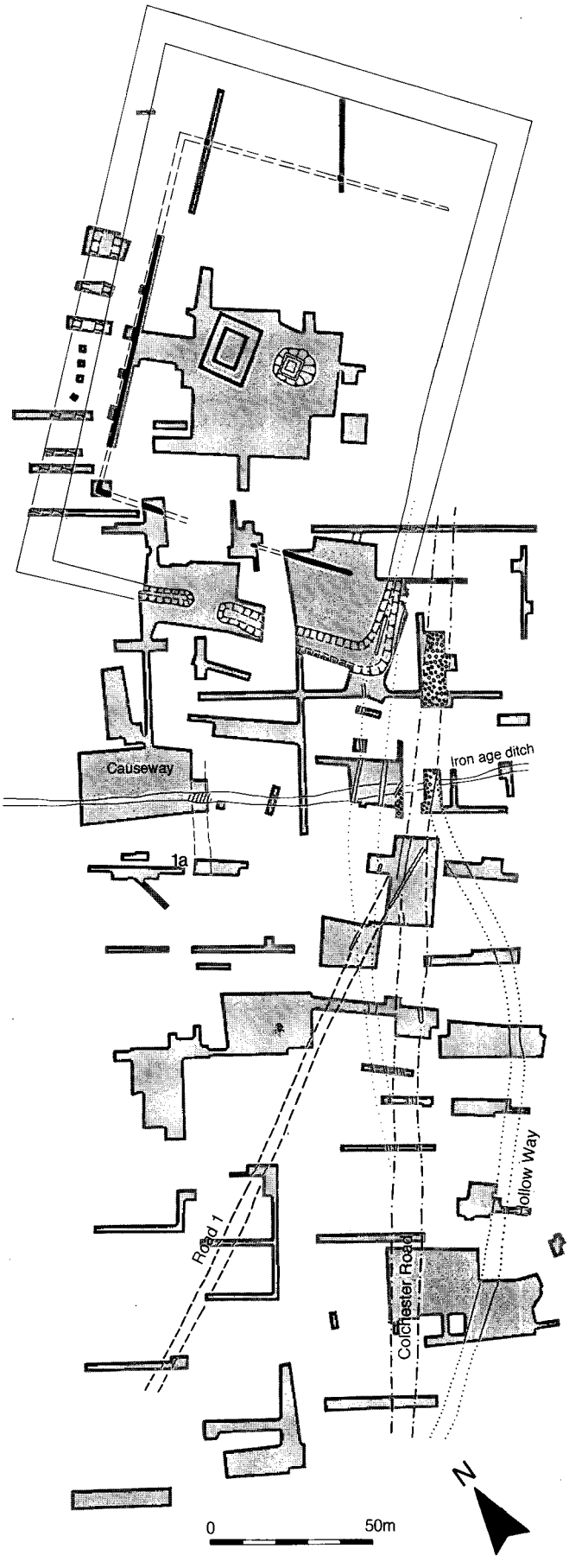


FIG. 34. Plan of roads south of the Ceremonial Enclosure.

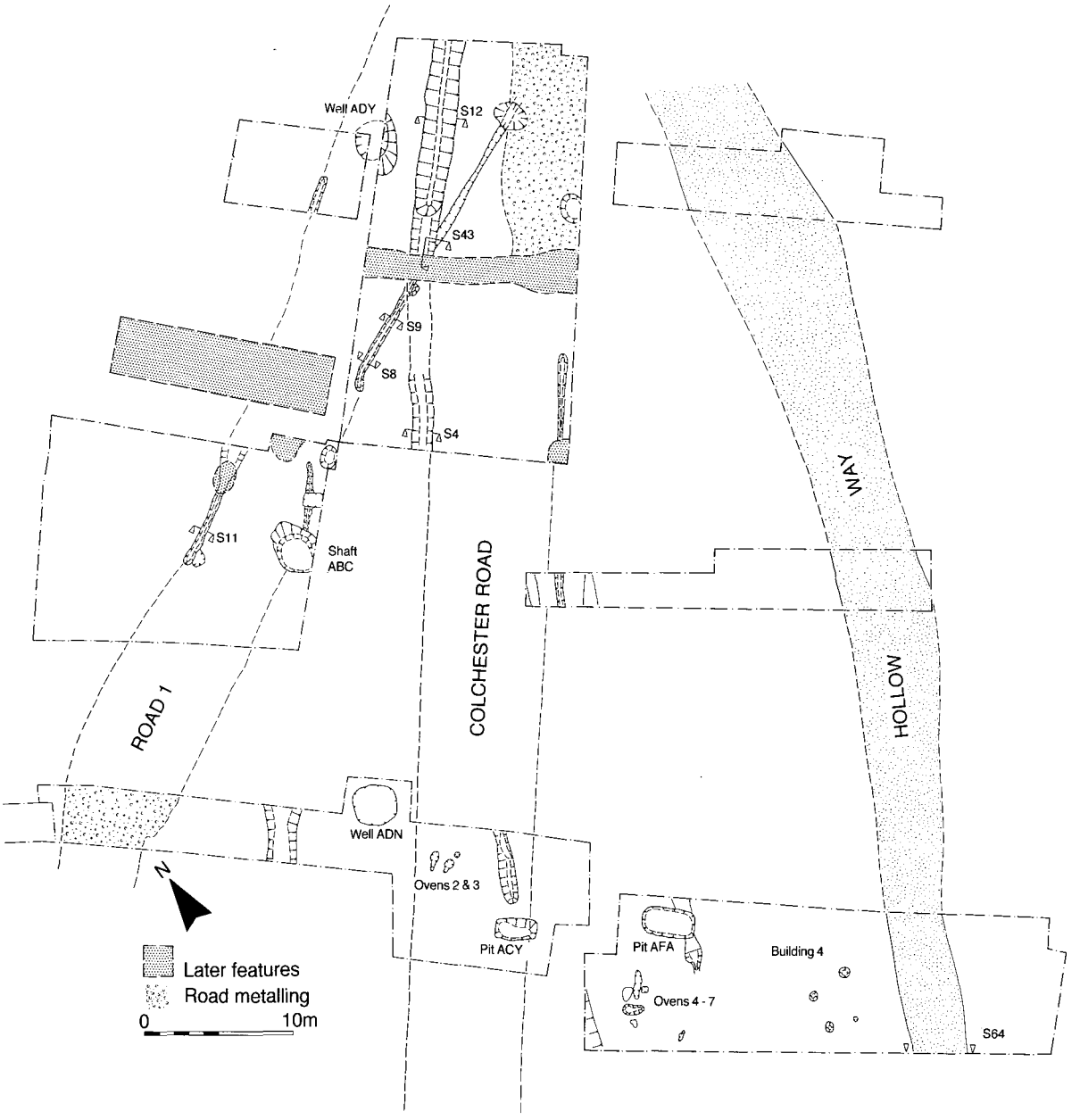


FIG. 35. Roads 1 and 2 in area M.

cambered, and indeed for much of its course it had become slightly hollowed, while in places it was severely rutted. The course of road 1 was further defined by shallow gullies (FIGS 6 and 35, contexts ABB, ABQ, CHD, CHJ, CHM); with rounded profiles and filled with stony silt. These survived to a depth of between 0.10 and 0.25 m, but like most features on the site, they had been truncated by erosion and agriculture. The intermittent nature of the gullies is probably the result of differing degrees of allotment digging and terracing, but it is possible that they were never continuous and instead represent eavesdrips or boundaries of individual plots flanking the road. In either case, however, the gullies can be taken as defining the line of road 1.

It was obviously important to establish the date of road 1 in the course of the excavations. A small amount of coarse pottery was found embedded in its cobbled surface (context ABV) but this surface had been disturbed considerably and the material on it was probably intrusive. In any case surface ABV must represent the latest resurfacing of a track that appears to have had its origins considerably earlier. Originally it may well have led directly from the entrance into the Ceremonial Enclosure to the 'timber tower' on the other side of the river. Opposite the entrance into the Enclosure the backfilled Iron Age ditch was sealed by a metalled causeway, 9 m wide, which, although best preserved in the hollow over the ditch itself, was traced for a

further 7 m north towards the enclosure (FIG. 34, 1a). This metalling (context BER, road 1a) must either represent the original line of road 1, or a path branching off it giving access to the enclosure. A small quantity of weathered pottery dating from the mid-first to mid-second centuries was found lying on the metalled surface over the hollow (Pottery Assemblage 9, p. 248; context BEB).

Whether or not road 1 originally ran straight up the hill from the river, it is clear that once the Ceremonial Enclosure was completed and in use, traffic must have been diverted to the north-east to run alongside the Enclosure ditch. In area H, two gullies marking the west side of road 1 (FIG. 6, contexts CHD and CHM) crossed the late Iron Age ditch on a causeway of clean sandy clay. Whatever its initial date however, road 1 was certainly the only road crossing the site in the first and early second centuries. The most reasonable explanation is that it dates from the mid-first century or earlier and was the main route to the north-east from Verulamium in the pre-Flavian period.

THE COLCHESTER ROAD

For most of the Roman period the main road from Verulamium to the north-east left the Roman town 110 m south-east of the 'timber tower', and crossed the river Ver at about the same point as the modern St Michael's Bridge. In the interest of clarity this road will be referred to as the Colchester road (Colchester being its ultimate destination).

The task of tracing the Colchester road in the 1991–3 excavations proved unexpectedly difficult due to the very considerable erosion over the lower slope of the hill. This, combined with the terracing effect of many of the allotments, meant that in places all trace of the road surface itself had been removed. A different state of affairs existed on the plateau edge (area D) where erosion in the late Roman period had reduced the road to a hollow-way. Nevertheless over the site as a whole the road surface was best preserved in those places where it had sunk over the compacted filling of earlier features, notably the late Iron Age ditch. The road-side ditches had survived erosion better, but in some cases the terracing of the allotments had resulted in the removal even of this evidence. Similar difficulties were encountered by Dr Stead when tracing the Silchester road on the south side of Verulamium (Stead and Rigby 1989, 4). None the less in 1991–3 as in the earlier excavations, the road-side gullies, combined with intermittent patches of road surface enabled the course of the road to be established.

Originally the road followed a straight line up the slope to a point 18 m south of the late Iron Age Ditch where it coincided with the line of road 1 before swerving slightly to run 8 m south-east of the Ceremonial Enclosure. This course suggests that any bank around the Enclosure stood on the inner side of the ditch, since there would hardly be space for a substantial bank between the road and ditch. In those places where it survived the road was 7–9 m wide with a hard, but worn, metalled surface set in a clay and sand matrix. The road survived best over a small stretch in area M, and at the extreme south end of the site, where the slightly cambered surface was exposed in the allotment behind no. 122 Folly Lane. Road-side gullies were best preserved in area M where they were filled with sandy silt, and set close to the edge of the road; there was no sign of widely spaced, deep, flanking ditches of the type running along Watling street in the early Roman period (Niblett 1993).

It has been tacitly assumed in the past that the main Colchester road dated from a period shortly after the conquest, if not from the conquest period itself. The 1991–3 excavations, however, showed that instead of being the earliest road north of Verulamium, the Colchester road replaced the earlier road 1. This was clearly demonstrated in area M (PL. XXXV). Here road 1 was defined on both sides by gullies, gully ABQ on the north, (FIG. 35, S11) and gully ABB on the east, (FIG. 36, S8 and S9). Gully ABB had been cut by the gully on the north-west side of the Colchester road (context AAE, FIGS 35 and 36, S43). Pottery in the fill of gully ABQ, on the east side of road 1, dated from the late second/early third century, although the road may well have gone out of use sometime earlier. It is unfortunate that in area H, the evidence for the relationship between the gullies on the north side of road 1 and those on the west side of the Colchester road (BNE, BSE) had been removed by a modern

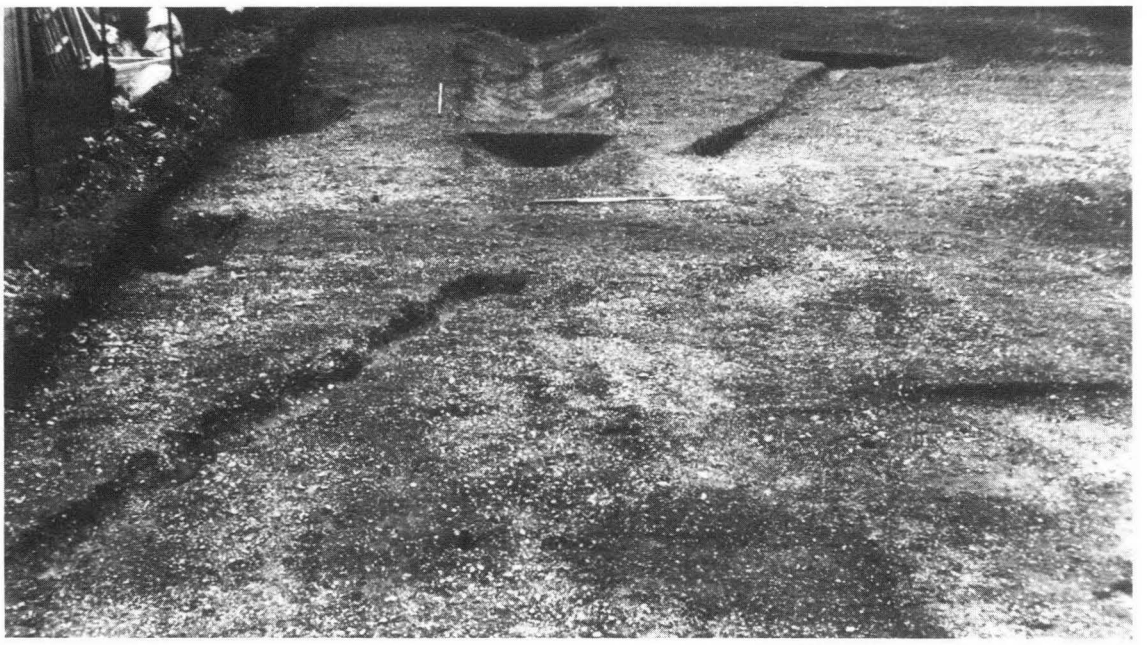


PLATE XXXV. Road side gullies in area M, looking north. The diagonal gully running across the centre of the photograph marks the south-east edge of road 1. It was cut by the gully on the north-west side of the main Colchester road, seen here running straight up the site. The wide, dark, unexcavated band running across the site was a post-medieval agricultural ditch.

pipeline, but the evidence from area M was sufficient to demonstrate the primary date of road 1 in the sequence (see below, p. 248 for a discussion of the ceramic dating evidence for the road sequence).

The relatively late date for the Colchester road was confirmed by the pit ACY, 65 m south of the Iron Age ditch and close to ovens 2 and 3 (FIGS 35 and 43). The road surface, containing a small amount of mid–late second-century pottery, had subsided over the fill of the pit, but the pit itself (context ACY) contained a sherd from a Cologne beaker, which is unlikely to be much earlier than *c.* A.D. 140 (see below, p. 263).

During the course of the Roman period the line of the Colchester road shifted. After the Ceremonial Enclosure ditch had been partially filled in the mid-second century, two parallel road ditches (contexts BNE, BMC, BNV, BNW) were cut, 6–8 m apart, through the top silt over the main ditch. At about the same time gullies were cut west of the road on the lower slope, suggesting that this shift to a more westerly line was continued further south (FIG. 35). No doubt the encroachment onto the road by pits (such as features BNS and BNN in area D) and timber structures (such a that represented by stakeholes in area P) was causing continual problems (Pottery Assemblages 10 and 11, p. 249).

THE HOLLOW-WAY

The latest road across the site was represented by a hollow-way which followed a sinuous course up the slope, on the eastern side of the Colchester road. Over the lower part of the site, in area P, this had become hollowed out to a depth of 0.3 m and was 4 m wide. Further up the slope, in area M, where it had been subject to more weathering, it was nearly 0.5 m deep and only 2 m wide. On the edge of the plateau, in area D of the excavation, it reverted to the original line of road 1 and the Colchester road on the east side of the Ceremonial Enclosure and was marked by a shallow, silt filled hollow-way. Where it survived, on the edges of the hollow, the surface of the hollow-way consisted of fine, rounded pebbles; these were overlain by deposits of dark, sandy silt, which included weathered and fragmentary sherds of late Roman and early Saxon pottery (Pottery Assemblage 12, p. 249, FIG. 77).

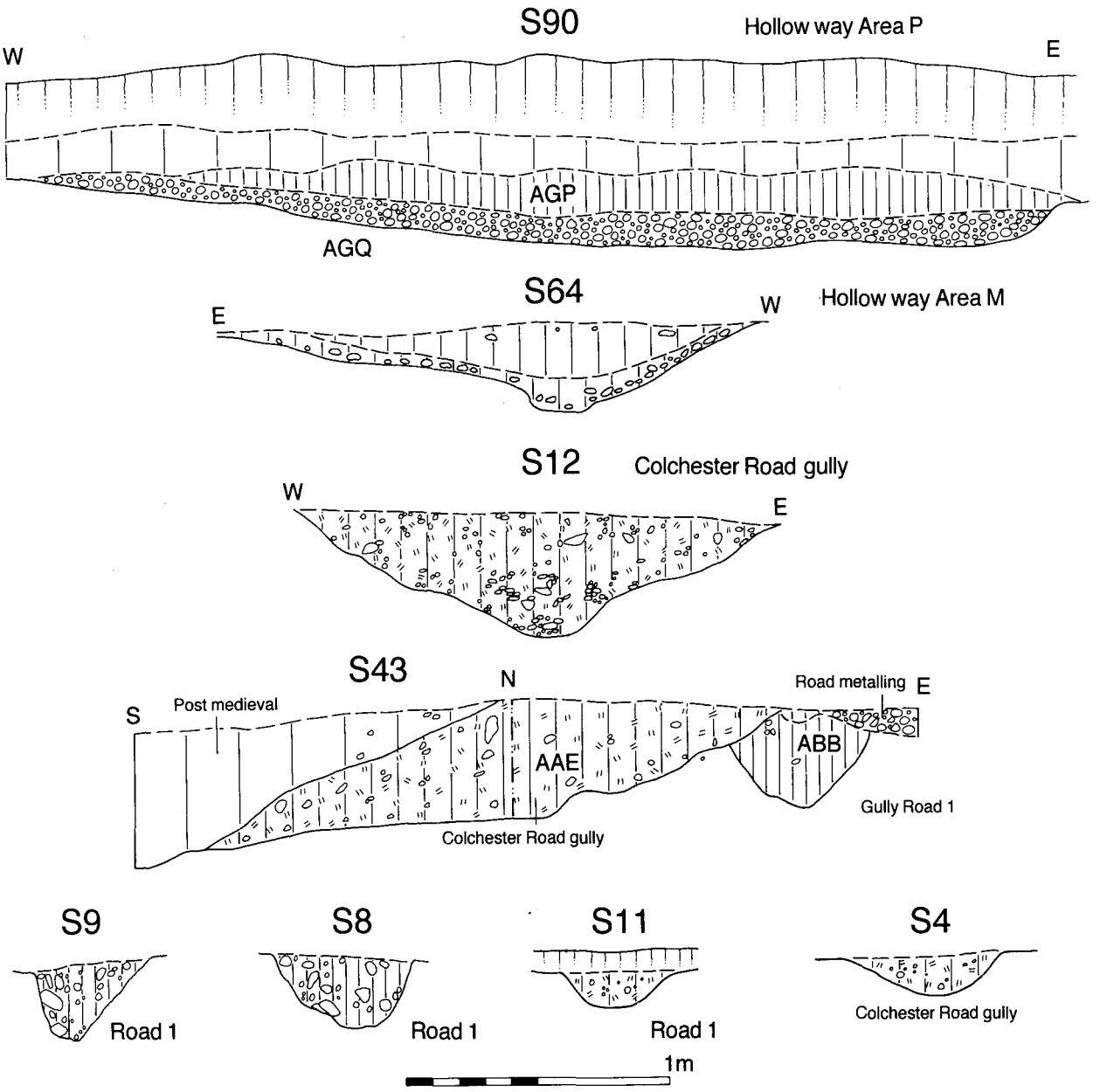


FIG. 36. Sections of road side gullies, area M.

The hollow-way (and the various courses of the Colchester road itself) presumably developed in order to avoid pits and potholes, and through a natural desire to adopt the easiest available gradient. This 'braiding' of the road, however, suggests that there were no very solid or permanent obstructions on this part of the site during periods 6 and 7. It is difficult to date what must have been a gradual process, but it is significant that in areas J and P, the third-century cellars and occupation apparently respected the Colchester road; in contrast to the fourth-century building 1 in area P, and the undated, but probably late, buildings 2–4, all of which fronted onto the hollow-way. Of all the routes up the slope, the line followed by the hollow-way survived the longest. Although the single medieval sherd may well be intrusive, the later Roman and early Saxon material from it suggests that it was in use for several centuries.

THE CEMETERIES

In addition to the mid-first-century cremation at the centre of the Ceremonial Enclosure a further twenty-one cremation burials were excavated on the site. With the exception of burial 17 which was found near the southern margin of the excavation in area J, all the cremations lay on the

west half of the site. Apart from two (burials 12 and 13) on the eastern edge of the north-west arm of the main enclosure ditch, none were found within the Ceremonial Enclosure — with the obvious exception of the main burial.

CREMATIONS

The cremations were found in four groups. The largest group, burials 1–11, lay in area A, approximately 50 m south of the west corner of the Ceremonial Enclosure (FIG. 37). A displaced cremation urn and a group of Antonine pots with an iron strigil (burial 27/29 contexts CYL/DDH) 75 m south of the enclosure entrance, probably also belonged to this group. A further eight cremations (burials 18–24) lay in area K, 120 m south-west of the ceremonial enclosure, close to the west edge of the site (FIG. 38), and an isolated cremation (burial 17) was found in area J, 15 m west of the Colchester road. In the same area a tip in the hollow over the third-century shaft CPX (TABLE 1) contained a layer of charcoal mixed with fragments of cremated bone and 'cremation slag' (FIG. 40, section 4, context CWB); although not *in situ*, this material was presumably derived from a nearby cremation site.

The majority of the cremations dated from period 4 (later first to mid-second century). The group of burials in area A was slightly earlier than that in area K; of the eleven burials in area A, six were pre-Flavian, and two were undated, whereas only one from area K was pre-Flavian and the rest dated from the late first or second century. The two burials from area G, burials 12 and 13, dated from the late third century, and were the latest cremations from the excavations, post-dating the levelling of the Ceremonial Enclosure ditch.

Nearly all the burials were very shallow, and it is highly likely that those found during the

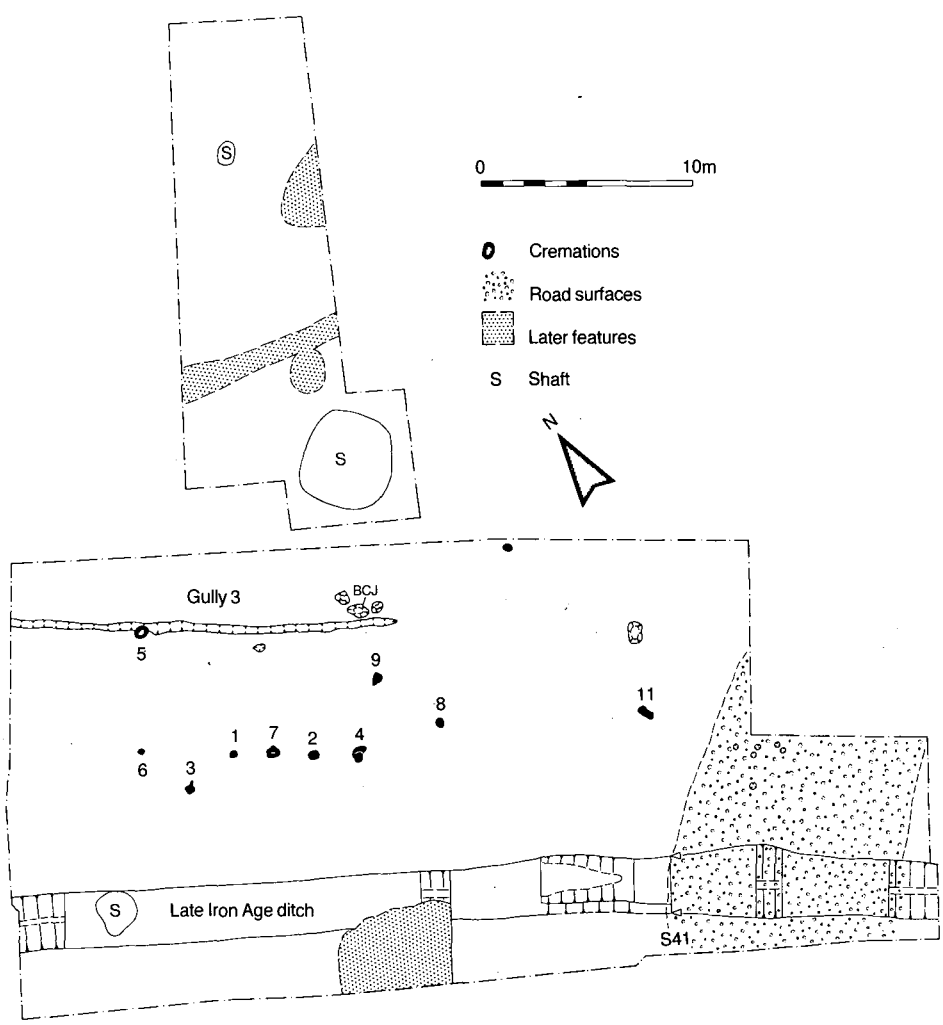


FIG. 37. The pre-Flavian cemetery in area A, showing period 2 stakeholes and late Iron Age ditch.

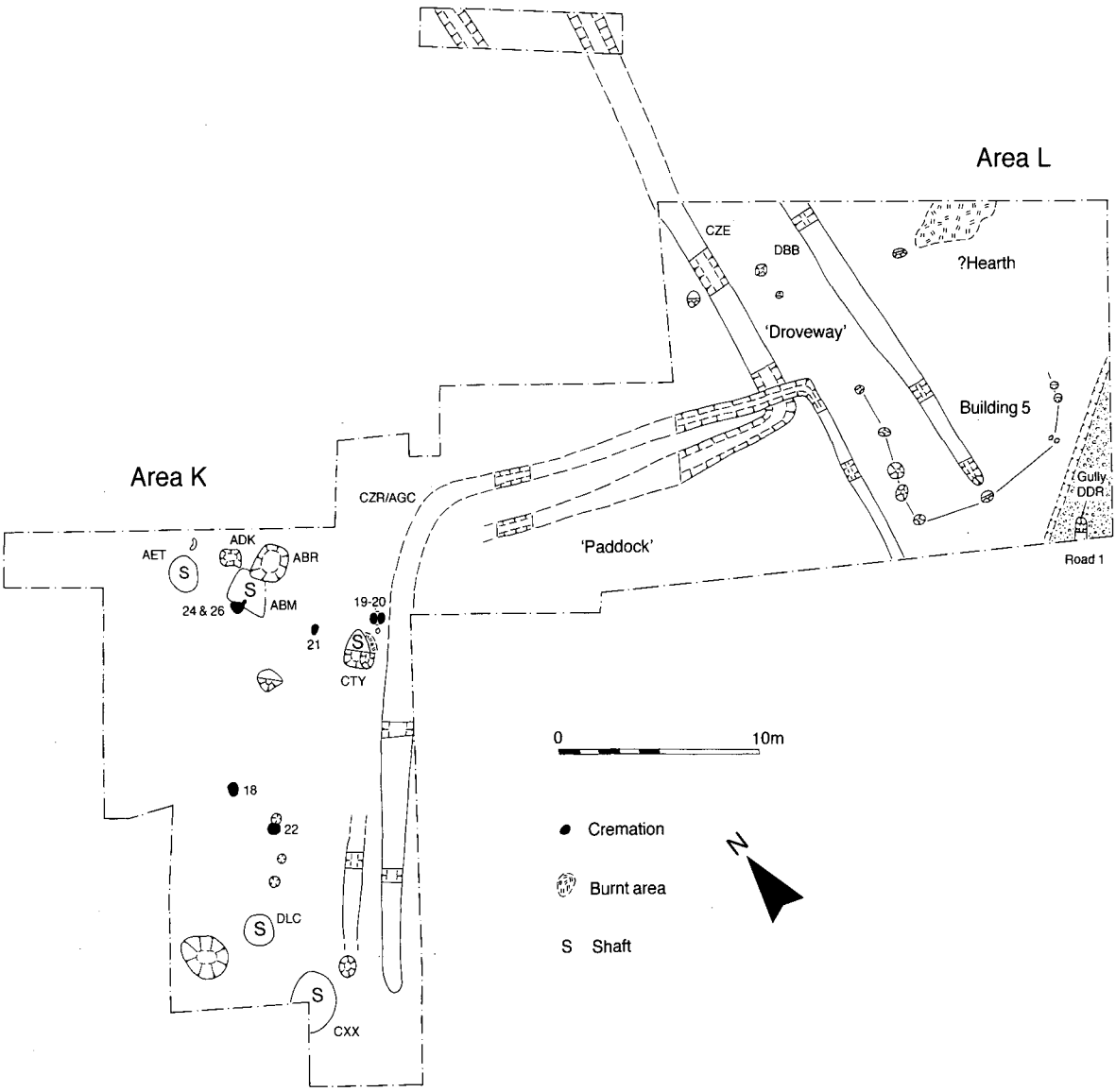


FIG. 38. Pre-Flavian cemetery in area K and the shaft AET and cess pit ABR

excavation represent only a fraction of the original number, the rest having been destroyed by agriculture and erosion. It is interesting to note that 42 per cent of the samian from area A was in south Gaulish fabric, as opposed to only 2 per cent from the excavations overall; a rather similar over-representation of south Gaulish samian was also detectable in the other area which produced a pre-Flavian burial, in area K. It may be that the high proportion of south Gaulish samian in these particular areas resulted either from the destruction of early Roman graves, or from funerary rites performed in the cemetery.

General comments on the cemetery

Details of individual burials and the accompanying material can be found in TABLE 3 (p. 113); only more general considerations are discussed here. Nevertheless, as comparatively few cremations were found, it would be unwise to make anything other than limited comments. Evidence for the layout or groupings of graves within individual areas was not very satisfactory; indeed in view of the fact many graves had probably been destroyed, any comments on their distribution are unlikely to be of value. Five burials in area A (nos. 1, 2, 4, 6 and 7) appear to have been placed in a straight row, fairly evenly spaced 2 m apart (FIG. 37). A 4.5 m gap at the west end of the row, between burials 1 and 6 suggests that an additional burial may have been lost. Such regular spacing implies the existence of grave markers, although no trace of any survived. Whether the positions of other burials were marked is uncertain. In area K burial 20

cut into the earlier burial 19, but whether this was deliberate or accidental is impossible to tell; in view of the general scarcity of the burials in this area, accidental recutting seems the less likely option, in which case the position of burial 19 must have been known. The stakehole on the north side of cremation 22, however, is later in date, and so unrelated to the burial.

There was no sign of burials taking place within rectilinear enclosures, and evidence from elsewhere in Verulamium suggests that this practice did not survive much later that the late first century (Niblett forthcoming). The row of burials in area A was roughly parallel to the line of the late Iron Age ditch and gully 3 (both of period 2), but both features had been filled in by the time the burials took place, although the line of the ditch may still have been visible; burial 5 was cut through gully 3. In areas J and K the burials were all earlier than the late Roman gullies in these parts of the site.

The burial pits themselves tended to be very eroded making it difficult to detect signs of grave or funeral ritual, much less to perceive any survival of the traditions or ceremonies apparent in the main burial in the Ceremonial Enclosure. It is possible, however, that slightly different rites were observed in area A than elsewhere on the site. The majority of cremations from area A were not contained in urns. Whether this had any significance at the time is imponderable, particularly as at least two cremations in area A appear to have been contained in boxes. On the other hand nine of the ten cremations from areas G, K and J were contained in jars (in one case an amphora base).

Grave goods and burial ritual

A distinction has to be made between pyre objects — objects burnt with the deceased on the pyre — and grave offerings, unburned — although not necessary intact objects — that were placed in the grave (Gräslund 1994).

Pyre offerings (objects burnt on the pyre with the body) were not well represented, and were found mainly in the area A cremations. The lathe-turned bone tube from burial 19 was found mixed with the cremated ashes, and presumably had been burnt with them. The copper alloy mirror from burial 9 (FIG. 88) had been only slightly damaged by fire, and presumably had either fallen to the base of the pyre, or had been placed near the edge. Hobnails were found in burials 3 and 18, but being iron, it is uncertain whether or not they had been burnt; the same is true for the knife or razor from burial 4 (FIG. 88). The function of the large nails in burials 3, 6 and 18 is difficult to explain but Galliou's suggestion that large nails were sometimes placed in burials to ensure that the dead did not return to a haunt the living, is interesting in this context (Galliou 1989, 49). Cremated animal bones (presumably from funeral meals) were found in nine cremations; in all cases these were mixed with the human ashes. Most of the animal bone was sheep or goat, in contrast to the animal bone from the near contemporary burials at King Harry Lane, where of the eighty-seven burials that contained animal remains, nearly all were those of pig (Stead and Rigby 1989, 250). Since the Folly Lane burials overlap chronologically with those fom King Harry Lane, the difference is unlikely to be due to overall changes in animal husbandry, and it is more likely that it reflects a difference in ritual. At Verulamium the preference for sheep/goat seems to have been a particular feature of the Folly Lane cemetery; since the animal bone from the cremation burials in the early-mid Roman cemetery at St Stephens shows no particular bias either to sheep/goat or pig; although bird bones were common.[2]

On the whole the graves on the lower slope at Folly Lane were not particularly well provided with *grave offerings* (unburnt objects, placed in the grave). The commonest offering was a single jar or flagon. The most numerous grave offerings were in the disturbed burial 27 in feature CYL, which dated from the later second century and contained a flagon, jug, dish, mortarium, part of a large lagena, four samian vessels and a strigil (FIG. 89). The strigil is reminiscent of the two strigils found in a Flavian burial west of the Silchester road (Niblett and Reeves 1990, pl. LIX); all three were probably used during purification rituals at the time of the funeral. Burials 9 and 21 included boxes with copper alloy rings.

Although it is possible that objects of wood or leather have not survived, the small size of the grave pit in the majority of cases rules out the provision of large quantities of perishable offerings.

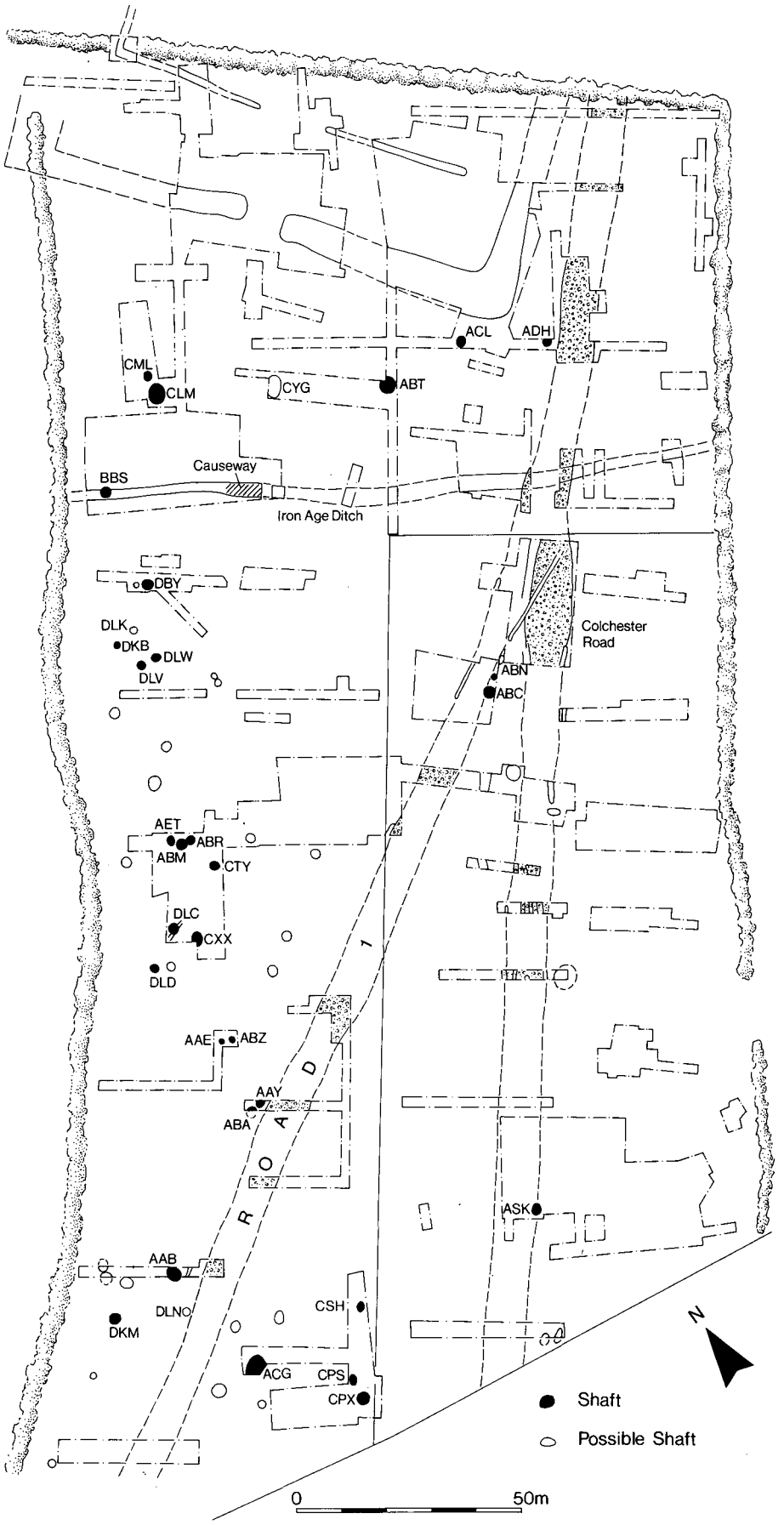


FIG. 39. Distribution of shafts south-west of the Ceremonial Enclosure.

A jar from burial 4 contained chemical traces of an oily vegetable substance, possibly olive oil; this may have been used for the cleansing or purification rituals, rather than as sustenance for the deceased.[3]

The practice of throwing sherds from incomplete vessels into the backfilling of the grave pit was noted from burials 3, 4, 7, 9 11, 17 and 19. This was a long- lived practice in the area. At King Harry Lane it occurred in just over 8 per cent of the burials, starting in period 1 burials (A.D. 1–40). It was recorded in roughly 10 per cent of burials in the St Stephens cemetery, while sherds in the fill of late third- and fourth-century inhumation graves near St Albans Abbey show that the custom persisted throughout the Roman period.[4] Two burials at Folly Lane, (burials 2 and 7) included blackened flagon sherds which appeared to have been burnt, while burials 3 and 7 contained fragments of solidified molten glass from unguent bottles. Burnt sherds are not common in later Roman burials in the Verulamium district, and it is possible that these examples, all from pre-Flavian graves, reflect a continuation of the custom of destroying everything connected with the funeral, represented *par excellence* by the main burial in the Ceremonial Enclosure. Also interesting in this context, is Galliou's suggestion that burnt sherds are the remains of vessels used in the funerary feast, whereas unburnt sherds were those of vessels used during purification rituals which took place while the grave was still open (Galliou 1989, 45).

INHUMATIONS

Apart from the three inhumations in the eastern terminal of the main enclosure ditch, a disturbed inhumation (burial 23) in area J and 2 infant burials, no inhumation burials were found. Nevertheless isolated human bones were found in rubbish deposits right across the site (TABLE 41, p. 323), and further inhumation burials may have existed, which were disturbed by later Roman activities.[5]

Burial 23

In area J, 12 m west of the Colchester road, a well preserved, but much disturbed inhumation, had been cut into the top filling of a period 5 shaft (feature CPX), which had probably been backfilled in the late second or early third century. The grave had been cut by a third-century pit (contexts CWB, CTC) and no evidence for burial rituals survived (FIG. 40, section 4, and human bone report, p. 307).

Infant burials

An infant burial was found in the otherwise sterile fill of shaft DLY (burial 28), and a less well preserved one was found in the top filling of a period 6 pit (feature CPA) in area J. Remains of two further infant burials were also found, but had been much disturbed, either by later Roman activities, or in the post-medieval period. Details of the cremations and inhumations can be found in TABLE 3 (p. 113).

THE SHAFTS

At least twenty-eight shafts with depths in excess of 2 m, had been dug on the lower slope of the hill. What appeared to be fourteen more shafts were noted (most of them during the building work), but these were not excavated, and are shown on FIGURE 39 as possible examples.

THE CHARACTERISTICS OF THE SHAFTS

The depth of many of the shafts was very substantial, but unfortunately the time and resources available in 1991–2 did not allow for the full excavation of more than nine examples. Of the fully excavated shafts, three were approximately 2.5 m deep, four were between 3 and 4 m deep and two were between 5 and 6 m deep. The shafts shared three main characteristics:

1. The lower parts had been filled with clean clay mixed with chalk nodules, flints, and (occasionally) tile. In a few cases this material filled the entire shaft.

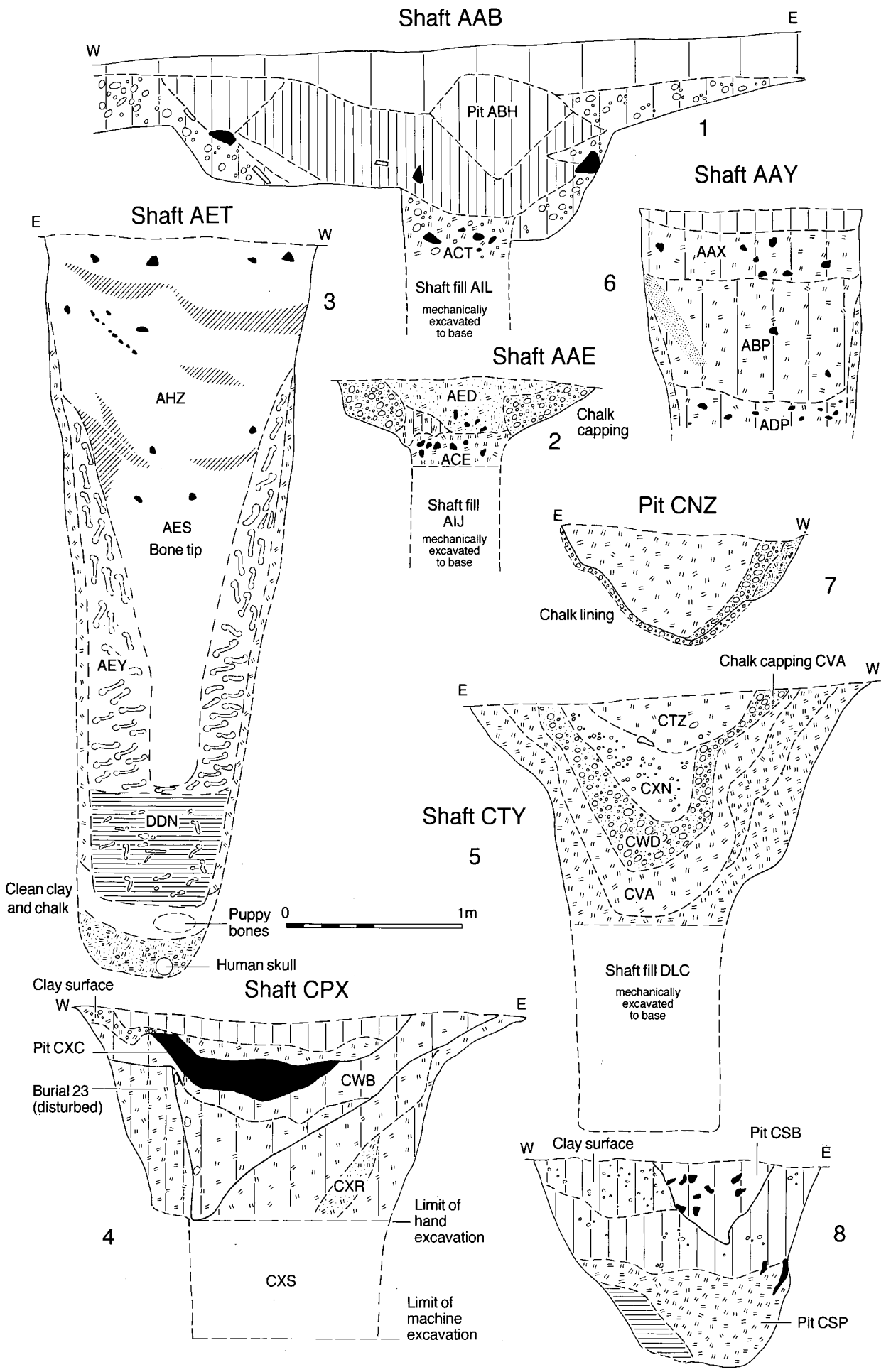


FIG. 40. Sections of shafts.

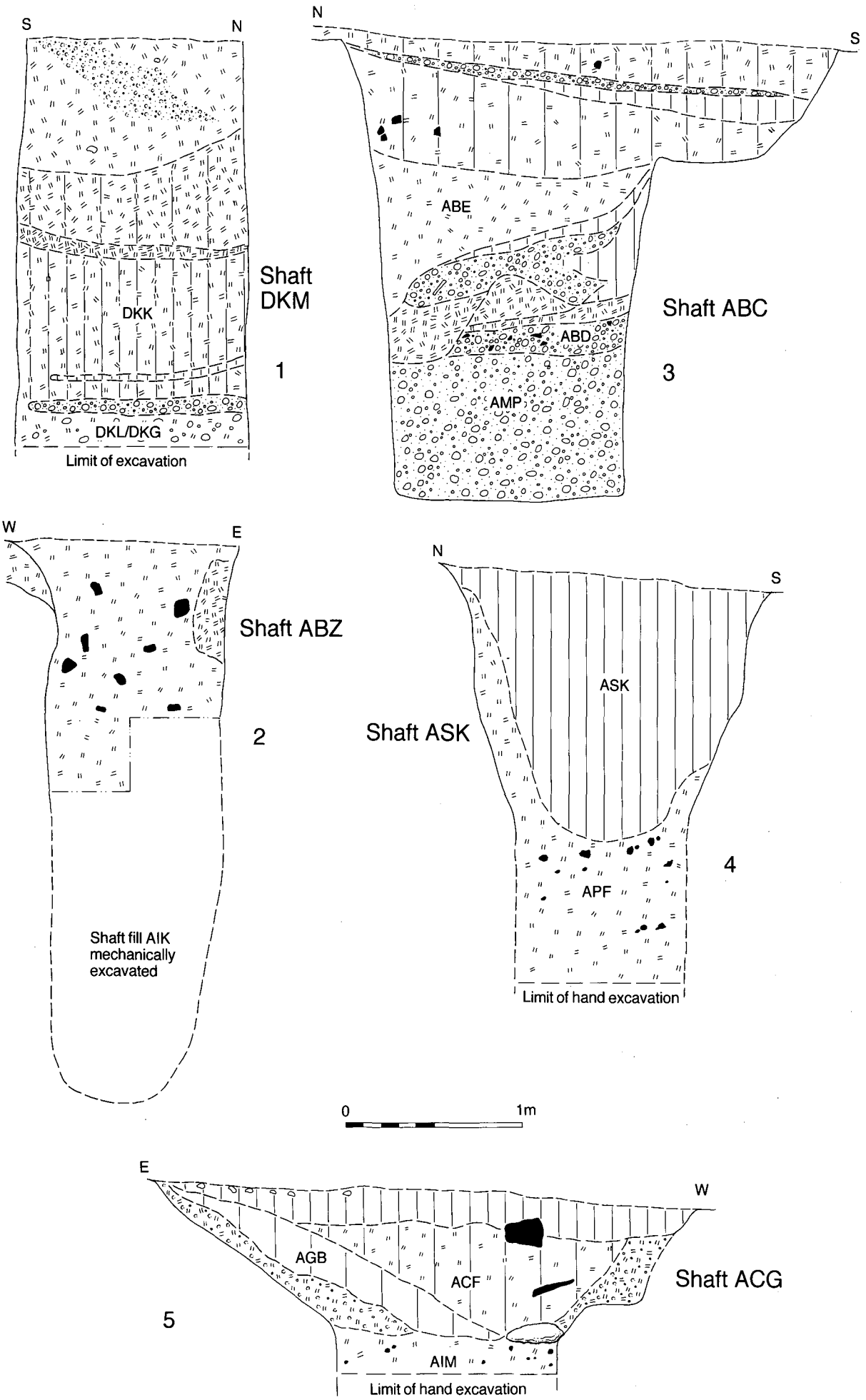


FIG. 41. Sections of shafts and pits.

2. They were in excess of 2 m in depth, often more than 3.5 m.
3. They had relatively narrow shafts (between 1.5 and 2.5 m in diameter), although the mouths were sometimes much wider.

The shafts penetrated the drift geology (generally the clay-with-flint that formed the subsoil on the lower slope) and into the underlying chalk. The solid nature of these deposits reduced the need for shoring, and certainly no trace of revetment was found in any of the shafts. The orange clay with numerous lumps of chalk and flint, which made up the shaft filling in most cases, was clearly redeposited natural, representing a deliberate infilling rather than gradual silting up. On the whole this filling was sterile, but some shafts contained broken pottery, animal bone, tile and (occasionally) debris from industrial activities. This material was usually found in distinct concentrations or batches at irregular intervals in the fill. The pottery in particular survived in a relatively fresh, unweathered condition and often comprised near complete vessels, although no intact pots were found; in two shafts (Shafts AAE, FIG. 40.2 and ABZ, FIG. 41.2) sherds from the same vessels were found at intervals throughout the fill, and even in the fill an adjacent shaft.

In those cases where the base of the shaft was reached it was normally found to be flat, or slightly dished. Traces of weathering or silting were not common, although in a few cases there was a thin layer of greenish silt on the shaft floor. This suggests that the shafts had not stood open very long, although it is possible that they had been covered or lined with a material such as basketwork which might not leave any impression.

THE DATE OF THE SHAFTS

The majority of the shafts were filled in at intervals from the mid-second to later third century. The latest example seems to be shaft CML which was not filled in until the early fourth century. It is more difficult to determine the date when shafts were first dug. Relatively few were fully excavated, and those that were contained no closely datable material in their bases. The earliest shafts to be backfilled were shafts DKM and ABT, both of which contained Hadrianic pottery in the hollows above them (Pottery Assemblages 13 and 14), although the shafts themselves (only the tops were excavated) appeared to be sterile. Details of the individual shafts are summarized in TABLE 1.

THE FUNCTION OF THE SHAFTS

It is difficult to suggest a reason for the provision of these shafts. None of those fully excavated penetrated the water table and even supposing that this was somewhat higher in the Roman period than it is today, pits less than 15 m deep are unlikely to have reached it.[6] The absence of rubbish in the bases of the shafts rules them out as refuse pits, although it is possible that they were used as storage pits. On the other hand there are several indications of ritual proceedings associated with the closure of at least some of the shafts.

Shaft AET (FIG. 40, section 3)

This was 3.4 m deep and lay close to the western edge of the site in area K. A human cranium had been placed on the west side of what was almost certainly the original floor of the shaft. The skull was in a fresh, unweathered condition and bore clear signs of having been deliberately defleshed at, or shortly after, the time of death. There was no sign of silting or weathering on the shaft floor, and it appears that the skull, together with a few bones of a young dog, had been placed in the newly dug shaft and covered by a thin layer of clean clay. This basal deposit was then overlain by a further layer of clay which contained the partial remains of a puppy and part of what may have been a face pot (Pottery Assemblage 18, FIG. 79). This deposit was succeeded by a layer of chalky silt, containing a lunette-shaped knife, probably a leather working tool (Finds report 45, FIG. 69), after which the shaft was filled with two massive deposits of butchers' waste, containing the bones from at least thirty-four cattle. The lowest layer of cattle bone was interleaved with tips of clay with flints (context AEY) and contained a second leather working

knife (Finds report 44, FIG. 69). A later tip of bones (context AES), separated from the earlier bones by a dump of charcoal and clay/silt (context AHZ), also consisted mainly of cattle limb bones, although it included bones from other domestic species. Both bone deposits incorporated a small amount of metalworking slag and mid/late second-century pottery (Pottery Assemblage 30). It is possible that these bones themselves represent votive deposits, although the additional inclusion of this industrial and domestic rubbish makes it more likely that they were simply waste from butchery and leather working activities.

Shaft ABC/E93 (FIG. 41, section 3)

This pit lay close to the road 1. It was 2.4 m deep with a flat base on which the remains of two ox skulls had been placed centrally. The base of the shaft had then been filled with a 0.75 m thick layer of clean chalk and clay; as in the case of pit AET the skull appears to have been deliberately placed on the floor of an otherwise empty shaft, and immediately covered by redeposited clay and chalk. It is possible that as the shaft fill compacted, the resulting hollow was used for further rituals (see below, p. 301; Pottery Assemblage 19).

It is interesting to note that although no other fully excavated pit contained a skull, seven pits contained fragments of face pots, and that overall, the Folly Lane site produced remains of thirteen face pots. If the seven face pots from the Branch Road bath house (which, as is suggested below, was associated with the site in period 5) are included, the total rises to twenty. This is an unusually high proportion of face pots for one site; Braithwaite estimated that between twenty and thirty face pots have been found in Verulamium; if the seven from Branch Road (included in her estimate) are subtracted and added to those from Folly Lane, it means that roughly half the total number of face pots from the town come from the present site (Braithwaite 1984, 108). This suggests the possibility that face pots were used in rituals carried out at Folly Lane, perhaps as substitutes for skulls, whether human or animal.

Whatever the explanation for the concentration of face pots on the site, the skulls in shafts ABC and AET surely represent ritual deposits. What is more difficult to determine is whether the shafts were dug expressly for the purpose of receiving the skulls, or whether the skulls represent rituals associated with the disuse of pits originally dug for another purpose. Two factors suggest a primarily ritual use for the shafts.

1. In the absence of other obvious uses for so large a number of deep pits on a site that does not appear to have been densely occupied, it is likely that a substantial number of the shafts had a ceremonial or ritual significance. It is noticeable that shafts were concentrated on the western side of the site, in much the same area as that used for cremations. Galliou and others have commented on the association of ritual shafts with cemeteries in the Roman period (Galliou 1989, 62).[7]
2. The character of the pottery in the filling of the shafts was slightly abnormal; cooking pots and storage jars tended to be under represented, with a greater proportion of beakers, flagons and bottles than would normally occur in a domestic or industrial context. Flagons and bottles make up 12 per cent of the total pottery from the shafts, as opposed to only 4 per cent of the total pottery from later industrial and domestic contexts on the site; beakers account for 21 per cent of the pottery in the shafts, as compared with only 7 per cent in later contexts. The proportions of beakers and flagons in the Folly Lane shafts however, compare well with figures from shafts at Baldock, which also may have had a ritual function (Stead and Rigby 1986, 47) (FIG. 87).

THE HOLLOWS OVER THE SHAFTS (PL. XXXVI)

In spite of its very solid nature, in the majority of cases the backfilled material in the shafts had compacted, with the result that overlying layers had slumped dramatically, forming pronounced hollows up to 1 m deep. In some cases the backfilled shafts were overlain by layers of chalk or clay; this may represent a deliberate capping, or it may be all that remained of later clay or chalk surfaces. There is some evidence to suggest that occasionally the hollows were themselves utilized in the later Roman period. In area 4, a shallow gully had been dug running the 0.85 m from

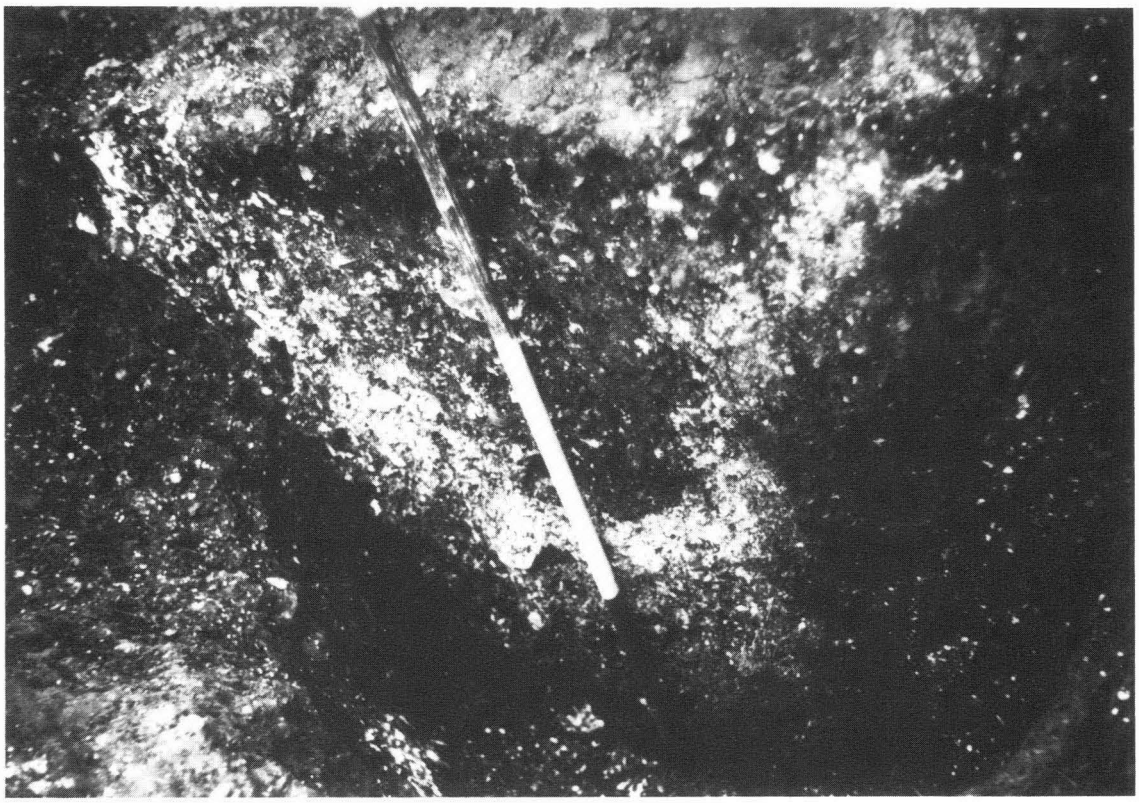


PLATE XXXVI. The sinkage over shaft CTY. The shaft had been capped, with chalk, which had sunk dramatically as the underlying fill compacted. (See FIG. 41).

the hollow over shaft AAE to that over shaft ABZ; this was presumably intended to channel rain water that collected in one hollow for use in the adjacent one. In four cases (shafts AAE, ABZ, DBY and ABZ/E93) cess had accumulated directly over the upper surface of the shaft filling, suggesting that they had been left partially filled and then used as latrines.

There was a certain amount of evidence to suggest that in a proportion of cases the hollows had themselves been used for ritual purposes. The base of the hollow that developed over the unexcavated shaft CLM (one of the most northerly shafts on the site) contained approximately half of a ox skull, while eight other hollows (those over shafts ABZ, ABT, AET, BBS, AAE, ADY/E93 and ABC/E93) contained large fragments of near complete pots, including unguent jars, a tazza and several face pots. This has led Dr Lyne to suggest that not only were the hollows used for rituals but that these rites were different to those associated with the shafts themselves (see below, p. 301).

LARGE PITS

In addition to the shafts a number of other large pits were recorded on the site.

Wells

Seven pits, over 2.5 m in diameter at the mouth were interpreted as wells (Pits ADY, ADN/E93, ATM, BPK CEM, DGB, DLE). None were fully excavated. Although the large diameter at the mouth may be the result of weathering, these dimensions are substantially larger than those of the majority of the shafts, and suggests that the large pits served a different purpose. Nevertheless in the absence of total excavation of any of the wells, the distinction between wells and shafts is necessarily blurred. The hollow over well ADN produced a large amount of late second- and early third-century pottery (Pottery Assemblage 26) while Well BPK (FIG. 42.2) was cut through the late Roman midden over the Ceremonial Enclosure ditch so must date from the late third or early fourth century at the earliest (Pottery Assemblage 39). The sinkage over well ADY,

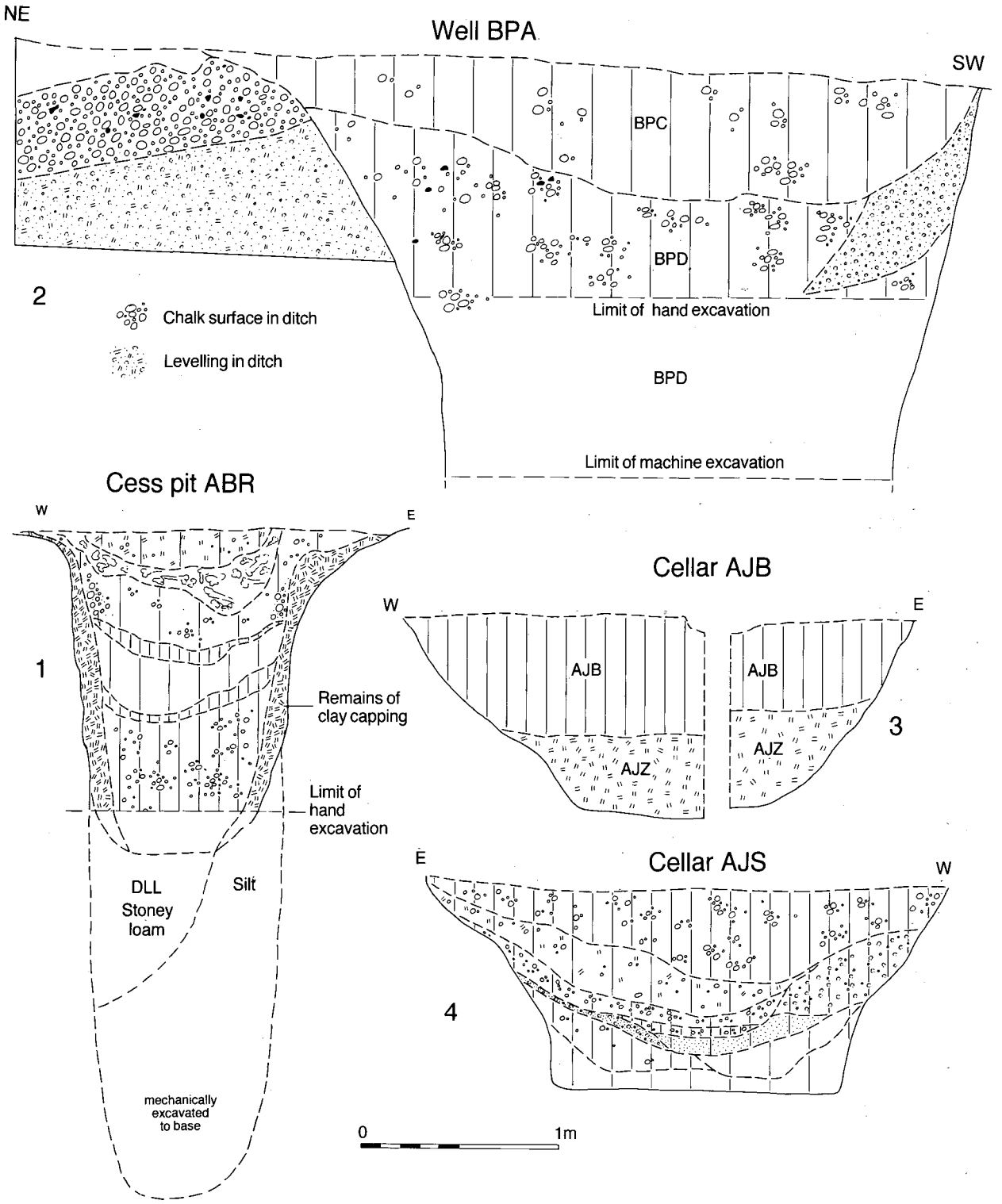


FIG. 42. Sections of well, cess pits, and cellars.

west of the Colchester road in area M, produced late fourth-century pottery (Pottery Assemblage 37).

Cess pits (FIG. 42)

In the bases of two pits (pits ABR and CNZ) deposits of fine grey/brown clayey silt accumulated shortly after the pits were first dug; they date from period 6 and 7 respectively. Soil samples from the bases of both pits included mineral-replaced fruit stones which generally occur only in cess deposits. Similar deposits were recorded in the later filling of shafts (shafts DBY and ASK), and in the hollows over shafts ABC/E93, AAE, ABZ and CXX. Pits ABR and CNZ,

however, were the only pits which contained layers of cess in their primary fill, suggesting that both pits were originally intended as latrines. Both pits were approximately 1 m square, with weathered cones; pit ABR was a little over 2 m deep and pit CNZ 1.3 m deep. Neither pit had any indication of associated structures, although this may have been due to surface erosion. Pit CNZ had been lined with small nodules of chalk; the subsoil is slightly looser in this part of the site, and this may have been intended as a revetment for the pit walls (FIG. 40, section 7). Both cess pits date from the late second/early third century (Pottery Assemblages 27–8).

Quarry pits

Two large, irregularly shaped pits are best interpreted as quarry pits (Pits CPM, CSK). They were in excess of 5 m in diameter, and contained third- and fourth-century material in their fill. Two small pits (BZZ and CAD) on the west edge of the Colchester road in area C seem to have been gravel pits, doubtless providing material for road surfacing.

Small rubbish pits

Twenty-six small pits, up to 1.5 m in diameter and up to 1.5 m deep, were recorded.

INDUSTRIAL ACTIVITY

IRONWORKING (AREAS J AND P)

Fragments of iron slag were found in twenty-five contexts; these are detailed in TABLE 3. In addition, possible tuyères were found in pit CPB (period 4), in the filling of shaft AAB (period 5), and in the mouth of a late Roman well cut through the midden over the Ceremonial Enclosure ditch (feature BPK, FIG. 42.2) (Finds report 53, FIG. 71). No evidence for copper alloy working was found anywhere on the excavation.

No metalworking debris was found in pre-Roman or first-century deposits; a small fragment of slag from the turf line in the late Iron Age ditch was found too close to the lip of the ditch to be regarded as certainly pre-Roman in date. The earliest context producing ironworking slag was a small, chalk-lined pit (feature CPB) in area J, which dated from the early to mid-second century; thereafter fragments of slag and occasional hearth bottoms occurred sporadically in features dating from throughout the rest of the Roman period. With the exception of a few pieces in the filling of shafts AAB, ACG and AET, and the material in the period 7 rubbish tip over the main ditch, the ironworking debris was concentrated in the south-east part of the site in areas J and P.

Area J lay near the southern boundary of the 1991/2 site, approximately 20 m west of the main Colchester road. Although no furnaces were found *in situ*, quantities of fuel ash slag were found in the Hadrianic/early Antonine pit CPB, implying metalworking in the vicinity (Potttery Assemblage 29). At the end of the second century, fragments of fuel ash slag were thrown into the hollow over shaft CSP (FIG. 40, section 8).

Area P lay on the east side of the Colchester road, in the south-eastern corner of the site. Until the late second century this seems to have formed open ground, but in the course of the next century a number of large pits had been dug, and occasional pieces of ironworking slag became incorporated in their filling. The majority of the ironworking slag, however, came from postholes associated with post-built structures, dating from the very end of the Roman period, or from silt on the surface of the hollow-way associated with them. No traces of hearths or furnaces were found, but the hollow-way contained broken nodules of pyrites. Pyrites nodules occur naturally in the chalk, and were probably used as a source of iron ore. Their occurrence with ironworking slag suggests that iron was being smelted nearby in the late Roman period.

The large features CPM and CSK, on the south and east of area J respectively, were probably quarries, and may have been a source of the iron nodules. The chalk lies within 1.5 m of the surface on this part of the site.

BUTCHERY, LEATHER WORKING AND BONE WORKING (AREA K)

Area K lay on the north-west edge of the site and produced evidence for butchery on a commercial scale. Although shaft AET, with the defleshed human skull in its base, probably originally had a ritual purpose (see above), much of its fill consisted of a remarkable deposit of cattle bones. These are discussed in detail in a later section (p. 330) but it is clear that the limb bones of at least thirty-four individual animals had been placed in the pit in two separate batches (FIG. 40.3). The lower batch (context AEY) was entirely made up of tips of cattle bones interspersed with lenses of clean clay, flints and chalk nodules. The second batch (context AES) included a small proportion of pig and sheep/goat bones. The bone tips had slumped dramatically into the loose filling in the lower part of the shaft, suggesting that when the bones were deposited they included a substantial amount of organic matter, which had rotted and caused the slumping. Analysis of the cattle bones shows that the limbs had been carefully separated from the rest of the carcasses and then chopped and filleted in a systematic manner, suggesting that the carcasses had been intensively processed, probably on a commercial scale. Another deposit, made up in part of butchers' waste, was found in the sinkage over a small cess pit (feature ABR) 2 m west of pit AET. ABR itself dated from the third century but the butchers' waste over it probably represents an earlier, redeposited midden, more or less contemporary with the waste in shaft AET (Pottery Assemblage 30).

Intensive meat processing no doubt led to associated industries of tanning, leather working, bone working, glue making, grease collection and candle manufacture.

Tanning and leather working

In addition to pits ABR and CNZ at least eight of the hollows that formed in subsidences over earlier features, were used as cess pits. In some cases clay sealing earlier shafts, must have made these hollows watertight and suggests that cess was deliberately collected. Cess was often used for soaking and softening hides making the whole operation a smelly and unpleasant process which might well be expected to be located on the outskirts of the town. It is also worth noting, in this context, the presence of two leather workers' knives, both in shaft AET (Finds report 44–5, FIG. 69).

Bone and ivory working

Waste from bone working was found in features AIL, BDG, ABQ, CPN, CTC and BPK. In spite of the large number of cattle bones, particularly in pit AET, there is nothing to suggest that bone working was of particular importance on the site. Offcuts of worked ivory in pit AET, however, are of particular interest, since they constitute the only evidence so far found, for the working of ivory in Britain (Finds report 61, FIG. 71).

KILNS AND OVENS

In addition to oven 1, in the base of the Ceremonial Enclosure ditch, remains of six ovens were found in area M alongside and on the line of the main Colchester Road. The remains were without exception extremely weathered, and consisted of nothing more than the oven floors. All trace of superstructure and stokeholes had been removed by erosion or agriculture (FIG. 43).

Oven 2 (context ACL; overall dimension 1.2 m by 0.58 m)

The flat base of this oven survived, 0.17 m below the level of natural subsoil. The walls of the oven had been lined with clay which survived in places up to 0.03 m thick; there were also indications that originally the clay had been faced with tiles, which were subsequently robbed out. No trace of a stokehole or superstructure survived, and ultimately the oven had been levelled with a layer of chalk nodules.

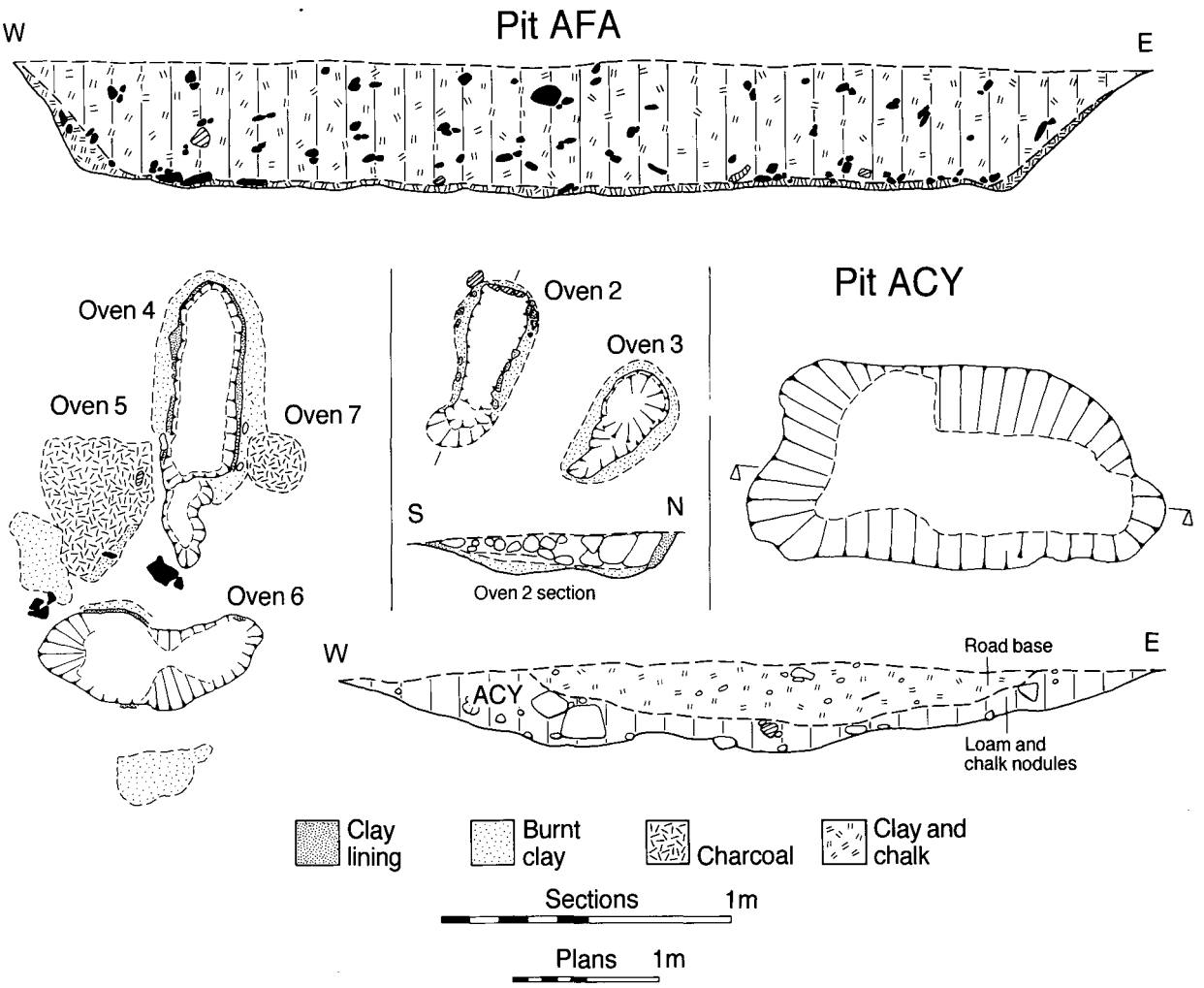


FIG. 43. Ovens 2–7.

Oven 3 (context ACE/ACK, overall dimensions 0.95 m by 0.58 m)

The oven lay only 0.5 m east of oven 2, and similarly it had been cut 0.10 m into the natural subsoil. The surviving edges of the oven had been heavily scorched, but the floor showed little sign of burning. It is possible that the floor had been tiled, and the tiles subsequently robbed out. Oven 3 had been levelled with very compressed stony clay, mixed with chalk nodules and patches of charcoal. This appeared to be the remains of road metalling that had sunk slightly over the oven, and been compressed into the oven fill.

Oven 4 (contexts AJE/ AJW, overall dimensions 1.88 m by 0.5 m) (PL. XXXVII)

This lay 70 m south-east of oven 3. It had been terraced into the slope of the hill, the north end being cut 0.27 m into the natural subsoil, and the south 0.10 m. It had been lined with small chalk nodules and faced with red clay 0.02 m thick. It was filled with silty clay mixed with burnt daub and charcoal and sealed by a layer of clayey loam (context AFJ).

Oven 5 (context AJP, surviving as a roughly circular feature, 0.38 m in diameter) (PL. XXXVII)

This had been cut by oven 4. The remains were extremely slight, and consisted of a shallow scoop, 0.03 m deep with a scorched floor and a portion of baked clay wall on its south-east margin.

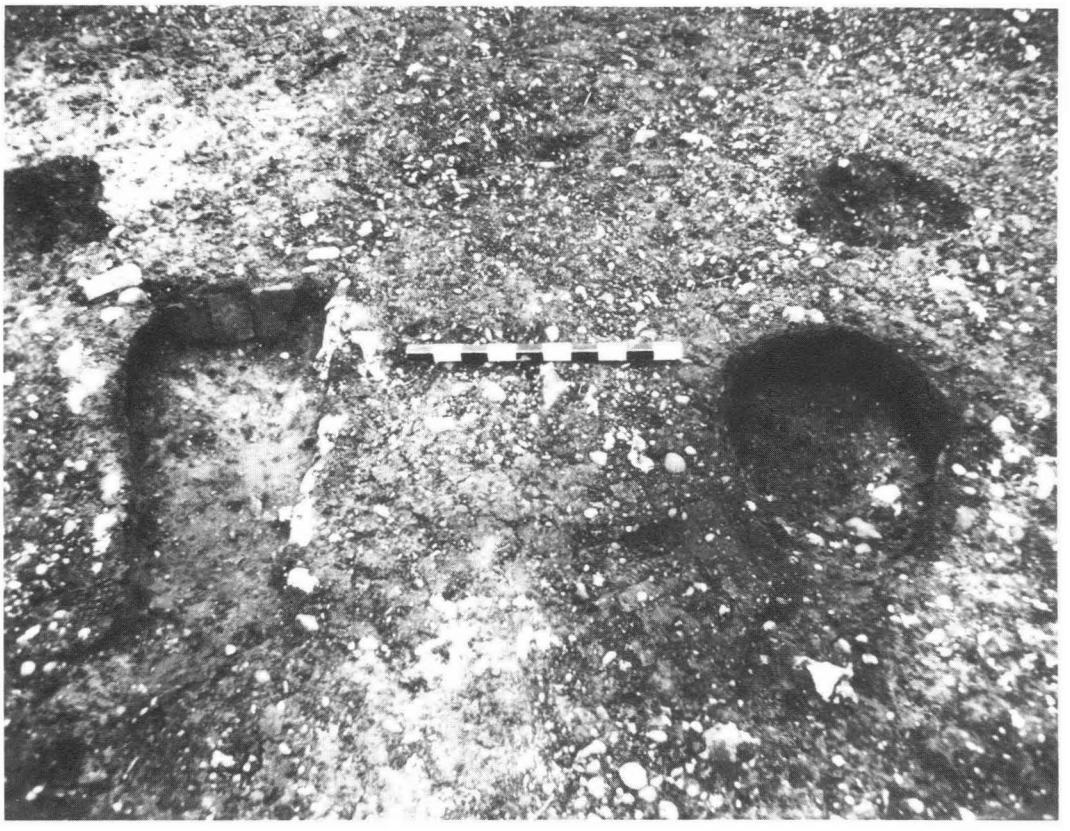


PLATE XXXVII. Ovens 4 and 5.

Oven 6 (context ACE, overall dimension 1.48 m by 0.62 m)

This lay 1 m south of oven 4, and unlike the rest of the ovens was aligned north-east/south-west. It had been lined with clay which had been fired brick red and survived over short stretches on the north side of the oven. It was filled with a highly compressed deposit of silty clay mixed with burnt daub and charcoal. A further area of burnt clay, 0.5 m south of oven 6 may be associated with it, or may represent remains of a further oven.

Oven 7 (context ALM, surviving dimensions approximately 0.55 m by 1.04 m)

This feature was extremely shallow and badly preserved. Its edges were almost impossible to define, but it appeared to be a shallow, flat bottomed scoop similar to oven 5. It was filled with dark, silty clay mixed with burnt daub, charcoal and burnt flints.

Two further features deserve mention in connection with this group of ovens.

Pits ACY/ACA and AFA/AFY

These were both sub-rectangular pits 0.6–0.8 m deep with flat floors. Pit AFA had been lined with small chalk nodules and faced with a clay skin, while pit ACY contained a large proportion of chalk nodules in its lower fill suggesting that it too had once been chalk lined. This lining is reminiscent of that found in oven 4 and of the chalk nodules filling oven 2, and suggests that both pits represent the remains of robbed out ovens. It is unlikely that they were contemporary with each other. Pit AFA contained late third/early fourth-century pottery, whereas ACY produced early to mid-second-century material. Pit ACY was sealed by a solid layer of orange/brown clay and pebbles which almost certainly represents metalling for the Colchester road which had slumped over its compacted fill.

What the ovens was used for remains uncertain. The dimensions of ovens 2 and 3 make it unlikely (although not impossible) that they were pottery kilns. Wasters in Verulamium region white ware were found in pit AIJ/K 135 m to the south-west, but there is no means of saying whether these sherds originated on the Folly Lane site. No metalworking debris was found in

the vicinity, although the size of the ovens compares well with local ironworking kilns.[8] A use as bread ovens is perhaps the most likely, and it is worth noting the comparatively large number of querns that were found on the site usually in the form of rubbish in later features.[9] As noted (p. 100), ovens are not an uncommon feature on local temple sites, and the Folly Lane examples may well have had a ritual purpose, such as the preparation of food for ceremonial occasions or as temple offerings.

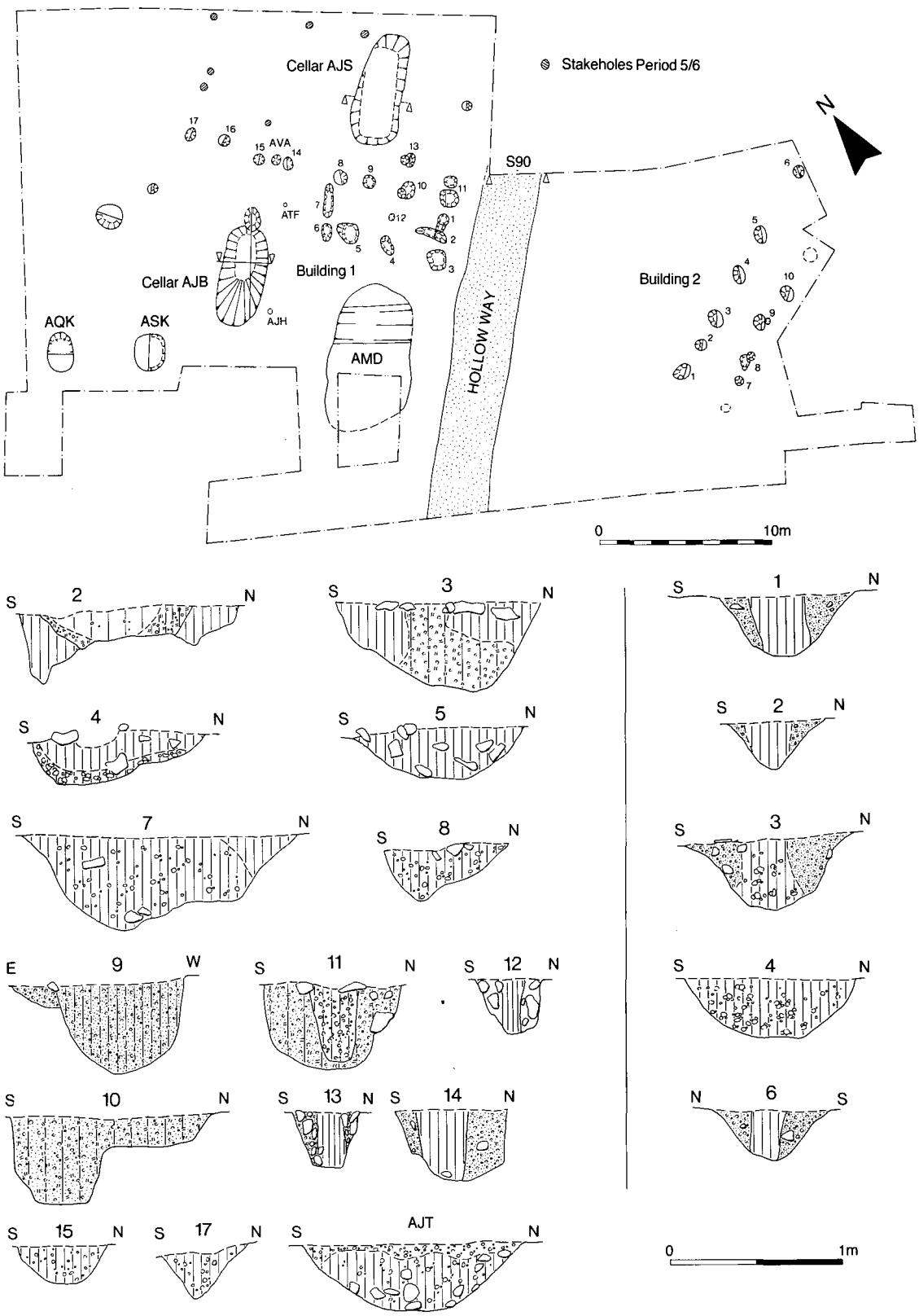


FIG. 44. Late Roman buildings 1 and 2 and the hollow-way. Sections 2–14 (*bottom left*) from building 1; sections 1–6 (*bottom right*) from building 2.

The date of the oven complex is also difficult to ascertain. Pits ACY and AFA contained datable material (mid-second- and early fourth-century respectively) but there is nothing to show that either were contemporary with any of the other ovens. Ovens 2 and 3 certainly predated the Colchester road, however, which the material in pit ACY (also sealed by the road) shows could not have been laid in this position before the middle of the second century (see Coarse Pottery report, p. 263).

Cellars flanking the Colchester Road (FIG. 44)

Two large pits (features AJB and AJS) were excavated on the east side of the Colchester road in area P. Both features were rectangular in plan, measuring 1.1 m by 5 m and 1.5m by 6 m respectively, with the long axis running parallel to the main Colchester road. Pit AMD, 7 m south of AKH may be a third, and slightly larger example; however, it had been extensively disturbed in the post-medieval period, and its original date and character could not be satisfactorily established.

Features AJB and AJS were closely similar, with depths of 0.95 m, steep walls and flat bases that penetrated as far as the natural chalk. Both had been filled with tips of rubbish, including a large quantity of pottery, much of it residual. In the case of AJB this rubbish seems to have been thrown in in two batches, the lower deposit (context AJZ) dating from the late second century and the upper (context AJB) about a century later (Pottery Assemblage 31). The filling of pit AJS seemed to represent a single deposit dating from the end of the third century, although it contained a large amount of residual late second-century material (Pottery Assemblage 32). The purpose of these pits is uncertain, but they bear a very striking resemblance to the pits, also filled in the late third century, which flanked the Silchester road on the opposite side of the valley (Stead and Rigby 1989, 10–11, fig. 8). A further example, again dating from the third century, was excavated on the Gorhambury villa site (Neal, Wardle and Hunn 1990, 75, fig. 99). All these features were interpreted as cellars. It is possible that they were used for storing products such as cheese, where storage in cool conditions over a considerable period was required. It is interesting to note that so far no examples of these cellars have been recorded from within Verulamium itself; they seem to have been a feature of the suburban development.

EVIDENCE FOR OCCUPATION AND AGRICULTURAL USE IN THE LATE ROMAN PERIOD

Remains of five buildings dating from the late Roman, or possibly from the sub-Roman periods, were uncovered, four of them flanking the hollow-way.

Building 1

This was represented by eleven post-pits suggesting a rectangular structure, approximately 9 m east of the Colchester road near the south-east margin of the site. Rather than fronting onto the Colchester road, however, building 1 respected the hollow-way on its eastern side. The building measured 6.5 m by 2.5 m with the shorter side facing directly onto the hollow-way. The post-pits were set approximately 2 m apart, were between 0.5 m and 0.9 m in diameter, circular in plan, and were filled with stony, dark loam (FIG. 44, PLS XXXVIII, XXXIX). They were between 0.3 m and 0.75 m deep, but as there can be little doubt that the area has suffered considerable erosion, their original depth may well have been considerably more. The post-pits contained substantial quantities of flints, sizeable pebbles, lumps of slag and broken fragments of querns all of which had been used as packing material for timber uprights; where they survived the post-pipes suggest these uprights were up to 0.2 m in diameter. Large numbers of iron nails were found scattered across area P and in the silt filling the hollow-way. There was a single flint packed posthole near the centre of the building, but it is assumed that the roof was supported by rafters resting on top plates. A curious feature of building 1 was the row of post-pits that extended the north wall of the building a further 8 m north-west. No sign of any floor levels survived on this part of the site (Pottery Assemblages 33 and 34).

PLATE XXXVIII. Late Roman building 1 and the hollow-way marked by a dark band in front of the building. The half-sectioned Cellar AJS can be seen in the background, to the right of building 1. From the south-west.

PLATE XXXIX. Building 1 from the west.

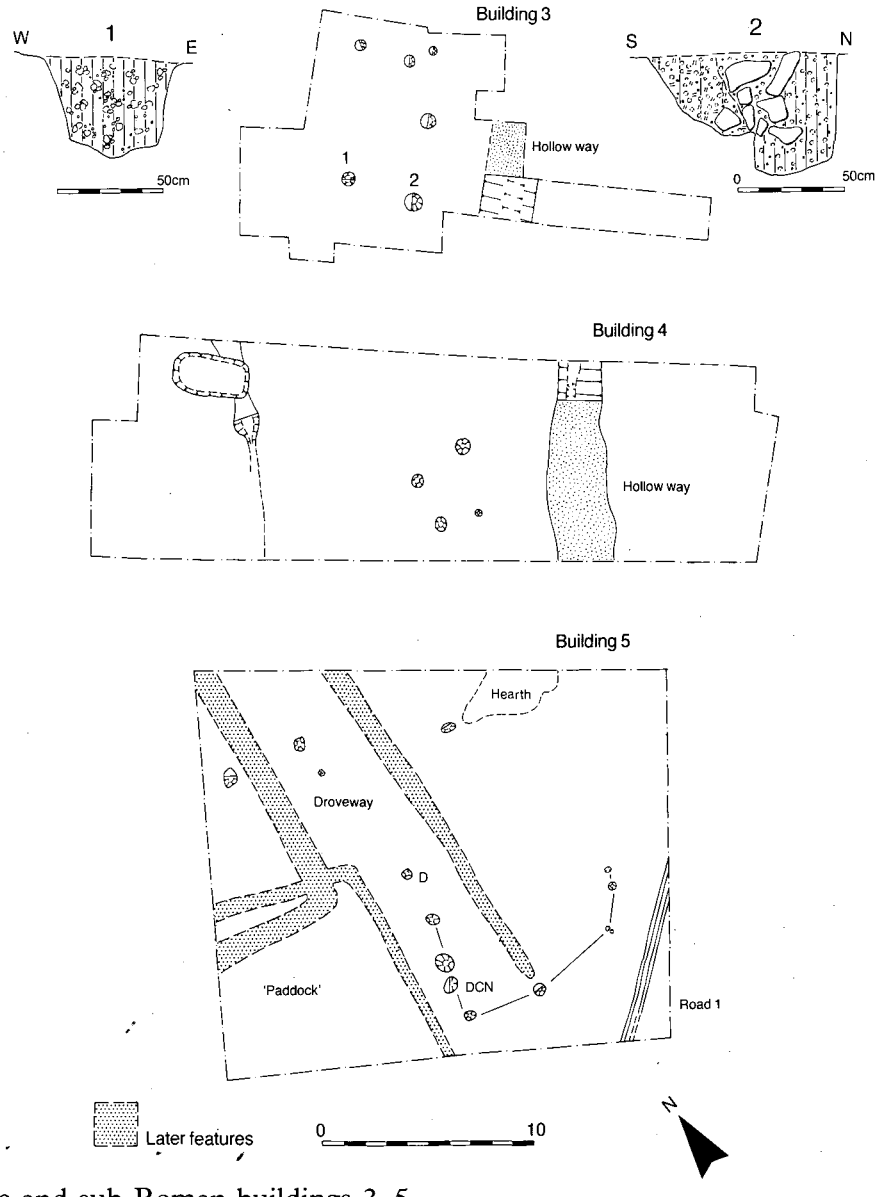


FIG. 45. Late and sub-Roman buildings 3–5.

Building 2

This stood 11 m east of the hollow-way, and was aligned north-east/south-west. It survived as eight post-pits defining a building 6.3 m by 3 m with the long axis aligned north-east/south-west. The post-pits had been packed with flint, gravel, clay, and in one case, a broken quern; the posts themselves must have had diameters ranging from 0.2–0.35 m in diameter. Two further postholes (FIG. 44, nos. 5 and 6) continued the line of the north-west wall a further 7 m beyond the north-east end of the structure, in the same way as the north wall of building 1 extended beyond the building itself (Pottery Assemblages 35 and 36).

Building 3

This stood on the western edge of the hollow-way, and was represented by five post-pits, defining a trapezoidal area, approximately 6 m by 3 m. The flint packed post-pits were closely similar to those of buildings 1 and 2 (FIG. 45).

Building 4

This also lay on the western edge of the hollow-way, but was only represented by three post-pits, and one rather smaller stakehole. Its status as a structure is uncertain, although it is possible

that it represents the remains of a building that was otherwise destroyed by erosion or agriculture. It also stood on the western edge of the hollow-way (FIG. 45).

Building 5

The post-pits for the fifth building suggest that this was a somewhat slighter structure. Its position, just outside the north-east corner of the late Roman 'paddock', shows that it was clearly not contemporary with the droveway and it is possible that the post-pits belong to an earlier building. On the other hand the two most northerly post-pits of the setting, DCN and DCR, contained pottery of early Saxon date (Saxon Pottery Assemblage 2). Assuming that the postholes all belong to the same building, they can be seen to define a sub-rectangular structure, 8 m by 6 m with the long axis approximately east/west, and open on the northern side. Seven metres north of the building was an area of heat scorched subsoil, possibly the remains of a contemporary hearth, suggesting that building 5 was a small workshop. However, no floor levels survived and the hearth and post-pits may be unrelated (FIG. 45).

The absence of associated layers makes the dating and interpretation of the structures difficult, and most of the pottery found in the post-pits was clearly residual. It included, however, a small quantity of mid-fourth-century material from building 1 (Pottery Assemblage 31), late fourth-century material from building 2 (Pottery Assemblage 35) and early Saxon from building 5 (Saxon Pottery Assemblage 2). The filling of the hollow-way east of building 1 produced an unusually large quantity of weathered late Roman pottery, as well as sherds in handmade, chaff-tempered fabric; it is possible that some of this material was derived from building 1 (Pottery Assemblage 12). It may be significant in this context that buildings 1–5 represent a different style of construction from that normally used in the Roman town. Although buildings with earth-set posts never entirely died out, domestic and industrial timber buildings in Roman Verulamium normally rested on cill beams. It was only at the end of the Roman period that earth-set posts again became popular as a building method,[10] and a 8 m by 4 m timber building supported by earth-set posts was tentatively dated to the Saxon period at Kingsbury, 400 m south of area P (Havercroft and Saunders 1978, 7, fig. 3). Certainly there appears to have been a certain amount of activity on the south-eastern part of the Folly Lane site in the sub-Roman and early Saxon periods.

EVIDENCE FOR AGRICULTURAL ACTIVITIES

Thirteen metres north of area L was the weathered flue of a small corn-drying oven. The flue, 1.4 m in length with a clay floor, was built of broken tiles and a few fragments of lava querns, set in a clay matrix. The filling of the flue, consisting of the collapsed flint from the walls, contained a small quantity of late fourth-century pottery (Pottery Assemblage 40) and a silted gully 0.6 m to the west produced a few sherds of a similar date. The gully, and a small stakehole a short distance south of its south-west end, may represent the remains of a wooden structure surrounding the oven.

South and west of the corn-drying oven, in areas L, K and A of the excavation, were a number of shallow ditches or gullies. With average depths of less than 0.5 m these survived only sporadically, and in many places allotment terracing had removed all trace of them. They were interpreted as demarcating droveways and stockpens or paddocks.

The earliest of these (gullies DBB/AHC and CZE/AGL) appear to mark a track or droveway, 5 m wide, which ran for at least 65 m in a north-west/south-east direction between areas A and L of the excavation. At the south-east end the western gully turned at right-angles to run a further 22 m. The gullies had been recut at least once and were filled with stony silt, the result of natural weathering and silting. A slightly later set of gullies in area K of the excavation had probably originally enclosed a small paddock or stock-pen. Three gullies (features ADH/CXZ) defined the remains of a trapezoidal shaped enclosure, at least 20 m by 25 m in extent. The southern limit of the enclosure had been removed by erosion. These gullies also had been recut.

The northernmost gully of the paddock clearly cut through the western gully of the droveway (FIG. 38).

It is difficult to date any of these features precisely. Such pottery as they contained was mostly later second or early third century in date, but it was nearly all heavily weathered and clearly residual. A small quantity of fourth-century pottery was found in the fill of the recut gully on the east side of the 'droveway' in area A (Pottery Assemblage 41) and in the 'paddock' gully (Pottery Assemblage 42), suggesting that these features were still open towards the end of the Roman period. The occurrence of a sub-Roman pottery sherd in the recut of the western 'droveway' gully in area A, however, implies that the features were still open, and possibly being recut, at the end of the fourth or early in the fifth centuries.

THE CHARACTER OF THE OCCUPATION ON THE LOWER SLOPE

Periods 3–4

Although the absence of sand and gravel deposits over the lower slope meant that the area remained untouched by post-medieval quarries, this part of the site had suffered substantial erosion. Furthermore, a century of allotment cultivation had resulted in many of the plots becoming in effect terraced into the hillside, to the obvious detriment of the archaeological deposits. There can be no doubt that many insubstantial remains, such as beam slots, hearths and floor levels have completely disappeared, resulting in an apparent, but disproportionate, importance of cut features such as shafts and wells.

There was no indication that the lower slope, south of the late Iron Age ditch, was occupied in the pre-Roman period, although it is suggested elsewhere (p. 412) that in the mid-first century A.D. a route was established running straight across the site, linking the main entrance into the Ceremonial Enclosure, with the 'timber tower' on the other side of the river (FIG. 117). This absence of occupation continued after the conquest when the only evidence for the use of the site in the second half of the first century came from small cremation cemeteries near its western margin. It is almost certain that only a small proportion of original burials survived, although these were probably grouped in areas A, J and K, and in the area to the west of the Ceremonial Enclosure. By the early second century, however, metalworking was taking place in area J, and the first of the 'ritual' shafts may have been dug (shafts DKM and ABT).

Period 5

In area J metalworking continued on a small scale throughout the second and third centuries, but the practise of digging deep shafts quickly spread over much of the site west of the line of the Colchester road. Precise dating of the majority of the shafts is hampered by the fact that most were never fully excavated, but the most intensive ritual activity on this part of the site seems to have occurred between the mid-second and late third centuries (periods 5 and 6). During this time the great majority of the shafts were cut and filled in, the Colchester road was laid out and the main ditch refurbished. It is interesting that the date for all this activity coincides with that for the construction both of the Verulamium Theatre (Kenyon 1936),[11] and of the Branch Road bath house[12] that fronted onto the Colchester road 40 m south of the Folly Lane site. It is difficult to avoid the conclusion that during the second half of the second century the lower slope formed part of a much larger complex that included not only the Ceremonial Enclosure and temple, but also the bath house and theatre. Furthermore, the road that left Verulamium north-east of the theatre, between *insulae* XVII and XXXII, can be traced on air photographs as far as the modern junction between the A4104 and the Redbourn road, at which point it changed direction to run north-east towards the Folly Lane site. This suggests that it may have been designed to link the theatre and the temples in *insulae* XVII and XVI with the Ceremonial Enclosure and temple (FIG. 118). It would not be stretching the evidence too far to see the whole of the Folly Lane site, including the lower slope, as part of a large, ceremonial or religious complex comparable to the extensive temple/theatre complexes known at Harlow, Gosbecks and numerous Gallic sites. The place of the ovens in this complex is uncertain, but

it is worth noting the presence of ovens in the precinct of the temples in *insulae* VII and XV of the Roman town, and in the base of the ditch of the Ceremonial Enclosure in period 3. Ovens seem to have played a part in the rituals on local religious sites, and this may well explain the presence of the Folly Lane ovens.

When the lower slope was first used for domestic or industrial occupation is uncertain. The evidence for metalworking in area J in the first half of the second century, has already been noted, but it seems to have been largely confined to the south-east corner of the site. Several shafts contained occasional pieces of slag as well as other items of industrial debris (wasters, quern fragments, tools) and domestic equipment (toilet articles, pins, rings, etc.) but there is no means of telling whether these originated on the site, or whether they came from further afield. Studies in rubbish deposition in ritual contexts suggest that rubbish was sometimes brought considerable distances, and not simply disposed of in the nearest convenient pit (Hill 1994). The presence of domestic and industrial material in the shafts does not necessarily imply the existence of workshops or dwellings alongside, or among the shafts. An interesting aspect of the distribution of rubbish at Folly Lane is the mutually exclusive distribution of metalworking debris and quern fragments (FIG. 65). Apart from redeposited rubbish in the filling of cellars and the enclosure ditch, only three features produced fragments of both querns and slag (shafts AAE, ABZ and pit CRY), in spite of the fact that both categories of material occurred frequently in features across the site (p. 110, TABLE 2).

Period 6

The second half of the third century saw a profound change in the type of activities being carried out on the lower slope. Although shafts continued to be dug occasionally, the majority had already been filled in by *c.* 220, and after the middle of the century rubbish started to accumulate over the main enclosure ditch. To the south of the site, the Branch Road bath house had also fallen into disuse by the middle of the third century, after which the site was flooded and the building itself demolished and robbed. During the course of the third century wells and cess pits appeared in greater numbers and domestic or industrial buildings grew up alongside the Colchester road, as evidenced by the cellars in area P. It is difficult to avoid the conclusion that in the course of the third century the importance of the temple and Ceremonial Enclosure declined, coinciding with the dramatic decline in the number of shafts to the south of it.

Period 7

The late third or early fourth century saw a further change. Ritual shafts were no longer dug, and efforts seem to have been made to level the site. The remaining hollow over the main enclosure ditch, open pits (such as feature ABR), and the cellars in area P were levelled with tips of rubbish, which included substantial amounts of earlier material. These tips presumably represent earlier middens used to level the site. Where these middens originated is a matter of conjecture, but it is possible that they represent rubbish cleared out from the Ceremonial Enclosure.

The levelling of the site resulted in an increase in activities based on agriculture. Small ditches or gullies were cut in areas A, K and L, presumably marking stockpens and droveways; the corn-drying oven north of area L dated from the later fourth century. It is interesting to note the presence of at least seventeen broken querns which were used as packing for the posts in the late buildings 1–3. Such a quantity of querns certainly suggests that at some stage grain was processed fairly intensively in the area, but their fragmentary condition, indicates that this may have taken place at an earlier phase. It is worth noting that most of the querns were of millstone grit or lava, rather than the locally available pudding stone. A similar pattern of quern stones from King Harry Lane, led to the suggestion that, at Verulamium, the use of pudding stone for querns was largely confined to the early Roman period (Stead and Rigby 1989, 50).

Evidence for the final phases of the site's history was sparse. The discovery of over a hundred chaff-tempered sherds of handmade pottery from the surface of the hollow-way close to buildings 1 and 2, and the occurrence of early Saxon pottery, particularly in area L, suggest sporadic use

of the site in the sub-Roman and early Saxon periods, occupation that was concentrated along the line of the hollow-way. The isolated sherd of late Saxon pottery from a curvilinear gully on the north-east margin of the site suggests still later occupation, but the gully ran beyond the area of the 1991–3 development, and no further information on the context of the sherd was found. The significance of the sub-Roman and early Saxon material in relation to the post Roman history of Verulamium, is discussed in more detail below (p. 419).

NOTES to Part II

1. In this report the name Verlamion is used for the pre-conquest, late Iron Age, *oppidum*; the name Verulamium is used for the Roman town established shortly before the Boudiccan revolt. See also below, p. 404.
2. I am grateful to J. McKinley for this information, in advance of the publication of the St Stephen's cemetery.
3. I am grateful to Dr John Evans and Dr Donald Minter for this information.
4. The figures for the King Harry Lane and St Stephen's Cemetery are necessarily approximate due to uncertainty caused by the later disturbance of burials which in some cases undoubtedly resulted in vessels being broken. I am grateful to Martin and Birthe Biddle for information on the late Roman inhumations near St Albans Abbey.
5. See also below p. 398 for a discussion of other possible excarnation practices.
6. Medieval and post-medieval wells in St Albans town centre were approximately 25 m deep; on the lower slope of Folly Lane, wells would have needed to be approximately 15–18 m deep.
7. He notes that in northern France, deep shafts are often associated with ritual and burial sites. He suggests that the remains of ritual meals were periodically put in them, and sealed by layers of sterile filling. He traces the practice from La Tène II to the end of the Roman period.
8. For instance the late first-century metalworkers' hearth from *insula* XIX (Niblett forthcoming).
9. The dimensions of the Folly Lane ovens compare well with those of a small domestic oven from an early Antonine context in *insula* XIV (Frere 1972, 78, pl. XXVIII).
10. For instance post-built structures apparently belonging to a late Roman, aceramic phase, were recorded cut into the latest surface of Watling Street, between *insulae* III and IV of Verulamium (Frere 1987).
11. See also Dr Lyne's comments on the theatre dating, below p. 290.
12. Excavated by Mr C. Saunders in 1973–4. I am grateful to Mr Saunders for information on the site. An interim report is published (Saunders 1976).

TABLE 1. SHAFTS AND LARGE PITS

Type	Area	Feature	Fill of shaft	Fill of Hollow/ Sinkage	Date	Contents	Notes
Shaft. *Fully excavated* FIG. 40 *no. 1*	2	AAB	Clay and chalk in mouth of shaft (ACT), clay and flint filling the shaft (AIL, AIH).	Layers of silt and clay/silt, all derived from weathering. (contexts, AAN, ABH, ABJ, ACP, ADB).	Period 5 (shaft) Period 5/6 (hollow)	Pot Assemblage 16 Includes wasters, industrial material, two face urns. Animal bone.	Weathered hollow, 3 m across. The hollow was excavated by hand, and contexts ACT (the top of the shaft filling) AIH/L machine dug under supervision, and the finds retained. Diameter of shaft = 1.8 m; depth of shaft = 1.6 m.
Shaft. *Fully* excavated FIG. 40, *no. 2*	4	AAE	Clay, flint and chalk in shaft (AIJ), sealed by a clay capping (AFJ).	Silt and clay/silt in weathered hollow (contexts AAH, AAG, ABU).	Period 5 (shaft and hollow)	Pot Assemblage 15 Animal bones, wasters from two face urns. Fragments of the same pot were found in this shaft and in shaft ABZ.	Hollow, shaft capping and top fill of shaft, dug by hand. Hollow linked by gully with hollow over shaft ABZ. Main part of shaft dug by machine under supervision, and finds retained. Diameter of shaft = 0.8 m, depth of shaft = 3.3 m.
Shaft FIG. 40 *no. 6*	3	AAY	Shaft unexcavated.	Silt and clay/silt in hollow (contexts AAX, ABF, ABP, ADP, AHY).	Period 6 (hollow)	Fragments of wall plaster and hearth base in silt of hollow	
Shaft	M/E93	ABA	Shaft unexcavated.	Stoney silt in hollow (context ABA).	Period 5 (hollow)		

Type	Area	Feature	Fill of shaft	Fill of Hollow/ Sinkage	Date	Contents	Notes
Shaft *Fully excavated*	2	ABA	Shaft fill with silty clay and flints.	Clay/silt and rubbish in oval shaped hollow (context AAZ).	Period 6 (shaft and hollow).		Oval hollow, 2.2 m x 0.7 m, excavated by hand to depth of 0.44 m. Supervised contractors' excavation showed the shaft to be 3.2 m deep.
Shaft *Fully excavated* FIG. 41 *no. 3*	M/E93	ABC	Shaft filled with sterile clay and chalk (context (ABE). Base of shaft (AMD) mainly chalk nodules.	Clay, silt and charcoal (ABD).	Period 5 (hollow)	Ox skulls on base. Pot Assemblage 19 (from hollow).	
?Shaft	M2/E9	ABN	AQK is top of otherwise unexcavated shaft.	Top fill of hollow (AQG) disturbed; slumped layers over unexcavated shaft (contexts AQJ, ARV; clay/silt).	Period 5 (hollow)		
Cess Pit, *Fully excavated* FIG. 42 *no. 1*	K	ABR	Lower fill, DLL consists of silt and cess.	Tips of domestic and industrial waste in the top of the pit (contexts ACH, ACT, ACS, ADU, ADV, AGI, AEJ); ABQ is a tip of butchers' waste.	Period 6 (cess pit fill). An earlier midden was re-deposited in the late third century, in order to level the hollow over the cess pit.	Pot Assemblage 28 (butchers' waste)	Fully excavated. Diameter = 0.8 m, dept = 3.2 m.
?Shaft	6	ABT	Unexcavated	Dark, humic soil with burnt daub (ABS).	Period 4 (hollow)	Pot Assemblage 14	This was probably, but not certainly a shaft. The dimensions at its mouth were 1.6 m x 2.6 m.

Type	Area	Feature	Fill of shaft	Fill of Hollow/ Sinkage	Date	Contents	Notes
Shaft *Fully excavated* FIG. 41 *no. 2*	4	ABZ	Clay and flints (AIK) with chalk capping (AFK).	Silt and clay silt (AFN, ACU, ACZ, ADZ).	Period 5 (shaft and hollow).	Pot Assemblage 15 Fragments of the same pot were found in this shaft and shaft AAE.	Hollow and the top of the were dug by hand, shaft fill was dug by machine under supervision and the finds retained. A gully linked the hollow over this shaft with that over shaft AAE. Diameter of shaft = 1.5 m, depth = 3.3 m.
Shaft *Fully excavated* FIG. 41 *no. 5*	J	ACG	Clay, chalk and flints (ACE and AIM) with weathered chalk capping (ACE).	Silt and clay/silt (AAP, ACD).	Period 6 (shaft)	Pot Assemblage 20 Face pot	Hollow and top 0.5 m, hand excavated. Context AIM was excavated by machine, under supervision and the finds retained. Total depth 5 m.
?Shaft	C	ACL	Unexcavated	Silt and clay/silt (ACL, ADG, ACM, BNM, BSS).	Period 6 (hollow)		
Shaft	6	ADH	Clay/loam and flints (ADJ).	Silt (ADH)	Period 6	Pot Assemblage 25	
?Well	M/E93	ADY	Unexcavated	Stony silt with clay and debris (ADY).	?Period 7	Pot Assemblage 37	
Shaft *Fully* excavated FIG. 40 *no. 3*	K	AET	A layer of clean clay chalk and charcoal (DDN), included some animal bones (?pressed into the clay by the weight of the	AIA—? clay lining in the upper part of the pit. The shaft was only partially filled by clay (DDN)	Period 5 (shaft primary fill and tips of bone).	Pot Assemblage 18 (From lower shaft fill); Pot Assemblage 30 (From tips of bones).	Defleshed human skull in base of pit (central). Puppy bones above.

Type	Area	Feature	Fill of shaft	Fill of Hollow/ Sinkage	Date	Contents	Notes
			overlying deposit?). Beneath DDN was another clay layer (DDP) which included puppy bones and overlay a layer of clay, DDR contained a defleshed human cranium lying on the base of the pit.	which was overlain by two tips of cattle bones, AEY, AES. Both tips heavily slumped. In the mouth of the hollow was a deposit of rubbish mixed with burnt debris (AHZ).			
?Well	2a	AGF	Unexcavated	Silt, clay silt (AAQ, AXJ, AGD, AGE, AGB, AGS).			Large hollow, 3.5 m in diameter. Not excavated below 1 m. From its size this feature is probably a well cone, rather than a shaft.
?Well	J	AGV	Clay capping or top of shaft fill (AGQ).	Clay/silt (AGR, AGN).			Silt slumped over clay capping on an unexcavated pit.
Well	M/E93	ADN	Clay in the top of the shaft fill (AEZ).	Silt and clay-silt (AHQ, AEX, ADO, AER). The silted up hollow was later cut by a ?period 7 pit (contexts ACC, ACB, ADP).	Period 5	Pot Assemblage 26 (hollow)	Large diameter of the shaft suggests this is a well. Depth of shaft 4 m but not fully excavated.
Shaft *Fully excavated* FIG. 41 *no. 4*	P2/E93	ASK	Clean, clay fill (APF)	Silty clay (ASK)	Period 6	Pot Assemblage 23	Upper 1.5 m hand dug, lower levels excavated by machine working under supervision.

Type	Area	Feature	Fill of shaft	Fill of Hollow/ Sinkage	Date	Contents	Notes
Shaft or well	P2/E93	ATM	Loamy fill (AMD)		Third century (but contaminated by post-medieval disturbance).		Loamy fill of a pit cutting stakehole AQZ. Not fully excavated, and may be post Roman. Cut by post-medieval gully.
Shaft	A	BBS	Clay/flints and silt (BDH, BDF, BDK)	BDJ, BCH, BDG fills silted up hollow; this was subsequently cut by later rubish pit, (contexts BJA, BHZ, BBR, BCF).	Period 6 (shaft), Periods 6–7, (hollow and re-cut)	Pot Assemblage 21 (shaft), 22 (hollow)	A large, recut pit cutting through the late Iron Age ditch. This pit was partly hand dug, and partly machine dug, under supervision. Shaft diameter = 1.5 m, shaft depth = 3 m.
?Well (FIG. 42 *no. 2*)	C	BPK	Stony loam (BPD)	Silt and re-deposited material from enclosure ditch (BPC).	Period 7 (fourth century)	Pot Assemblage 39 (from the weathered BPC) and 38 (from the top of the shaft fill, BPD).	Cuts the rate Roman midden over the main enclosure ditch. Not excavated below 1.5 m, but the diameter of the shaft suggests it is a well.
?Well	C	CEM	CFA	CEN, CEP, CEQ CER, CEZ.	?Post-medieval		Hand dug to 1.2 m, and bottomed by machine. The filling was gritty sand with some RB tile, and a few fragments of iron. The filling was very clean and sandy, and similar to that encountered in back filled gravel quarries elsewhere on the site.
Shaft, (*Not fully excavated*	A	CLM	Clean, clay filling (CLN).	Clay and silt (CNT, CNV).	Period 5 (shaft)		Ox skull in the base of the hollow.

Type	Area	Feature	Fill of shaft	Fill of Hollow/ Sinkage	Date	Contents	Notes
?Shaft, (*Not fully excavated*)	A	CML	Clean clay (CMW, DHV).	Silt and clay/silt (CMM, CMC, CMU, CMY)	Period 6 (shaft)	Pot Assemblage 24 Face pot	The shaft was not fully excavated but was at least 2 m deep.
?Quarry	J	CPM	CPP = loamy fill in top of pit; CTF, CTG, CTH = collapsed pit walls.	Clay surface (?or capping) slumped over compacted fill = CPN.	Period 5 (surface/capping CPN over pit).		Large hollow, at least 2.1 m deep, 10.5 m diameter. Its size suggest it was either a very weathered well cone, or (more likely) a quarry. The surface (CPU) over it was itself cut by a late gully (CPU).
?Shaft (FIG. 40 *no. 4*	J	CPX	Stony clay (CXS)	Orange, sandy clay (CXR) may be a capping or a surface over the shaft. Burial 23 (CPY) lay in the hollow over CXR. The burial was later disturbed by pit CTC/CWB, which itself was cut by pit CTP.	Period 5–6 CXC = early third century CPY = late second		
?Shaft *Not fully excavated*	J	CSH	Possible capping of clay and chalk (CTE and CTN). No excavation below these.	CSJ = silty clay, could be a slumped surface.	Period 6 (hollow)		Circular pit, with vertical walls. Not fully excavated.

Type	Area	Feature	Fill of shaft	Fill of Hollow/ Sinkage	Date	Contents	Notes
?Quarry (*Not excavated*)	J	CSK		CSL = silty clay, perhaps the remains of a slumped surface postdating the quarry.			Large pit, 7 m in diameter which suggests a quarry. Not excavated.
Shaft *Fully excavated* FIG. 40 *no. 5*	K	CTY	Brown clay/loam with stones (DLC), with clay and chalk capping (CVA and CWD).	CTZ, CXN = silt and clay.	Period 5 (shaft)	Pot Assemblage 17	Shaft fully excavated, partly by hand, partly by contractors working under supervision during the watching brief. Diameter 0.9 m, depth 2.4 m.
Shaft (Not fully excavated)	K	CXX	Clean clay and chalk (CXV).	Silt and humus, (CXW).		Shaft was sterile. Period 5–6 (cess and humus).	The shaft was partially filled and subsequently used as a cess pit. Maximum excavated depth = 0.8 m, diameter of hollow at mouth = 1.6 m.
?Well	C	DBG					Large pit filled with dark humus, cut through the edge of the Colchester road and the late Iron Age ditch. Not fully excavated.
Shaft *Fully excavated*	A	DBY	Clay and flint.	Upper fills of dark silty clay (DBZ, DCA) overlay silt and cess (DCH) which had	No finds from shaft fill. DCH. ?Period 5–6		Cut through late Iron Age ditch. Diameter = 1.5 m (hollow 2.4 m). Lettered contexts hand dug. Pit later fully excavated by contractors which showed that its total

Type	Area	Feature	Fill of shaft	Fill of Hollow/ Sinkage	Date	Contents	Notes
				accumulated in the partially filled shaft.			depth was 6 m. No record of the nature of the lower fill.
Shaft *Not fully excavated* (FIG. 41 *no. 1*)		DKM	Chalk and clay (DKL)	Silt and cess (DKK, DKJ) in the partially filled shaft, overlain by gritty silt and sand (DKG).	Period 4 (silt and cess in hollow).	Pot Assemblage 13	Found during watching brief, not fully excavated, but it was at least 2 m deep. Pottery was found in batches in DKK.
Shaft	K	DLD	Clay, tile and flint (DLD)			No finds apart from Romano-British roofing tile fragments	Found during watching brief. Not fully excavated but at least 2.4 m deep.
?Shaft or well		DLE		DLE	Period 6		Black, humic fill in mouth of large, unexcavated pit, found in watching brief.
Shaft or well		DLK		DLK			Well or shaft found in contractors excavation, but not fully excavated.
Shaft	A	DLN	Clean clay and flint DLN		Period 5		Found during watching brief. Not full excavated but at least 3.7 m deep, and 1.5 m in diameter.

TABLE 2. CONTEXTS CONTAINING EVIDENCE FOR INDUSTRIAL ACTIVITIES

Context	Area	Type	Period	Slag	Tools	Toilet	Textile	Bone/leather	Finds report no.	Quern
AAB		Hollow	5			pin				
AAH/E93	M	Hollow	5–6	Y						
ABA		Hollow	6				iron comb			
ABB		Hollow				pin				
ABP	3	Hollow	5							grit
ABR	K	Pit	5			pin				
ACL		Hollow	5			ring			15	
ACR/E93	M	Post-pit	5							grit (burnt)
ADA		Pit			knife					
ADE		Pit	5–6			ring				
ADL	K	Pit	6					slicker		lava
ADN (E93)	M	Hollow	6							lava
AER/E93	M	Hollow	6							lava
AET	K	Shaft	5	Y		pin	needle	knives, waste	44, 45, 54	
AFA/E93	M	Hollow-way	7							grit
AFP/E93	M	Building 1	7							lava
AFS/E93	P	Building 1	7	Y						
AGP/E93	P	Hollow-way	7	Y						lava several fragments
AHD	8	Gully	7							sandstone
AIK	2	Shaft	5	Y						lava (several frags)
AIL	2	Shaft	5	Y	chisel					lava (several frags)
AJS/E93	P	Cellar	7	Y	seal box, ?stylus	pin			23	lava, (several frags) Pudding stone (top stone, almost complete, 30 cm diam)
AJB/E93	P	Cellar	7	Y						lava (several frags.)
AJC/E93	P	Cellar fill	7	Y		pin			7	
AJZ/E93	P	Cellar fill	7	Y		pin				lava
AMD/E93	P	Well	7							lava
AND	M	Hollow	6		ox-goad					lava
AQN (E93)	P	Post-pit	7							grit
AQY (E93)	P	Post-pit	7							grit

Context	Area	Type	Period	Slag	Tools	Toilet	Textile	Bone/leather	Finds report no.	Quern
AQZ	P	Post-pit	7							lava
AVA/E93	P	Pit	7	Y						
BCC	A	Hollow	5–6	Y						
BCE	A	Shaft	5–6	Y						
BCH	A	Hollow	6			ring				
BDF	A	Shaft fill	5–6	Y						
BDK	A	Shaft fill	5–6	Y		pin		waste		
BEC	B	Ditch	6	Y	hippo-sandal, awl rake prong					lava and grit
BER	A	Road	4–6	Y	file					
BET	B	Ditch	6			pin				lava
BFS	B	Ditch-tip	7		hippo-sandal, drill-bit					
BFW	C	Road	6							limestone
BFZ	B	Posthole	3–5							lava
BGR	B	Ditch	5	Y	knife					
BJD	C	Ditch	7			mirror, pin, bell				lava (40 cm diam) + grit (frags)
BNS	C	Gully	7		knife					
BPC	C	Pit	7							lava (frag)
BPD	C	Pit	7							lava (38 cm diam) grit
BPK	C	Well	7		hippo-sandal, ?stylus	chatelaine				
BRN	C	Ditch	6		knife					
BRP	C	Ditch	5			chatelaine				
BRU	C	Ditch	5			pin				lava (frags)
BWE	G		7–8							grit
BZM/N	G	Temple	5–6							lava (frags)
CHX	G	Ditch	6							lava
CHX	G	Ditch	6				needle	waste		
CJE	G	Ditch	6							lava
CMM	A	Hollow	5–6							lava

Context	Area	Type	Period	Slag	Tools	Toilet	Textile	Bone/leather	Finds report no.	Quern
CMZ/CEF	G	Treehole	2							sandstone, joins with fragament from CEF
CNZ	J	Pit	4							
CPC	J	Surface	7	Y						
CPN	J	Surface	6–7							lava
CPN	J	Surface	7	Y				waste		
CPX	J	Shaft	5			pin				
CPY	J	Pit	6	Y						
CRX	J	Pit	6							lava
CNZ	J	Cess pit	4							lava
CPB	J	Pit	5	Y		chatelaine, pin			13	
CSC	J	Pit	5							lava (frags)
CTC	J	Hollow	6	Y						
CTG	J	Hollow	6					waste		
CUX	L	Gully	7	Y	ox-goad			comb		
CVX	K	Gully	7	Y						
CWE	J	Hollow	6		hippo-sandal, knife					
CWY	A	Hollow	6							grit (42 cm diam)
CXC	J	Hollow	5–6	Y						lava, grit (small frags)
CXK	K	Pit	6			pin				
CYL	B	Pit	6–7							lava (frag)
DBC	L	Gully	7	Y						
DBH	H	Pit	6–7		knife					
DBH	H	Pit	7							lava
DBJ	A	Pit	6			pin				
DCA	A	Hollow	5							lava
DGN	B	Ditch	6		rake-prong					
DHB	G	Gully	7		reaping-hook					
DHK		Hollow	4	Y						
DHV	A	Shaft	5							grit (48 cm diam)
DKK		Hollow	4	Y		chatelaine (2),	needle		14	
DKM		Shaft	4							lava
DLK		Shaft			stylus				24	lava (48 cms diam)

TABLE 3. CREMATION BURIALS, PERIOD 4–6

No.	Context	Pyre goods	Grave goods	Pit size	Date	M/F	Notes
1	A91 BAS-A		Base of jar or flagon in grey fabric with coarse grey and black grog filter, fired black internally and patchy grey-buff externally. 3 quartzite pebbles	0.3 m x 0.4 m	pre-Flavian	mid/adult	Truncated. Ashes originally in urn lying on side, base to the south-east. Burial in line with nos 2, 4, 6 and 7. Not illustrated.
2	A91 BAZ-A	Flagon sherd in VRW fabric	1. Truncated flagon in white VRW; 2. miniature cordoned jar in cream VRW with a heavy blackened exterior — a pre-Flavian form and unusual in being in VRW, c. 55–70. Ext rim diam 80 mm. Copper alloy fragment in the mouth of jar	0.5 m x 0.4 m	pre-Flavian	young–mid adult ?Female	Pot in south-west side of pit, cremated bone next to it, in centre of pit. Bone lay on floor of pit, with a little charcoal. Jar lay on side with base to the southwest. Empty space in north side of pit. In line with burials 1, 4, 6 and 7. FIG. 88
3	A91 BAQ-A	Flagon sherds in VRW, 2 glass unquent bottles. (*Glass report 37–8*)	7 sherds fromsmall beaker or flagon with girth carination and in very fine-sanded fabric, probably similar to Frere type 61, dated 49–60. 50+ iron fragments, 4 Manning 1b nails, 8 hobnails (Manning 10) 1 large nail, 112 mm long (Manning 1b)	0.5 m x 0.35 m	pre-Flavian	infant (less than 18 months), and an adult	Cremated bone mixed with charcoal, unburnt sherds and nails. In south part of pit. Possibly covered by a charred board. Some root disturbance.
4	A91 BAD-A	Pig bones	1. Necked jar, hand-made or tournette-finished in brown-sandy fabric, fired rough grey-black. (Frere type 190, dated 60–75; 2–3. body sherds from grog-tempered jar with black and red filter, fired reddish-brown. 3. Iron knife or razor.	*c.* 0.5 m x 0.58 m	pre-Flavian	Adult ?male	Place centrally. Clean fill, little or no charcoal. 50% of pebbles in the fill of the pit were white quartz. Part of line with nos 1, 2, 6 and 7. Ashes mixed with broken sherds. FIG. 88
5	A91 BAW-A		1. Truncated lower half of jar in hard orange, wheel-turned fabric with coarse brown ferrous inclusions and traces of a black slip.	0.3 m x 0.3 m		child	Ashes mixed with broken jar, in north-east sector of pit. Clean fill, no pyre material. Cut into fill of gully 3. FIG. 88
6	A91 BAL-A		Truncated flagon in brown-buff VRW with sparse coarse-brown ferrous inclusions; truncated poppy head beaker	0.4 m x 0.4 m	late first early second century		Very truncated. Pots in centre of pit, and flagon apparently placed on top of cremated bone. Very little bone

No.	Context	Pyre goods	Grave goods	Pit size	Date	M/F	Notes
			in white-slipped grey HWC fabric with 5 rectangular panels of barbotine dots. Nail, Manning type 1b, 48 mm				survived. No pyre material in fill. Part of line with 1, 2, 4 and 7 but separated by unusually wide spae from the other burials. Not illustrated
7	BBB-A	2 rim sherds from type 1B2 flagon in white VRW with rim edge blackening, *c.* 60–120. 3 glass unguent bottles (*Glass report 37–40*)	2 iron nails, 5 unidentified iron fragments	0.4 m x 0.6 m	late first century	mid-adult ?male	Bone and pyre material in well defined rectangle in centre and south of grave. Sealed by orange clay. Grave pit aligned north-west/south-east. In line with nos 1, 2, 4 and 6
8	A91 BCD-A	Base of jar or flagon in white VRW, fired black externally. Base diameter 80 mm.		0.5 m x 0.38 m		Adult	Very truncated. Bone in base of urn. A little charcoal. Pit aligned northeast/ southwest, jar in centre. Not illustrated.
9	A91 BBK-A	Cremated sheep/goat or young pig	1. (BBL 003) Disc mirror which is a little damaged, broken and corroded. It is slightly domed with inscribed compass lines on the concave side. The edge is bevelled. It has a simple loop handle of white metal which is soldered to the edge. Both surfaces retain some areas of polish. Diameter 67 mm, thickness 0.8 mm. This is a simple Roman disc mirror. Its position in the grave suggests that it was placed on top of the wooden casket which contained the burial. It shows little sign of burning. Similar mirrors were recovered from King Harry lane (Stead and Rigby 1989, pl. 83) and Leadenhall Court, London (Milne and Wardle 1993, 80–83). 10 body sherds of jar of flagon in white VRW; 1 sherd in orange VRW, fired cream internally; 6 sherds in orange-cored white VRW;	0 48 m diam.	Probably late first century	Young adult	Ashes in centre of circular pit. Apparently contained in wooden box with copper rings, lock plate and nails Mirror laid on top of deposit. Little or no charcoal.

No.	Context	Pyre goods	Grave goods	Pit size	Date	M/F	Notes
			2–4. 3 copper alloy rings and remains of lock plate, 9 Fe. nails, 7 unidentified Fe, fragments. (Also from sample 15 2 Fe, hobnails (Manning type 10), 1 Fe, nail (Manning type 2), numerous Fe nail shanks, 1 fragment of speculum, 1 copper alloy pin head).				
10	A91 BCR-A	sheep/goat bones	Truncated base of large flagon or lagena with foot-ring, in pinkish-buff VRW fabric, fired cream interally. Basal diameter 120 mm; basal fragment from handmade, grog-tempered vessel, fired grey with patchy reddish-brown/black exterior, brown interior. The micaceous interior surface suggests a bowl. Basal diameter 100 mm. Nail, Manning type 1B.	0.3 m x 0.39 m	pre-Flavian	Adult	Truncated. Oval pit, grave goods probably took up most of it. No pyre material. Cremated remains of a young pig or sheep/goat. Not illustrated.
11	A91 BAM-A	Copper alloy fragments pin head, iron fragment.	Everted rim and 2 body sherds of jar in brown, sandy fabric, fired black; fishbone, nail.		pre-Flavian	Very few ashes.	Remains of a disturbed cremation. Not illustrated.
12	A91 BPL-G	Unidentified animal bone	1. Small fragment, slightly truncated in OXMO fabric (Young type W21.1, dated 240–300; 2. Necked jar (waster or second) in orange VRW with very coarse white, black and red ferrous and flint inclusions. Fe object — possible fragment of a knife blade.	0.36 m x 0.27 m	late third century	Mid/old Adult	Oval pit, aligned east/west, ashes in jar, towards west end of pit. Few charcoal flecks in burial urn. Slightly truncated.
13	A91 BPN-G	Cattle sized bone fragments.	1. Necked jar in orange-brown VRW, fired smooth buff-brown. Ext. rim diam. 160 mm; 2. bowl or squat flagon base, in soft grey FHA fabric with soft brown and white inclusions, ext. base diam. 400 mm.	0.35 m x 0.28 m	late third century	Mid/old Adult	Rectangular pit aligned east/west, ashes in jar towards west end. Occasional charcoal flecks in grave pit fill. Iron fragments mixed with the ashes. FIG. 89.

No.	Context	Pyre goods	Grave goods	Pit size	Date	M/F	Notes
17	A91 CPK-J	Type IVA bowl with signs of burning, in buff VRW, broken in half across middle, (Frere type 2462, dated 140–80). Ext. rim diam 160 mm.	Samian platter, Dr 31, stamped GONGIVS (dated 140–70) (*samian stamp no. 19*). Stamp of REBVRRUS in the fill of grave cut. (*Samian stamp 36*).	0.6 m x 0.4 m	140–80	?Juvenile	Ashes in broken bowl on east side of pit with samian platter placed over it as cover. Some charcoal mixed with ashes. ?Animal tooth.
18	A91 CSX-K	Sheep/goat bones	Lower half of hand-made grog-tempered jar, fired black with coarse soft white and buff inclusions. 1 nail, 100 mm 2 hobnails and 1 nail shank.	0.54 m x 0.34 m	Second century	Young/mid adult, Male	Young mainly in jar, but some spilt outside it. A little charcoal mixed with ashes. Not illustrated.
19/20	A91 CSS-K	1. (CST 006) Lathe-turned bone tube, with collars at either end, more pronounced at one than the other. Uncertain function, possibly a small handle. Many small fragments were recovered. Total orginal length in excess of 86 mm. Unidentified animal bone.	Lower half of flagon in off-white VRW fired orange towards the base; lower half of second flagon in similar fabric; part of an abraded poppy head beaker in HWC fabric. Nail fragment.	0.6 m x 0.6 m	late first early second	Adult	In same pit but under burial 20. Ashes in base of flagon. FIG. 89.
21	A91 CTA-K	Dog, pig bones	1. Base of flagon in pinkish-orange VRW fired cream externally, base diam. 60 mm; 2. small necked and cordoned jar with weak shoulder carination, in very fine-sanded grey fabric, fired grey-brown with brown	0.3 m x 0.4 m	pre-Flavian	Juvenile/ adult	Truncated. Ashes originally in jar, which lay on its side with the contents spilt. Some charcoal mixed with the ashes.

No.	Context	Pyre goods	Grave goods	Pit size	Date	M/F	Notes
			margins (similar to Frere type 2208, dated c. 49–60); 1 iron nail; Unburnt rib-bone (hare); remains of bronze mounted casket; 3–7. 5 bronze rings, 25 mm diam., with slightly raised ribs around the outside, and iron staples attached to one side; 8. remains of bronze lock-plate; 9. bronze drop handle; 10. bronze dome-headed stud; 11–12. Fe nails				
22	A91 CTJ-K			0.43 m x 0.6 m		Young adult	Ashes placed in pit in heap mixed with much charcoal. Not illustrated.
24	A91 CWK-K		1. Complete IB2 flagon in white VRW, Ext. rim diam. 60 mm.	0.4 m diameter	late first century	Mid/old adult	Dressel 20 Amphora base lining pit. Flagon and cremation lay within it Ashes mixed with charcoal. Cut by pit ABN. FIG. 90.
26	A91 CWM-K	Unidentified animal bone.				Young male and adult?	Cut by pit ABN and burial 24. Deposit of ashes (2 individuals) mixed with charcoal. No detectable grave pit — which presumably was destroyed by burial 24. Some unburnt and cremated animal bone. Not illustrated.
27	A91 CYL/DDJ-B		1. Lower half of flagon in extra-fine pink fabric, fired smooth cream, ?North Gaul; 2. Small jug with pinched lip in Oxfordshire whiteware with surface marbling — a simpler version of Young's type W31.1, dated second century or later, ext. rim diam. 60 mm; 3. cordoned jar in very fine-sanded greyware, fired smooth black with brown margins; 4. lower half of large lagena with omphalos base, in off-white extra-fine fabric, — ?Muille Villete kilns, north-east Gaul, basal diam. 100 mm; 5. dish with drooping bead-rim in very fine	1.65 m x 4 m	Antonine		Large, rectangular pit with flat base; long axis east/west. Presumably a burial, but disturbed in the late Roman period by pit DDJ and human remains were absent. FIG 89.

No.	Context	Pyre goods	Grave goods	Pit size	Date	M/F	Notes
			orange-brown fabric, with polished black surfaces, ext. rim diam. 260 mm; 6. Central Gaulish samian platter Dr. 18/31 with IVN graffito on side, ext. rim diam. 180 mm; 7. Central Gaulish Dr. 80 stamped ADVOCISVS of Lezoux (*samian stamp no. 1*); 8. Central Gaulish Dr. 80, stamped DIVICATVS of Lezoux (*samian stamp 15*); 9. East Gaulish samian Dr. 18/31R stamped]AC, *samian stamp 49*); Mortarium stamp (*p. 00, no. 2*) (FIG. 83.249); 10. (DDJ 008) Iron strigil with hatched decoration on the handle. Made in one piece. The handle is roughly octagonal with a band of hatched decoration between it and the handle. The terminal of the handle has an oblong slit suspension loop, which is itself defined by two areas of hatched decoration. A simple knot finial ends the handle. The curving blade narrows towards the tip. The blade is concave in section. Length from the tip of the handle to the tip of the blade is 230 mm. Strigils are more often recovered in cu alloy than iron. Iron strigils more usually have an open handle for example the iron strigil from the London Wall (B.M. *Guide to the Antiquities of Roman London* (1964 fig. 5 no. 12). The solid handle and rectangular slot of the Folly Lane strigil is paralleled by the strigil from Caerleon, which unfortunately was wholly lost to corrossion but a drawing was made from the X-ray plate. (Zienkiewicz 1986, fig. 67, no. 2). The slot would normally carry a pair of strigils and perhaps an oil flask.				

No.	Context	Pyre goods	Grave goods	Pit size	Date	M/F		Notes
29	A91	cattle sized fragment. sheep/goat				?Antonine	Adult	Jar. Found displaced in topsoil south of area B. May originally have been from the disturbed burial 27. Jar contained some cremated animal bone with the ashes. Not illustrated.

TABLE 4. THE WORKED FLINTS

Flakes	95
Blades	7
Bladelets	4
Shattered pieces	2
Cores	2
Miscellaneous retouched flakes	5
End scrapers	3
Side scrapers	1
Piercer	1
Cutting flakes	8
Cutting blades	5
Knife	1
Ovate	1
Combination tool	1
Notched flake	2
?Burin	1
Total	139

PART THREE

THE EXCAVATED MATERIAL

THE ARTEFACTS: PERIODS 1 AND 2

THE PREHISTORIC POTTERY, *by* Nigel Brown

A small quantity of prehistoric pottery was recovered from the excavations. This comprised fifty-one sherds, with a combined weight of 1044 g. In terms of weight over half the pottery came from a single post-pit (context E93 AVA) which yielded seventeen sherds weighing 870 g (above p. 8). Pottery from this context derives from a bucket urn of Deverel-Rimbury character. Two joining sherds comprise a large part of the rim and upper body of the pot with an applied finger-impressed cordon just below the rim and part of another surviving a further 90 mm below (FIG. 46). A large non-joining body sherd has an applied finer impressed cordon and is almost certainly from the same pot. Two small sherds from a post-pit 5 m to the north-east (context E93 ATF), one of which has an applied finger-impressed cordon, are so similar in fabric, thickness and surface finish as to suggest they may also be from the same pot.

The site lies within the area of Ellison's Lower Thames Group of Deverel-Rimbury pottery (Ellison 1975). Multiple horizontal cordons are not common, but occasionally occur within the Lower Thames Group (e.g. Needham 1987, fig. 5.8, no. 8), and in the adjacent Ardleigh Group to the north-west (Couchman 1975, fig. 4; Clarke 1991). The thin rounded rim is not typical of Deverel-Rimbury bucket urns, and is better paralleled amongst post-Deverel-Rimbury jars. Such pots occasionally have applied cordons, either plain or finger-impressed set just below the rim, or at the neck (e.g. Brown 1995, fig. 64, nos. 63–4 and fig. 65, no. 79). This might indicate a date for the Folly Lane sherds relatively late in the currency of Deverel-Rimbury pottery perhaps towards 1000 B.C.

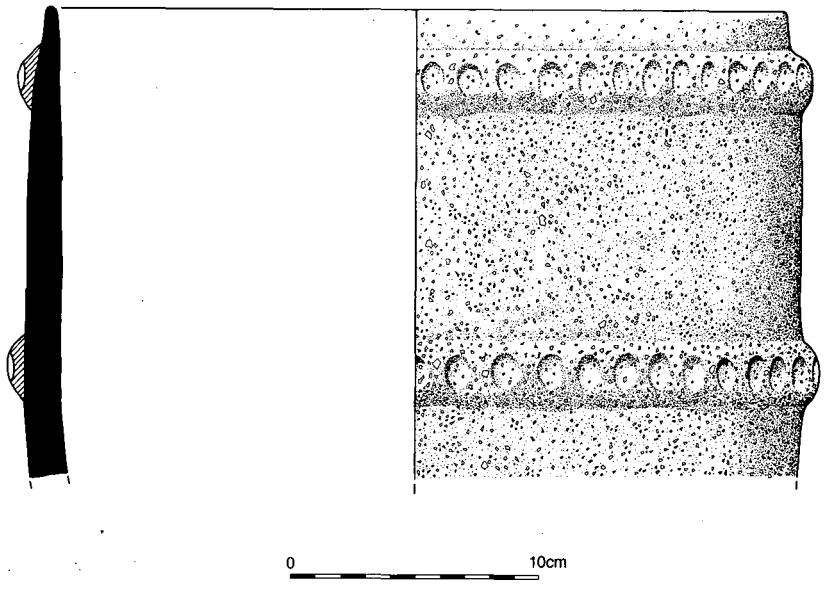


FIG. 46. Deverel-Rimbury pottery from area P. Scale 1:3.
Drawn by Ian Bell.

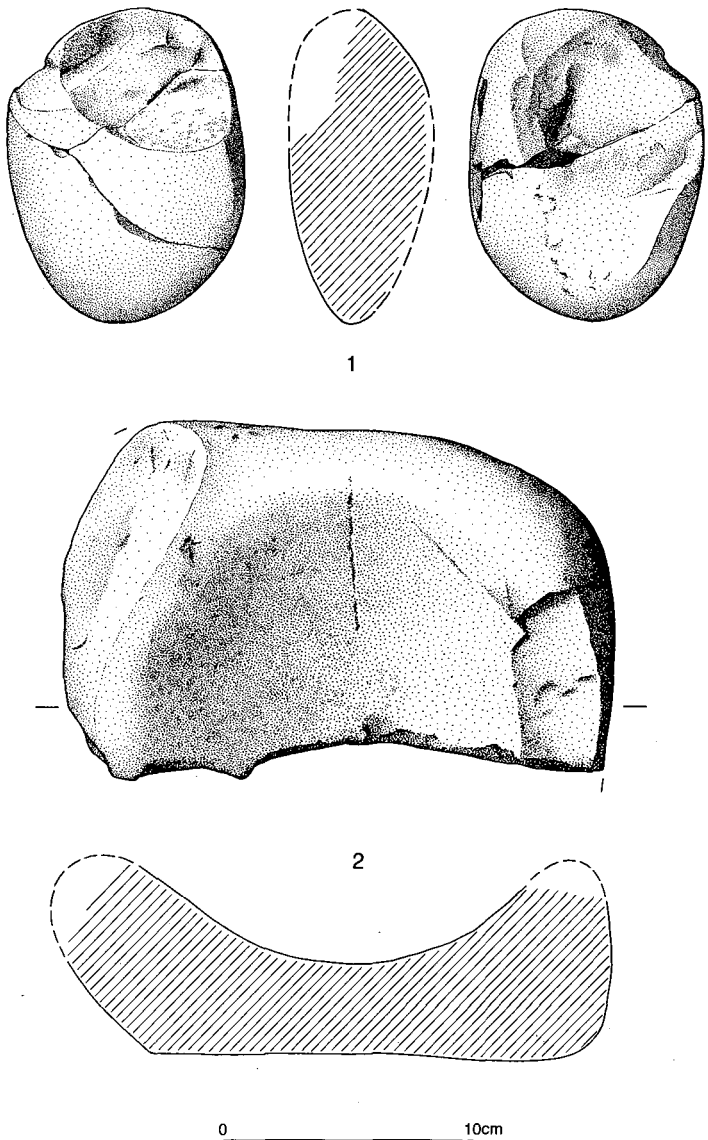


FIG. 47. Saddle quern and rubber, probably period 1. Scale 1:3.

The remaining pottery comprises very small sherds, including a tiny flat topped rim, and cannot be closely dated. However, the flint, and flint and sand tempered fabrics might suggest a late Bronze Age/early Iron Age date (Brown 1988).

STONE OBJECTS, *by* Sarah Adamson

Rubber (FIG. 47.1)

Chert pebble, used as a rubber. Found with the Deverel-Rimbury pottery in post pit AHV. Burnt and shattered.

Length 120 mm.

Saddle Quern (FIG. 47.2)

Approximately half of a saddle quern in micaceous sandstone with a flattened base and dished centre. It had been deliberately cut across and was found reused as packing in a post-pit in the period 7 building 1 (context AGX, area P). The stone has a non-local geological origin and the nearest source was probably in the Midlands.[1]

Length 220 mm, surviving width 135 mm, thickness 73–35 mm

THE WORKED FLINT, *by* Robin Holgate

The excavation produced 139 humanly-struck flints (summarized in TABLE 4, p. 119). These flints were recovered from Iron Age, Romano-British and later contexts and the bulk of the assemblage is likely to be either residual or redeposited in these contexts.

The majority of the raw material used consists of flint nodules, generally of poor quality, derived locally from glacial gravel deposits; the remainder comprises nodules from the surface of the nearby chalk. Some pieces, mostly mesolithic in date, have acquired a blue-white patination.

The assemblage can be divided into three groups. The first comprises eleven pieces of mesolithic date, including two flakes, a blade, four bladelets, a double opposed-platform core, two cutting blades and a possible burin. These pieces have been worked using a soft hammer, with care being taken to abrade the platform edges of the core before detaching flakes or blades. The second group, which includes the majority of the assemblage, consists of hard hammer-struck debitage and implements where evidence for platform preparation on butts is minimal; it is likely to date to the neolithic period, Bronze Age or Iron Age. This group includes about sixty pieces of debitage, fourteen cutting implements, four scrapers, a piercer, a scraper/piercer combination tool, two notched flakes and an ovate. Of these, the invasively-retouched backed knife, the combination tool and the pressure-flaked ovate (FIG. 62.55) are implements of a type and form usually found in later neolithic and earlier Bronze Age contexts. The third group includes approximately forty hard hammer-struck flakes and blades of poor quality flint, most of which are in fresh condition and have cortex covering much of the dorsal surface. These pieces are likely to result from the rough knapping of flint nodules for building walls in the Romano-British period.

The mesolithic flints probably result from hunting and foraging activities that took place on the interfluvial slopes overlooking the river Ver during the seventh–fourth millennia B.C. The second group of flints could all be of later neolithic-earlier Bronze Age date and be associated with domestic or agricultural activity on the site at this time. However, some of these flints could result from either earlier neolithic or later Bronze Age-Iron Age activity. A similar quantity and range of flints was recovered from excavations at Gorhambury villa, situated 2 km to the west of Folly Lane (Pye 1990); both assemblages indicate that the interfluvial slopes overlooking the river Ver were likely to have supported a mosaic of cultivated land, pasture and woodland of varying intensity in the fourth–first millennia B.C. The Romano-British wall-knapping flints, which came from the period 6 filling of the Ceremonial Enclosure ditch and from contemporary features alongside the Colchester Road, represent building debris deposited on the site.

BROOCHES (PERIOD 2)

Two brooches were found in period 2 contexts. These are discussed below (p. 218 and FIG. 72.2–3)

FIRED CLAY OBJECTS, *by* Sarah Adamson

Loomweights

An incomplete triangular loomweight in fired clay (FIG. 48). The corners have been knocked off, and only one side is intact; one surface has been broken away. Found with 'pot dump' 1 in the fill of gully 1 (FIG. 7, context BQH).

Weight 1540 g. Reconstructed height 160 mm, width 165 mm

Three further fragments from another loomweight (possibly two) were found in the same deposit, but are not illustrated. Such loomweights were common in the late Iron Age. This example is very similar to one from Gorhambury (Neal *et al.* 1990, 1032).

Fragment of loomweight (not illustrated). Weight 21 g. From 'Pot dump' 3 in the late Iron Age ditch (context BEW).

Two fragments of loomweight (not illustrated). Weight 140 g. From 'Pot dump' 4 in the late Iron Age ditch (context CKY).

TABLE 5. CATALOGUE OF THE GROG-TEMPERED FORMS AT FOLLY LANE

Form	Description	Comments	Vessels
A1	pedestal base	standard	1
B1-1	offset everted-rim jar	standard	4
B1-2	tall everted-rim jar with offset neck	standard	1
B1-3	round everted-rim jar with offset neck	standard	1
B1-6	tall everted-rim jar with lid seating on the rim	unusual except at Prae Wood; often red-surfaced	1
B2	ripple-necked jar rim	standard; can be early	1
B2-1	everted-rim jar with rippled neck	standard	1
B3	everted jar with bulges between cordons	standard and can be post-conquest	9
C1-2	rounded coarse jar with bead rim	standard, at least to end of first century A.D.	2
C5-1	lid-seated coarse jar	common in Herts.–Beds.–Bucks., but more usually in shell temper	1
C5-3	globular jar with dished rim, usually rilled on girth	generally rare except at Prae Wood, where it was common up to A.D. 50	2?
C6-1	storage jar	standard, into second century A.D.	60+
C7-1	rilled jar with everted rim	the standard coarse ware jar form in Herts.	33+
D1-1	bowl with offset neck and one cordon	standard form, very common in Herts. into later first century A.D.	6
D1-3	D1 with girth groove	usually post-conquest	1
E1-4	plain carinated cup	standard; several at Prae Wood, up to A.D. 50	2
E3-5	small narrow-mouthed everted-rim cup with offset neck	standard; several at Prae Wood, up to A.D. 50	3
E3-6	small flask with tall narrow neck	can be post-conquest	1?
G1	copy of Gallo-Belgic plate form		12
G1-1	copies Cam. 1	standard pre-conquest plate form	8
G1-3	G1-1 with a bead rim	local variant of G1-1	6
G1-4	copies Cam. 4	very common at Prae Wood, up to A.D. 50	1?
G1-7 var	copies Cam. 12, one internal offset	usually post-conquest	1
G1-11	native plate with straight wall	these native versions are varied in form and are often post-conquest	2
?G3-4	copy of Gallo-Belgic rounded cup form	rare, and uncertain here	1?
G5-2	decorated barrel-shaped butt beaker	not as common as offset forms, and in general earlier at KHL	1
G5-5	decorated butt beaker with offset neck	commonest butt beaker form; lasts well after conquest	2

Form	Description	Comments	Vessels
G5-6	butt beaker fragment		26
G6	jug	often red-surfaced	2
L7	conical lid, rim inturned or vertical	standard pre-conquest form; several at Prae Wood	1

Possible loomweight (not illustrated). 445 g of very burnt clay, one fragment has a round perforation through it. From the fill of gully 2 (context DHC).

Fragments of a fired clay slab (not illustrated)

Fired clay slabs, probably from hearths or ovens, were found in pre-conquest contexts at Prae Wood. The Folly Lane fragments may derive from similar items (Wheeler and Wheeler 1936, fig. 26, no. 3).

THE LATE PRE-ROMAN IRON AGE GROG-TEMPERED POTTERY, *by* Isobel Thompson

A little over 39 kg of grog-tempered pottery was recovered from the site. Of this considerable quantity, 30 kg came from just two large pot dumps, BQH (with BQG above), one of the gully groups, and BEW (with BEB above), in the main Iron Age ditch. Much smaller assemblages were found in contexts in the burial area and in the temple area; these may all be residual, derived from the domestic occupation that predated the burial. A full catalogue has been compiled for the site archive.

The character of the grog-tempered pottery at Folly Lane appears to be entirely domestic. It has its closest parallels, as might be expected, in the Prae Wood ditch groups (Thompson 1982, 869), and for certain forms also in the King Harry Lane cemetery (Stead and Rigby 1989).

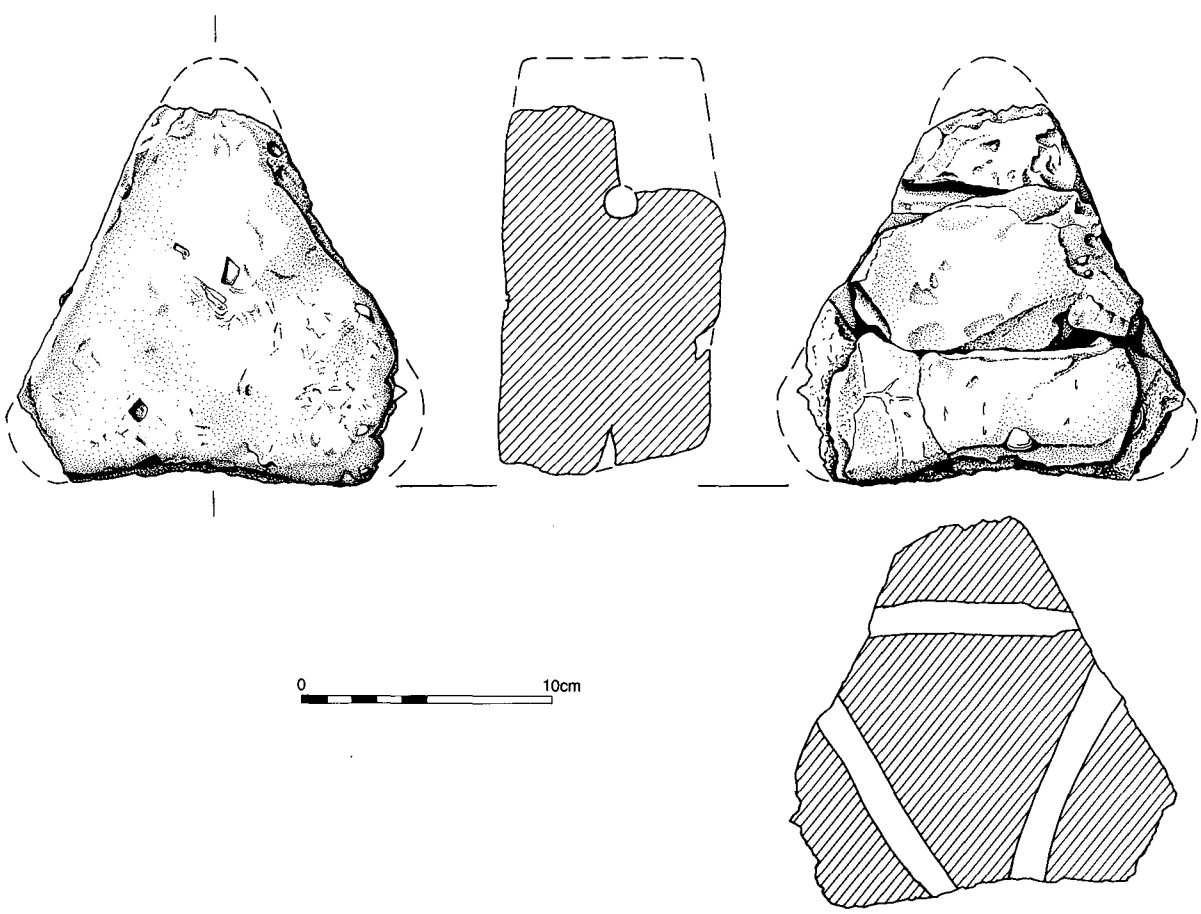


FIG. 48. Loomweight from period 2 gully. Scale 1:3.
Drawn by Alex Thorne.

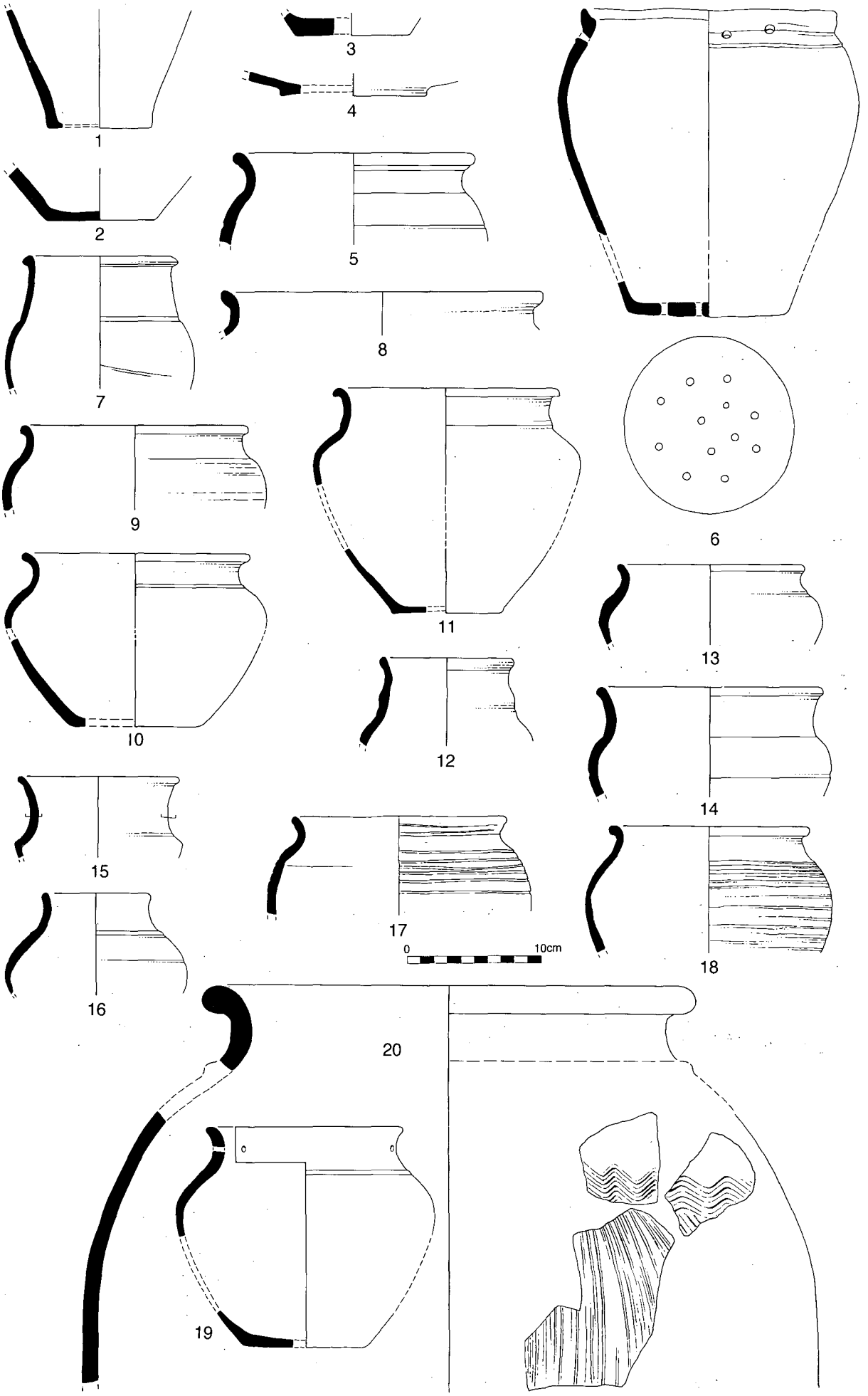


FIG. 49. Period 2 pottery. From 'pot dump 1', gully 1. Scale 1:4.

There is nothing at all unusual in the assemblage. In date it compares with most of the other LPRIA assemblages around Verulamium, covering the first half of the first century A.D., and including some vessels that are likely to be post-conquest. The date brackets A.D. 10–50/55 would cover them. There is little to refine this at Folly Lane; the forms are largely common types with a very long date range.

Gully groups

Gullies 1 and 2, which yielded large amounts of grog-tempered pottery, appear to form part of a rectangular enclosure, at right-angles to the main Iron Age ditch. This is an arrangement similar to that already known at Gorhambury, Prae Wood and on the Verulam Building Estate. All these are domestic in character.

Gully 1 contained the second largest assemblage of grog-tempered wares on the site: pot dump 1 (context BQH) produced 13,341 g of grog-tempered pottery, and the layer above BQH (BQG), contained another 362 g. These two contexts are considered together below.

Gully 2 also produced grog-tempered wares but in much smaller amounts: 596 g, representing only two vessels, from the bottom fill (context DHC); and 816 g from the main fill (context CSG).

Gully 1: BQH, and BQG above

Illustrated vessels (for the forms, see the TABLE 5 (p. 123), and Thompson 1982) (FIG. 49)

1. Possibly a butt beaker base, form G5-6. Perhaps originally a good pot, with fine grey grog core, red below paler red-buff (and pale grey) surfaces, but no surface finish survives. Brittle and slightly sandy, quite thin. Five sherds.
2. See 13.
3. One base sherd, thick and coarse with quartz grits; stood on a sandy surface before firing. Smoothed inside; dark grey, hard and lumpy. These bases are often from C7-1 rilled jars.
4. One sherd, from a pedestalled cup? Grey, fine grog temper, dark grey surfaces; smoothed outside and under the base.
5. B3-1 cordoned jar, or possibly two. Grey core with some small quartz grits, red below brown inside surface and grey-brown outside; both surfaces much worn and missing, but some sherds still tooled to a very dark grey on the bulge outside. Soft and brittle. Twenty sherds; rim is irregularly shaped, with a line to form the double bulge in part.
6. Large parts of a C5-1 lid-seated jar turned into a colander with holes in the base added after firing. The fabric is soft and underfired, grey with pale red inside surface and patchy dark brown-grey outer surface, no burnish and the finish a little coarse. Most of the rim circuit survives, as does much of the base, despite the damage. There are at least twelve base holes of 5 mm diameter, one of them unfinished; and there are also pairs of holes on either side of an ancient break, two at the rim and two further down the body. Thirty-eight sherds in all.
7. Rim and upper body of a G5-5 offset-neck butt beaker, very plain but well made, with signs of faint rouletting. Thin walls, fine grey core, red surfaces rather discoloured, brown on lower body; good fabric but not the best Oxidized Grog. Grooves instead of cordons, and no bevel inside the rim; no burnish. Not gritty feeling, but fired well so it is not soft enough to wear much. Seven sherds, not all joining.
8. Soft and underfired, brown core, dark grey surfaces worn to red patches at top of rim, no quartz grits. Abraded and no sign of lower body. Groove on outer rim edge; shaping rather irregular. Two sherds, joining.
9. C7-1 rilled jar, coarse but well made and shaped; some quartz grits, hard. Dark grey-black throughout, neck possibly tooled, shallow horizontal combing below. Four sherds, three joining.
10. D1-1 bowl, obviously wheel-made, well shaped, neat and thin. Grey core; fairly hard, some sandy feel; pale orange-buff-grey patchy surfaces, the grey mostly towards the base; surfaces

smooth but no remaining tooling or burnish, and possibly never had any. A neat but very plain vessel. Four sherds: three at rim.

11. D1-1 bowl, distinctive fabric, grey (brown in part at rim), thin, much fine temper, some fine quartz; distinctive dark orange rough-feeling inside surface, dark grey outside surface tooled or painted black at neck cordon, where the cordon was tooled into shape carelessly enough to form a slight ripple effect. Neat, evenly shaped, thin vessel, plain, and underfired, which may account for the unusual colour, and perhaps the pot's early breakage. Fifteen sherds.
12. Probable E3-6 flask, two joining rim sherds from an upright narrow cordoned neck. Fairly coarse; grey core, dark grey outside and over rim, lower neck inside reddish-brown. A small amount of sand in the fabric but not hard, although brittle; worn and abraded. Neck once tooled.
13. Small D1-1 bowl, neat and plain, like many others from the site; well shaped, very slightly sandy feel but not hard fired; grey core, dark grey surfaces, worn inside to brown; evenly coloured dark grey outside, not patchy in colouring; very shallow cordon; no remaining burnish. Two joining sherds; four joining pieces making up most of the base no. 2 may belong to this vessel.
14. D1-3 bowl, usual slightly sandy grog fabric, brown core, evenly coloured very dark grey surfaces, tooled smooth all over outside but worn in parts. Not overfired, fairly brittle. Fourteen sherds. Often post-conquest.
15. E1-4 plain carinated cup, soft brown fabric with worn patchy buff-orange-grey surfaces; good inside surface but not the best finish. One very shallow cordon, really just two lines. Five sherds.
16. E3-5 narrow-mouthed round cup, neatly shaped but thick. Brittle dark grey core, paler grey surfaces, no finish. Not hard fired; some abraded breaks. Lower cordon very shallow. Three-quarters of the circuit survives. Fifteen sherds.
17. C7-1 rilled jar rim, softish grey-brown with dark grey surfaces, slightly lumpy fabric; fairly coarse rilling; double rim almost dished inside. Six sherds.
18. C7-1 rilled jar, dark grey, fairly brittle soft fabric, some red below dark grey surfaces, redder towards base; rim quite well made, neat rilling but less well done towards base.
19. B1-3 jar, well made; dark grey-brown, patchy surfaces, more pale inside. Top half, thin body wall broken around girth and below where thinnest; one shallow cordon; good hand-burnish on outside now worn. Small holes drilled after firing in two places on the neck, not opposite pairs and not alongside breaks, so their purpose is unclear. Complete rim circuit; ten sherds. The probable base consists of five sherds, with wheel marks inside; apparently once had one fairly large hole in the centre, done after firing and worn quite smooth.
20. Large C6-1 storage jar, in dense heavy fabric, good grog with a little quartz sand; abraded. Grey core, body has red-buff inside surface and dark grey outside, dark grey over rim; combed body with wave pattern on shoulder. Hole drilled in neck just under rim after firing. Neck and rim tooled; not much evidence of the body. Rim has almost the double bulge of other smaller pots from this site. Thirty-seven sherds.

Other forms present:

B1	offset everted-rim jar, fragments	1
B1-1 or D1-1	offset everted-rim jar or bowl	1
B2	ripple-necked jar, fragments	1
C6-1	storage jar	3+
C7-1	rilled jar	3+
E1-4	plain carinated cup	1
G1	plate fragment, a carination	1
G5-6	butt beaker fragments	4

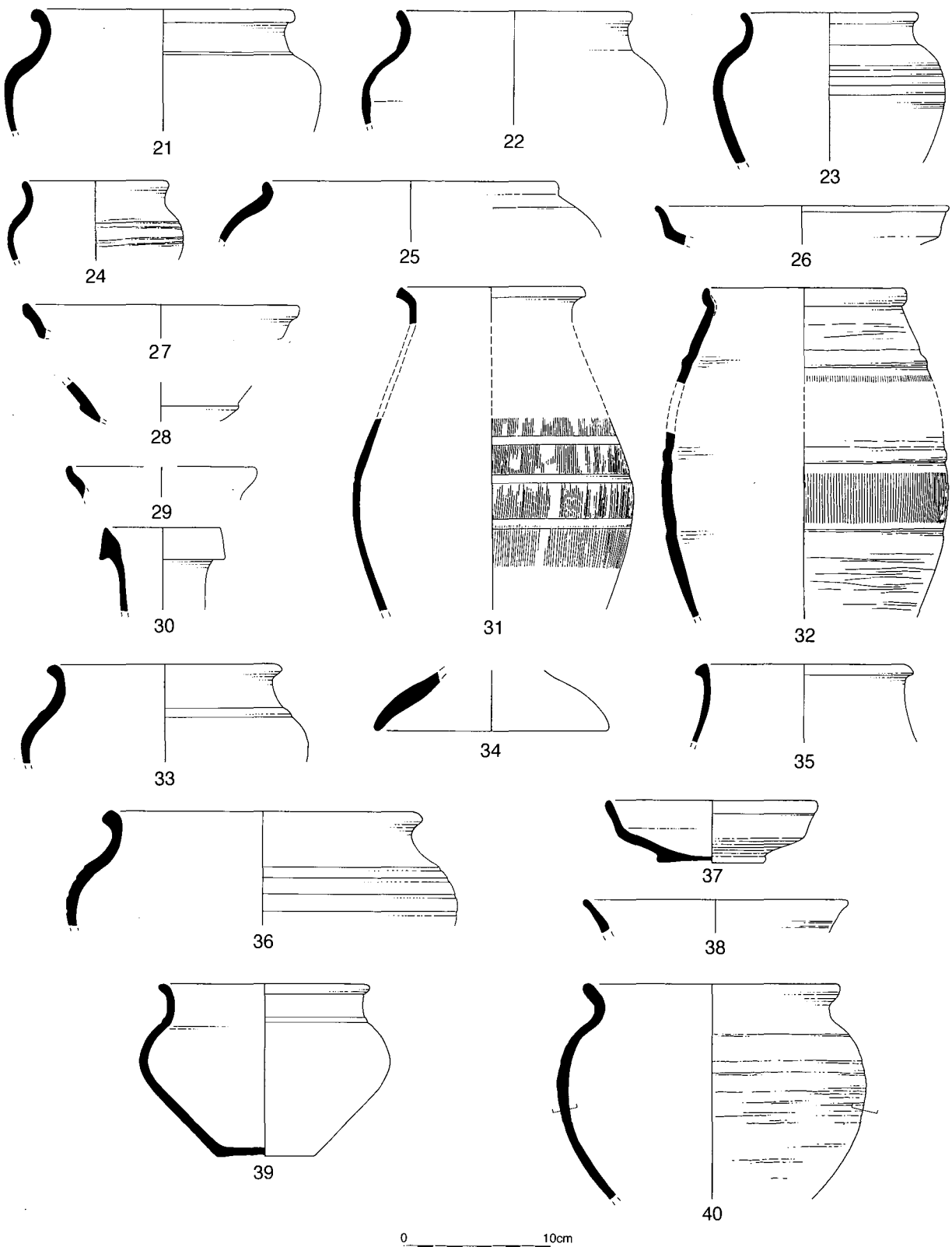


FIG. 50. Period 2 pottery. Nos 21–32, from 'pot dump 3'; nos 33–5, 37, from 'pot dump 2'; no. 36 from gully 2; nos 38, 40 'pot dump 4'; 39 from gully 4. Scale 1:4.

There is nothing distinctive about any of this, not even the plate forms. The assemblage is of standard domestic forms, made neatly but plainly. Many of the illustrated vessels show this. No. 7 has the deliberate red surface in imitation of TR (called Oxidized Grog at King Harry Lane), but as elsewhere when it occurs on this site the imitation is not quite the best quality. No. 15

may be another attempt. The loose sherds include one with a better red finish and traces of a five-toothed combed zigzag motif on the bulge above a groove.

Note the black paint, seen on one or two other rims from the site; and the occasional external groove on the bead of some everted rims, a feature not noted on other sites.

Gully 2 (contexts DHC and CSG)

The bottom layer (context DHC) produced the flat base of a coarse jar, and a large C7-1 rilled jar (FIG. 50.36), quite soft, coarse fabric, mostly dark grey with patchy colours. Much of the profile survives but the vessel was incomplete and broken up. The horizontal rilling has grooves at intervals.

The upper fill (context CSG) contained rim sherds from three vessels: a probable C7-1 rilled jar, an everted scrap, and part of a B1-6 lid-seated jar rim. This is an interesting form as it ultimately derives from a continental import, and is usually rare, but very common at Prae Wood and the most common jar form, together with some original imports, in the cemetery at King Harry Lane (Stead and Rigby 1989). It is often red-surfaced, but this one, the only example at Folly Lane, has dark grey surfaces.

The only other forms from this context (CSG) were sherds from C6-1 storage jars. The quality of the fabric from Gully 2 is coarse, soft and worn, and dark grey on the surface. This is in contrast to the harder and more orange fabric noticeable in the larger groups such as that in Gully 1. The difference can be one of date, the darker and softer being earlier, but is not necessarily significant here. The sample is small.

Iron Age ditch groups

Primary silt

Two contexts, pottery dump 2, the primary silt (context BHF), 823 g and the secondary silt (context BGQ), 1153 g. The pottery was well broken up, but was substantial enough to yield four vessels illustrated here (FIG. 50).

33. (BHF): B1-1 jar rim and shoulder. Quite large, coarse but thin, dark grey fabric, shallow, roughly tooled cordon; smoothed cordon, not burnished.
34. (BHF): L7 lid. Thick and coarse, quite hard, patchy buff-orange, some dark grey.
35. (BHF): G5-6 butt beaker rim. Thin, very well made, patchy dark grey-orange, smooth outside.
37. (BGQ): G1-3 deep plate with bead rim; brown-grey, neat, rather sandy; smooth but no burnish.

All of these are standard native forms, generally pre-conquest but up to *c.* A.D. 50 at Prae Wood.

Also represented are the forms C6-1 (several), C7-1; another G1-3 plate and another G5-6 butt beaker rim; rouletted sherds from two decorated butt beakers; and an everted rim with traces of possible black paint on both sides of the rim. There was also a fragment of a fine buff-cream rim (not grog-tempered) that might have come from a jug or a girth beaker.

Clearly some quite good vessels are represented here, similar overall in form and date to those from the Prae Wood ditch groups.

Secondary silt

Pot dump 3 (contexts BEW; and BEB, slump over BEW)

Context BEB contained more Roman coarse wares than grog-tempered, but as parts of the same vessel were scattered in both BEB and in the primary fill (context BEW) the grog-tempered pottery from each is considered together here.

This was the largest assemblage on the site: no less than 12,830 g from BEW and 3395 g from BEB (largely inherently heavy C6-1 sherds). The quantity and range of forms in this

assemblage were larger than in any other context; this and pot dump 1 are quite out of proportion to the rest of the site.

BEW/BEB illustrated vessels (FIG. 50)

21. D1-1 bowl or B1 jar, one sherd but substantial. Neatly made but plain; softish grey, with some quartz sand, red below very worn grey smooth inside surface, smoothed brown outside. The cordon almost non-existent; tooled neck.
22. B1-1 jar rim, softish brown-grey, red below dark grey surfaces, smoothed inside, burnished outside and over rim; offset but no cordon.
23. C7-1 rilled jar, a neatly made version. As with other pots from the site the offset has no cordon; only seven shallow but neat rilled lines below. Not hard fired; dark grey, brown-red below smoothed dark grey-brown-orange inside surface and rim, burnished very dark grey on neck and shoulder, buff smoothed below rilling.
24. Miniature C7-1 rilled jar, softish coarse reddish core with red inside surface, smoothed and showing coarse grog; dark grey patchy outside, rough horizontal combed lines and rough below.
25. One rim sherd from a large bead-rimmed C1-2 jar; shallow offset and small upright bead rim, well formed; softish grey with patchy dark grey-red-buff surfaces, no surviving finish.
26. G1-3 bead-rimmed plate, two joining sherds; grey with dark grey burnished surfaces, shallow and large.
27. G1-1 plate, grey with dark grey burnished surfaces, one sherd.
28. Plate carination, dark grey, burnished, well made and finished but thick upper part and thin enough to break below.
29. G1-1 plate or perhaps a cup, red-buff with grey-buff surfaces, no burnish; one sherd, uncertain diameter.
30. Jug rim, one substantial sherd; fine pale grey sandy fabric, with orange surfaces and traces of cream slip, copying Cam. 161.
31. G5-5 butt beaker, thin, brown-grey, with horizontal and vertical tooling (not rouletting), and burnished rim.
32. G5-2 decorated barrel-shape butt beaker, many sherds and joins, a bulky pot. Softish grey fabric, grey, evenly coloured surfaces, one brown patch on a rim sherd; well tooled outside, vertical shallow rouletted lines. Most of the profile is extant, and one of the bases may belong.

Other forms in BEW

A1 pedestal base only, very worn
B3 jar fragments, very worn, and fragments of many cordoned and/or grooved jars of B1 and B3 forms, many vessels but under-represented in the list of forms
C6-1 storage jars: six rims, ten bases, many sherds
C7-1 rilled jars: one probable rim, two bases, and sherds
D1-1 bowl, worn, and another possibly of cup size
E1 carinated cups of indeterminate form, sherds of ?two
E3-5 cup?, and sherds from two or three other probable small cups
E3-5 or other cup neck in Oxidized Grog, imitating *terra rubra*; and eight plain fragments in similar fabric; also another possible cup base in similar fabric but brown
G1 plate bases, up to nine; and three scraps of rims
G1-1 plate rims, three
G1-3 plate, local variant of G1-1
G1-4 plate, possible, with smooth pale buff-orange surfaces as at Prae Wood
?G3-4 round cup in quite good Oxidized Grog, one rim sherd
G5-6 rouletted sherds from butt beakers; thin cordoned sherds possibly also from butt beakers; a largish rim with rouletted sherds; and another rim; up to seven G5-6 butt beaker bases; a very good butt beaker rim in pale grey with smooth pale orange surfaces, possibly not grog-tempered.

Other forms in BEB

B2-1 ripple-shouldered jar rim
C1-2 rim from a small bead-rim jar
C6-1 storage jars, three bases (one with a band of grey ?paint on exterior surface) and sherds decorated with combed wave patterns
C7-1 rilled jar, one probable rim
?E3-6 flask, cordoned sherds
G1 plate base
G1-1 plate carination
?G1-11 plate, large
G5-5 decorated offset butt beaker, one rim, neatly made with pale brown surfaces
G5-6 butt beaker fragments, two bases and rouletted sherds from two vessels (most of one of these was from BEW)
Rim scrap in Oxidized Grog, not the best finish; not a plate, but otherwise its form is unclear.

There are no discernible differences in date between the grog-tempered assemblages from BEW and BEB. They are noticeably broken up; there was a larger range of forms than in BQH, but many are only represented by fragments and it is impossible to identify their exact shape. The assemblage as a whole includes one or two quite good pieces, and neatly but plainly made, like BQH, but nothing really unusual except the possible G3-4 (which may be something else entirely).

Other groups in the secondary silt

These are small and without much interest with the exception of pot dump 4, in the secondary silt of the Iron Age ditch (context CKY). The secondary silt produced pottery with a total weight of 1507 g (contexts BHE, BHW, BME, BMF, CJD, CKY) nearly all of which came from CKY. The sherds are all small and broken up. The only discernible forms, apart from a B1-2 everted-rim jar in context BME, also come from pot dump 4 (contexts CKY) (FIG. 50).

38. G1-3 bead-rimmed plate, a fairly deep dish. Nearly half extant; underfired grey-black, soft and heavily burnished inside. The bead rim is in part merely a roughly scored line.
40. C7-1 rilled jar, heavy, large, and harder fired than the plate; grey-brown, patchy, with regular shaping.

Also represented are a plate rim which is a variant of a G1-7 plate, with two internal mouldings, and possibly post-conquest; a probable C5-3 jar with the top of the rim missing (a distinctive Prae Wood form); a G6 jug handle with the usual orange-buff surface, and fragments of a storage jar. There are also some other plain sherds with the Oxidized Grog surface, used for copies of Gallo- Belgic forms.

Levelling over the secondary silts

The levelling of the bank over CKY, and contained a sherd from another C5-3 jar as well as a few other grog sherds. Contexts BHG and CLD were also levelling over the secondary silts and contained one or two scraps of grog (including a storage jar sherd).

The Funerary Area

Features at the centre of the Ceremonial Enclosure (contexts CBN, CCK CDF CDY CRJ, CSE, CQM CQY)

These contexts contained 681 g of grog-tempered ware. They included broken up and worn sherds of evident domestic use, C6-1 and C7-1, left-over rubbish. Some contexts (contexts CBN, CCK and CDY) appear to have resulted from trees cleared to make way for the burial. By far the largest assemblage of twenty-two sherds, came from Gully 4 (context CSE) which post-dated the mound beneath the temple, although it predated the temple itself (FIG. 23) This

assemblage included a scrap of a G1-1 plate rim and seven sherds from a G6 jug in Oxidized Grog. This was not the best version of this fabric.

Immediately north of the burial pit, the primary silt in Gully 4 (context CFS) contained one grog-tempered vessel (FIG. 50.39):

39. D1-1 bowl that was still intact when deposited apart from a small part of the rim that was already missing. Plain with a shallow single cordon, fairly coarse thin grog, red-grey-brown, with patchy surfaces, once dark grey, outside. The vessel is still native in form and fabric, although a standard shape that was also made in Roman fabrics.
The top fill of this gully (context CDS) contained one plain grog-tempered sherd.

Another small pit or posthole from this area (context DGS/R), with plain sherds in its upper fill, may originally be of much earlier origin, as it also produced some flint-gritted sherds of more substance than the worn residual scraps usually found (see above, p. 121). A repeatedly recut scoop or posthole, west of the funerary shaft and dating from period 4 (contexts CQM/CQY/CRJ — posthole 4, FIG. 23) also produced a small quantity of grog-tempered sherds.

The burial pit

This is dated on other grounds to *c.* A.D. 50/55. Two layers of pyre debris (contexts DAB and DAC), contained 91 g of grog-tempered sherds. Those from DAB were three scraps from storage jars, all different, and may be redeposited rubbish, but DAC contained thirty-seven tiny scraps of some good forms, now too broken and possibly burnt to be identified. One sherd from some form of carinated cup had imitation TR surfaces, although like the jug in Gully 4 (context CSE above) it was not the finest version of this fabric.

The shaft fill

The two contexts on the floor of the shaft fill (contexts DAF and DAG) and two in the 'turf' filling in the shaft (contexts CDH and DAA) included 134 g of grog-tempered ware — a few domestic C6-1 and C7-1 sherds, broken up and (one) burnt. They do not appear necessarily to have any direct connection with the shaft's function.

The pyre

A scorched area on the surface of the mound beneath the temple was interpreted as the base of the pyre (context CCY, see above, p. 47); it yielded one rim sherd weighing 6 g, a very worn scrap of no discernible form.

The mound

This consisted of what was apparently the upcast from the shaft, and was at the completion of the burial rite spread over the site as a burial mound with some sort of marker on the top (contexts BZJ, CCT, CWF, DEP, see above p. 45). A total of 1279 g of grog-tempered ware came from the mound (substantially more than in the pits and shaft) and more pottery, some from the same vessel, was redeposited in the temple footings cut into the mound. All this pottery is apparently domestic in nature: sherds of C6-1 storage jars, C7-1 rilled jars, various plates copying Gallo-Belgic imports (mostly too broken up to be sure of the form). Of the ascertainable forms, one is G1-1, the standard pre-conquest native plate form, and one is G1-3, a bead-rimmed local variant very common at Prae Wood. These are very ordinary domestic types; the only other signs of form were sherds of some sort of cordoned jar of a B3 type. The assemblage is native in character, but includes a scrap of an everted rim in a thin, brittle, pale grey romanized grog that is post-conquest (from context CCT).

Temple groups

Small quantities of grog-tempered sherds were found in the temple footings, on the cobble surface outside the temple entrance, and in hollows within the cobble surface. These sherds

were without exception clearly residual or disturbed and redeposited, being of the usual native domestic types but very broken up, with worn breaks and leached surfaces. The only ascertainable forms were the usual C6-1 storage jars, C7-1 rilled jars, some probable butt beaker sherds, and B3 cordoned jars of which it was not possible to be more precise about the form.

The contexts (BWE, BYP, BYQ, BYR, BZJ/K, BZM, CAH and CDD) represent the cobble surface and its worn patches; 938 g of grog-tempered ware came from them. CBD and CDN were unstratified over the temple floor (349 g); BZN, CAF, and CDM were contexts in the temple footings, cut into the burial mound (30 g). The pottery in the mound is apparently itself redeposited.

A note on shell-tempered sherds

The large assemblages of grog-tempered pottery also yielded a few sherds with shell used as the filler:

BQH (Gully 1): a C5-1 lid-seated rim and two plain sherds.
BEW (Iron Age Ditch, secondary silt): a C5-1 lid-seated rim.
BGQ (Iron Age Ditch, primary-secondary silt): two sherds, one fairly large.
CKY (Iron Age Ditch, secondary silt): a C5-1 lid-seated rim and base, and seven sherds.

THE FUNERARY FINDS

THE METAL FINDS, *by* Jennifer Foster, with metallurgical reports by Peter Northover and Brian Gilmour and contributions by Sarah Adamson

The objects from the burial pit and the funerary shaft, and from the pyre debris in the post-pit are discussed below. The majority of objects were found in the burial pit; those from other features are marked *.

Harness

Nine items of horse equipment were found in this grave: a locally made bit, harness brooch and toggle, and Roman harness junction and keyhole fastener, together with probable fitments from a cart or chariot: a pole end and at least one nave hub. Harness is unknown from other late Iron Age graves, although the Yorkshire chariot burials contained the full range from terrets to bits (Stead 1991).

Champlevé enamelling

Three of these items (the bit, harness brooch and toggle) were decorated with coloured glass. Throughout the Iron Age red glass was used to decorate metal objects, the glass being held in place by rivets, as on the Battersea shield (Stead 1985, 16–17), or in copper alloy settings (e.g. from Lexden; Foster 1986, 70–3). The glass was heated until it became soft and was pressed into place; there are finger prints on the Lexden glass (ibid., 71). Also used was a technique called *champlevé* enamelling, which became common in Britain in the mid-first century A.D., where coloured glass was applied to recesses in the metal.

On some late Iron Age objects the items were cast with the recesses ready for the glass inlay (moulds for casting such objects have been found at Weelsby Avenue, Grimsby (Foster 1995), but sometimes these were too smooth and the inlay fell out (Spratling 1972, 272)). On the Folly Lane objects, the recesses were probably cut or drilled after casting, in fact rough places can be seen on the top of the toggle (below, no. 2).

Technically *champlevé* work in the Iron Age is not true enamelling (Hughes 1972) where the glass, applied in the form of powder or paste (Bateson 1981, 111), melts and fuses chemically with the metal (Spratling 1972, 272). This technique was probably only introduced in the Roman period. The Folly Lane craftsman appears to have used cut up pieces of recycled glass bead or bangle to fill the recesses (Val Rigby, pers. comm.), as two of the inlays on the bridle bit are multi-coloured (one blue with yellow, the other blue with white). The objects were finished with

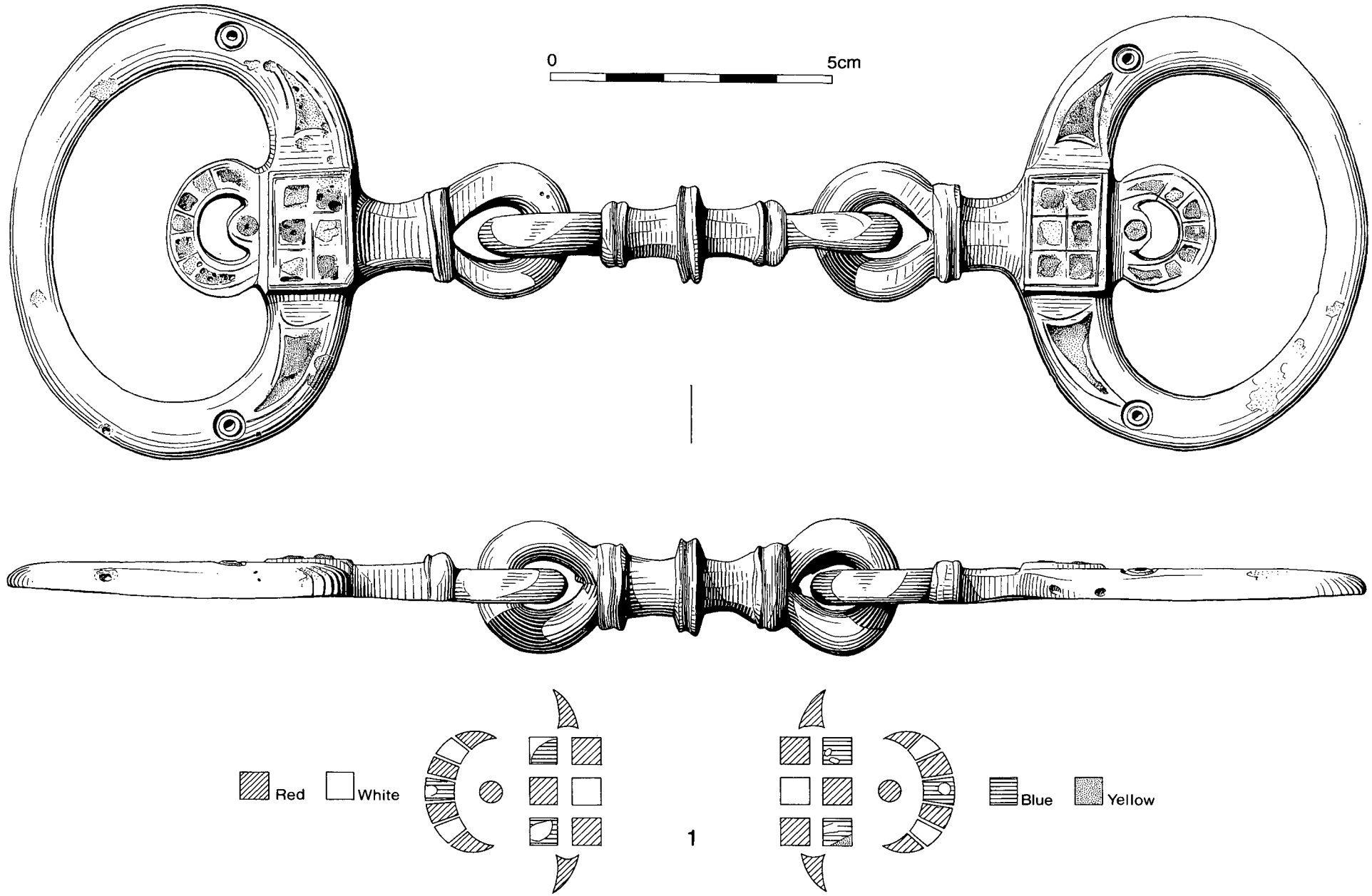


FIG. 51. Bridle bit from main burial pit. Scale 1:1.

PLATE XL. The bridle bit and toggle after conservation. *Photograph: K. Warren, St Albans Museums.*

an incised line outlining the enamel, a characteristic of *champlevé* objects at the time of the conquest (Spratling 1972, 123). The incised lines here are very poorly done, and may have been a guide for the metalsmith rather than a decorative technique.

1. *Bridle bit* (DAC 9) (FIG. 51; PL. XL)

A cast bronze bit with coloured glass inlay using the *champlevé* technique. The bit consists of three units: a centre link joined on either side to side links fused with the rein-rings. The centre link has two loops with tear-shaped holes that have been cast into the side links (Foster 1980). There are two banded collars to the loops and a very prominent central grooved ridge, which would have produced a harsh bit action in the pony's mouth (Palk 1984, 89), suggesting that it was designed for a stallion. This central ridge is similar to the one on the Old Windsor bit (ibid., DJ30), but no other Iron Age bit has banded collars on the loops. The centre link has a faceted rather than circular section with approximately ten faces.

The side links, which also have banded collars on the loops, are not separate from the oval rein-rings, but cast as a unit, similar to the bit from Rise (MacGregor 1976, no. 10). The centre link is able to rotate within the side links, but would always present the same ridged aspect.

The *champlevé* decoration on the bit is well preserved and would originally have been striking, not to say garish. In the centre of each rein-ring, at the junction with the side links, is a raised rectangular area; within an incised, or rather scratched, line are six square glass inlays, three red, two blue and one white; on one side the blue setting has a yellow swirl, probably a recycled piece of glass. There are short lines between the individual inlays.

Flanking the rectangles on either side are curved-sided triangular settings of red glass, again outlined by incised lines, which terminate in stamped ring-and-dot motifs. These were stamped into the cold metal after the line was incised. Balancing the loops of the side rings on the inside of each rein-ring is a flat D-shaped extension with a pelta-shaped cut-out, enclosing a circular setting of red glass. The curve is decorated with a line of seven glass inlays, the middle semi-rectangular and the end ones pointed. The colours reflect the central settings: red, white, red, blue, red, white, red. One of the blue squares is striped, this time with white. Again the glass inlay is outlined with scratched lines. The glass is now badly corroded and pitted, and the colours, though still discernible, are faded.

Interestingly, the decoration is symmetrical; other Iron Age bits have asymmetrical decoration, with one side more elaborately omamented than the other. It is assumed that these were designed for pairs of chariot ponies, with the decoration worn on the outer side. This bit would be for a riding pony rather than for a driven pony.

The workmanship of the bit is not perfect; some of the glass is not flush with the surface of the bronze and the settings have been poorly cut into the metal. The lines around the settings have been scratched rather than engraved, and not very expertly. Also the loops of the centre link were inexpertly cleaned after casting, leaving some clear filing marks and burrs on the inner surfaces of the loops. There are two minor casting flaws, one in each rein-ring.

This type of bit (called Derivative three-link by Ward Perkins (1939)) developed at about the time of the conquest from the typical three-link bits of the late Iron Age, at the same time as the introduction of *champlevé* decoration. There are no close parallels. A few bits of the mid-first century A.D. are enamelled, e.g. those from the Seven Sisters hoard and Rise, Yorks (Spratling 1972, no. 166; MacGregor 1976, no. 10), although their ornament is more 'Celtic' in style. This is very heavily influenced by Roman symmetry. However, its affinities are with British late Iron Age bits and native decoration; it is definitely not a Roman bit.

Because of the short length of the centre link and the fact that the side elements are not jointed, in use the rein-rings would have been pulled back at an angle within the pony's mouth, with a width between the side links of about 45 mm. With the centre moulding, which would cut into the pony's tongue, this is a fairly harsh bit, similar to a modern Eggbutt race snaffle (Tuke 1965, fig. 56);[2] it was almost certainly designed for a stallion. The size indicates a pony of about 12.2 hh, a mount that was ridden rather than driven (Jennie Craine, pers. comm.).

Because of corrosion, it is difficult to look at wear traces on the surface of the metal, but certainly there is no obvious wear, unlike on many bronze bits (e.g. see Palk 1984). The scratched lines around the inlays are not worn and the burrs around the stamped ring-and-dot ornament still remain. Despite corrosion it is possible to see filing marks on the flat inner surface of the rein-rings which would have been chafed by the pony's mouth and the reins. It is doubtful, therefore, whether this bit was ever used. Possibly it was a token bit made specially for the grave.

DAC 9. Length 240 mm; width between rein-rings 118 mm (exactly the same as the Rise bit, although the centre link is much shorter); length of centre link 75 mm.

Metallurgical analysis of the bridle bit, by J. P. Northover

All three components of the bridle bit were analysed with drilled samples: #1 from the left-hand rein-ring, #4 from the right-hand rein-ring and #12 from the centre link (TABLE 6).

Two alloys have been used to cast this horse bit. The two side links were almost certainly cast as a pair in a low lead red brass with a little over 13 per cent zinc and approximately 3.2 per cent tin, while the centre link can be considered to be a leaded gun-metal with 7.7 per cent tin, 2.7 per cent zinc and 2.6 per cent lead. The choice of alloys here is interesting, particularly since the inlaid enamel shows that the outer rings were designed to be colourful. The metal of the side links will retain the golden colour of brass (as opposed to the more muted colour of

TABLE 6. METALLURGICAL ANALYSIS OF THE FOLLLY LANE BRIDLE BIT

	Fe	Co	Ni	Cu	Zn	As	Sb	Sn	Ag	Bi	Pb	Au	S
#1	0.20	0.01	0.02	81.75	13.33	<0.20	0.09	3.46	0.02	0.02	1.04	0.06	0.01
#2	0.15	0.03	0.01	82.14	12.96	0.26	0.07	2.80	0.10	0.02	1.41	0.04	0.00
#12	0.21	0.00	0.06	85.01	2.66	1.43	0.22	7.71	0.06	0.00	2.63	0.00	0.00

bronze) while the tin addition improves casting properties and wear resistance. The centre link, not designed to be seen, will be duller in appearance but the alloy will give better casting properties and wear and, perhaps, corrosion resistance. The choice should be seen as deliberate, suggesting that the craftsman could differentiate between a number of different compositions intermediate between bronze and brass. Late pre-Roman Iron Age bits that have been analysed have tended to be of the five-section type with separate side links and rein-rings, and these have proved to be of bronze. However, one piece, comparable to the side links in this example, has been analysed from the Seven Sisters, Glamorgan, hoard (Spratling 1976). It, too, is of brass. The previously unpublished analysis is given below for comparison (TABLE 7).

TABLE 7. METALLURGICAL ANALYSIS OF THE BRIDLE BIT FROM THE SEVEN SISTERS, GLAMORGAN, HOARD

	Fe	Co	Ni	Cu	Zn	As	Sb	Sn	Ag	Bi	Pb	Au	S
#1	0.20	0.01	0.02	81.75	13.33	<0.20	0.09	3.46	0.02	0.02	1.04	0.06	0.01
#4	0.15	0.03	0.01	82.14	12.96	0.26	0.07	2.80	0.10	0.02	1.41	0.04	0.00
SS	0.41	0.00	0.01	81.59	17.58	0.15	0.02	1.05	0.01	0.00	0.18	0.00	0.00

2. *Toggle* (DAC 10) (FIG. 52; PL. XL)

Cast bronze harness fitting, generally called a cheekpiece or toggle. Like the other toggles from Britain, this is waisted on either side and then flares to ridged terminals with flat ends. It has a rectangular slot (with slightly raised surround), 28 mm by 6 mm. It is decorated, like the bridle bit, with *champlevé* glass inlay.

Wear is difficult to determine because the toggle is badly corroded, but in a few places the original surface remains. The triple ridges of the lower terminal (as drawn) have rounded edges suggesting some wear, although the incised lines on the flat surface of the other terminal have little wear. Like the bridle bit, therefore, this was placed in the grave when relatively unused. All the settings are very corroded now and the pattern in places is difficult to reconstruct. It is not possible to distinguish the colour of the glass: it is assumed that all the inlay was red.

Spratling (1972, 125) and MacGregor (1962, 31) have shown that these were not cheekpieces, but the fact that they are found in conjunction with bits suggests they were used in harness. The Polden Hills hoard had a set of four identical pieces. MacGregor (ibid.) suggests that they were used to link the trace leathers on a chariot onto the body of the vehicle, having the function that buckles were later to assume.

Most toggles occur in the south of England (MacGregor 1976, map 4) and were probably used at the time of the conquest. All the southern examples of toggles were decorated with *champlevé* enamelling (Spratling 1972, 122–3). Decoration on each toggle is slightly different, and the shape varies. The ornament on this example, as is usual, is on one face only, presumably the side that showed in use. It consists of enamel inlay, outlined with incised lines; the ornament here is more elaborate than on most examples, being on the central panel, the terminal ends and on the waisted sections. The central panel has a quatrefoil design, like one from Silchester (ibid., no. 240), though here the quatrefoil design of four petals is outlined by incised lines, within which are curved glass inlays ending in circles. The quatrefoil is surrounded by curved-sided triangles. A line of five small triangles

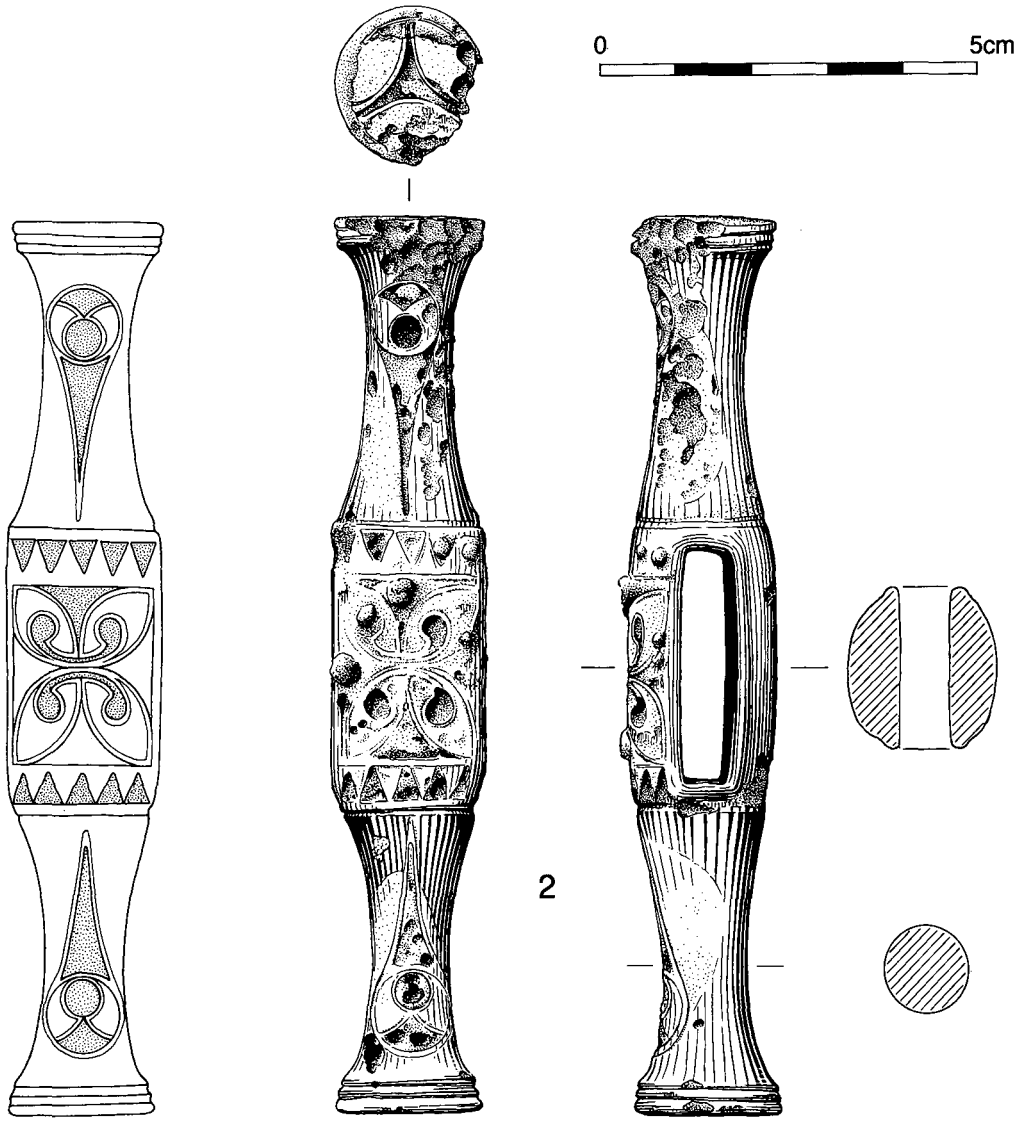


FIG. 52. Toggle from the main burial pit. Scale 1:1.

divides the central panel from the sides where long triangular settings are surmounted by a circle and a pelta. The flat ends of the terminals each have a curved-sided triangle with glass inlay. No other toggle has three ridges on the terminal as here, though the example from Polden Hill has one (ibid., no. 237).

All the settings are outlined with incised lines, as with the bridle bit, although these are rather more expertly done. The bit and toggle are likely to be a pair, made at the same time (*c.* A.D. 45) and could have been made in the same workshop, though the incising may have been done by different craftsmen. There is no question about local manufacture (Bateson 1981, 116).

The association of the toggle with a bit used by a riding pony might argue against MacGregor's suggestion that these toggles were part of chariot equipment; it is also a match for the bit as if they were part of a harnesss set. However, there is also a nave hoop for a wheel from the grave (see below).

Length 112 mm; length of hole 28 mm.

Metallurgical analysis of the toggle, by J. P. Northover

The toggle was analysed from a single drilled sample (#2) (TABLE 8)

TABLE 8. METALLURGICAL ANALYSIS OF THE FOLLY LANE TOGGLE

	Fe	Co	Ni	Cu	Zn	As	Sb	Sn	Ag	Bi	Pb	Au	S
#2	0.04	0.00	0.03	87.45	0.00	0.26	0.08	12.06	0.08	0.00	0.31	0.005	0.01

The alloy is a cast unleaded bronze typical of pre-Roman Iron Age practice.

3–7. Harness brooch (DAC 194, 197, 193, 134 and DAB 54) (FIGS 53 and 54)

Though badly damaged by melting, these five fragments can be reconstructed as part of a cast bronze harness brooch.[3] It originally had a very large hinged pin and two loops on the underside; the upper side was decorated with *champlevé* inlay.

This would have been a very large harness brooch (width *c.* 180 mm), even larger than the bigger one from the Polden Hill hoard, which is 151 mm across (Brailsford 1975a, fig. 4c). The other is smaller again, at 94 mm. Fox (1958, 124, fig. 76) suggested that these harness brooches were used to fasten a caparison (an ornamental covering spread over the saddle of a horse, with the crupper strap going through the loops). As reconstructed the Folly Lane brooch has a line of rivet holes across the top of the brooch, possibly to attach it to leather (Ian Stead, pers. comm.), or to the caparison (FIG. 54).

Although with such fragmentary pieces, this must remain a tentative reconstruction, the decorative designs (curved-sided triangles, circles and petal shapes) are very similar to other enamelled harness attachments, e.g. strap unions (Spratling 1972, nos. 203–8), although this design is elaborate and complicated. The cut outs in the reconstruction follow typical shapes, such as curved-sided triangles, commas, peltas and trumpet voids. The two halves balance one another. The reconstruction can only be completed by assuming that DAB 54 (FIG. 53, no. 5) was matched by another identical piece which is now missing. None of the pieces join, and it is possible that the brooch was broken up before it was put on the pyre.

Hinge section (DAC 194) (FIG. 53.3)

Part of the hinge remains within the D-shaped fitting and a round topped rivet remains on the left side. Cut out decoration can be seen in part of this piece.

Width of plate 48 mm, length of plate 65 mm, length of hinge 14 mm, width of hinge 9 mm. Distance between spurs of hinge 2 mm.

Other side of the brooch (DAC 197) (FIG. 53.4)

The other side of the brooch has exactly the same ornament and cut out sections. On the back of DAC 197 is an L-shaped prong, originally with a hook to contain the pin, but this has broken off.

Length 65 mm, width 45 mm, width of prong 4 mm, length of prong 12 mm.

The decoration on DAC 194 and 197 is the same. The design is like a face, a red curved-sided triangle for the mouth, with two yellow circles for eyes. These are a continuation of a red spiral coming in from either side and are set within a pointed circle as seen on FIGURE 53.6 (DAC 134). The lower curved triangle is balanced by another above (FIG. 53.5 (DAB 54)). This design, of curved-sided triangle with two circles on either side, is typical of *champlevé* decoration; for example, it is found on strap unions from London, Norton, Suffolk and Westhall, Suffolk (Spratling 1972, nos 203, 204 and 208) and on terrets (ibid., 70, 71 and 75). The design is completed by two small blue circles on what would be the cheeks of the face, and is encircled by an edging strip (width DAC 194 4–5 mm; DAC 197 7–8 mm).

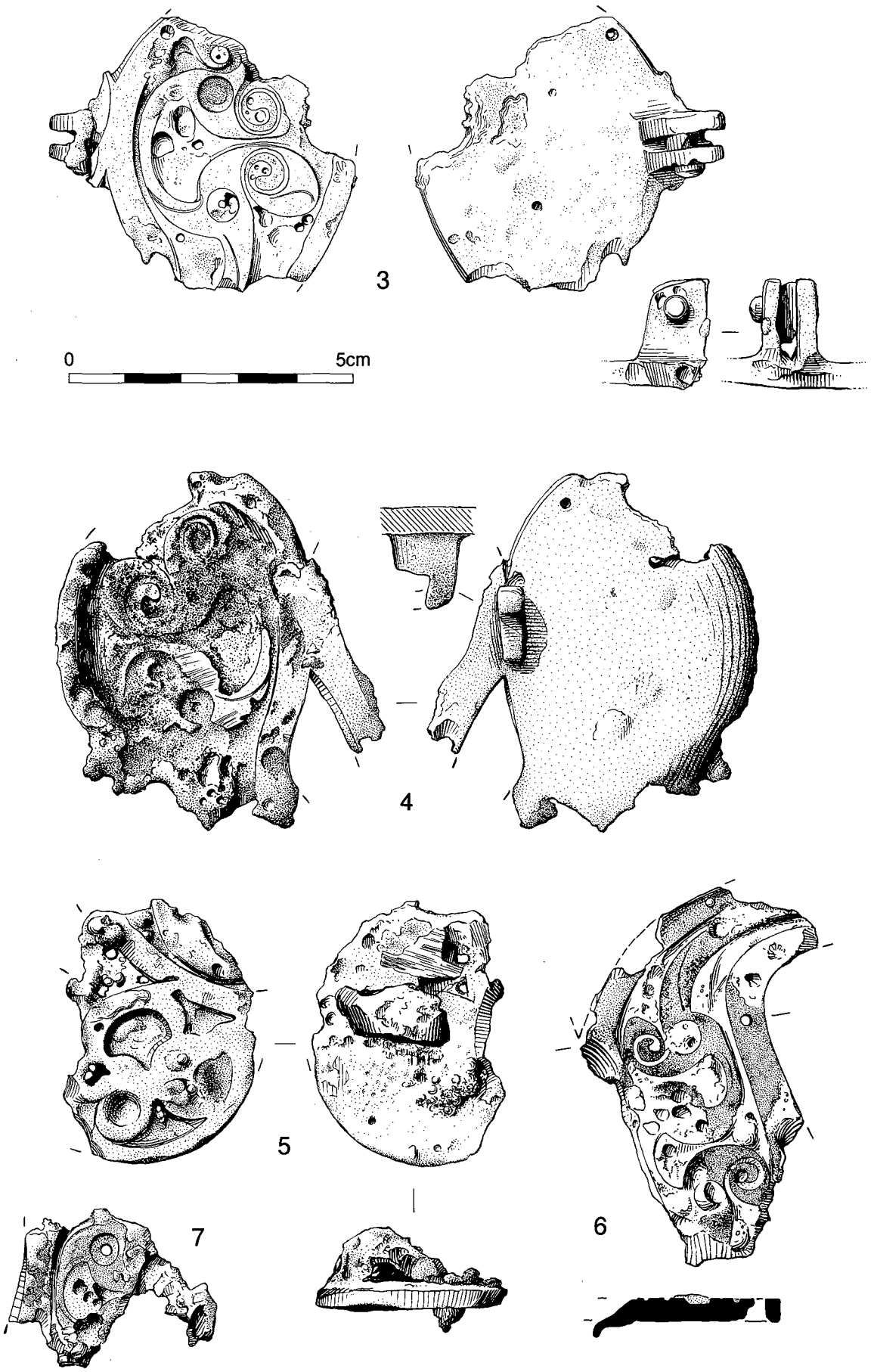


FIG. 53. Harness brooch from the main burial pit. Scale 1:1.

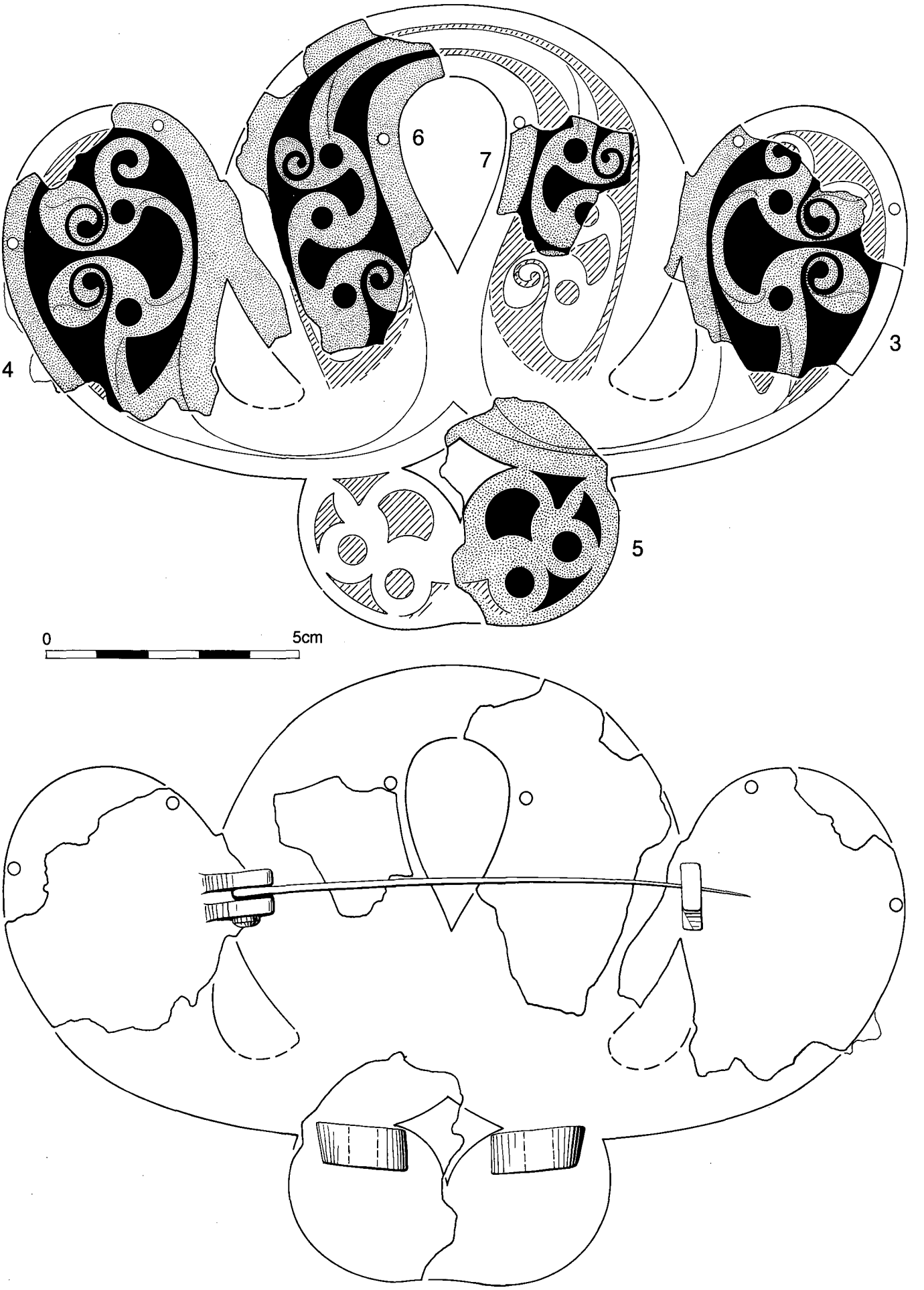


FIG. 54. Reconstruction of harness brooch from the main burial pit.

Lower section of the brooch (DAB 54) (FIG. 53.5)

The lower section of the harness brooch again is inlaid with glass, with curved edge similar to the one from Polden Hill. The reconstruction assumes a balancing pair to this piece. On the reverse is a hook-shaped loop, possibly distorted by heat. The ornament is difficult to see due to melting, but there are certainly two opposing curved-sided triangles, originally inlaid, possibly with two circles between them. Part of the design was cut out.

Length 44 mm, width 33 mm, length of hook 20 mm.

Central section of the brooch (DAC 134) (FIG. 53.6)

Maximum length 60 mm, width 28 mm, thickness varies 2.5–4 mm.

One rivet hole (1.5 mm diameter).

The main elements of the design of the central part of the harness brooch are typical of the late period of Celtic art: two trumpets (curved-sided triangles, with two concave and one convex sides), and two spirals that end in circles. These are enclosed within a pointed circle (a petal open at one side). This pointed circle occurs on many first-century A.D. pieces: e.g. the ends of the design on the Desborough mirror (Fox 1946, fig. 31B), and they form the eyes of Jope's 'leering face' on the Great Chesterford mirror (Stead 1989, 42). They also form part of the design on the Llyn Cerrig Bach shield boss.[4] Most of these examples have a curl ending in a circle. Spirals ending in circles are more common on Irish pieces (e.g. Megaw and Megaw 1989, 235: bit from Attymon).

The design is repeated, not in a mirror image (like the Desborough mirror where the axis is in a straight line down the middle of the design) but in an inverted mirror image along a diagonal axis (FIG. 54). This method of ornament was introduced at the very end of the Iron Age, often on enamelled pieces; a good example is the dragonesque brooch illustrated by Megaw and Megaw (1989, pl. XXII).

Fragment (DAC 193) (FIG. 53.7)

This fragment balances DAC 134. Although fragmentary, it has elements of the same decoration: a curved triangle inlaid with red glass, with the base outlined with an incised line (maximum width 10 mm), and to the left a circle possibly of blue glass (5 mm diameter) with a rivet hole through. The edging strip is 5 mm wide.

Length 36 mm, width 28 mm.

Metallurgical analysis of harness brooch, by J. P. Northover

Four fragments from this brooch were analysed, one with a cut sample (DAC 197: #28) and three (DAC 134, 193-94: #7, #9, #8) with drilled samples (TABLE 9).

TABLE 9. METALLURGICAL ANALYSIS OF THE FOLLY LANE HARNESS BROOCH

	Fe	**Co**	**Ni**	**Cu**	**Zn**	**As**	**Sb**	**Sn**	**Ag**	**Bi**	**Pb**	**Au**	**S**
#7	0.18	0.00	0.02	80.03	18.17	<0.20	0.07	1.07	0.08	0.00	0.31	0.05	0.01
#9	0.21	0.00	0.02	79.96	17.93	<0.20	0.03	1.10	0.52	0.00	0.21	0.00	0.02
#8	0.22	0.0	0.01	79.37	18.51	0.49	0.04	1.03	0.04	0.01	0.23	0.03	0.01
#28	0.15	0.01	0.04	79.16	15.72	<0.20	0.08	1.47	1.05	*0.05*	2.25	0.01	0.01

Since this harness brooch has been reconstructed from non-joining fragments the first function of the analyses is to determine whether the fragments are indeed part of the same object. The results show that there is a strong probability that this has been done correctly. Fragments DAC 134 and 194 (FIG. 53.6 and 3) are clearly the same alloy with just over 18 per cent zinc and 1 per cent tin and low levels of all impurities except iron and lead. DAC 193 (FIG. 53.7) is very similar but with an enhanced silver content, possibly because of the capture of a silver droplet during the cremation, or because of the fusing of a silver inlay. DAC 197 (FIG. 52.4) is more

distant but the relative proportions of tin and zinc relative to the other two are indicative of segregation, while the silver content, as with DAC 193, has been captured either from an inlay or, more probably, from splash of silver falling onto the melting surface during the burning of the pyre. The metallographic examination of DAC 197 (#28) showed an homogenized structure with a large grain size (~ 200 μm) and a few annealing twins; no silver inclusions were visible. This structure indicates prolonged heating under reducing conditions of a structure that had been lightly cold worked; whether it had previously been annealed cannot be determined from this sample. The homogenization process was also sufficient to move all the silver present into solid solution.

The use of brass for such a large piece requires comment. As the zinc content of brass increases, the freezing range, that is the difference between liquidus and solidus temperatures, becomes very short making the filling of moulds with intricate or thin sections more difficult. In Roman technology the higher zinc brasses tend to be used for wrought products and for relatively simple castings. With 18 per cent zinc this brooch is probably just still within the range of what is straightforward to cast, but a bronze or a gunmetal would have been preferable from the casting point of view, especially with some lead. We are again led to consider whether a choice was made on the grounds of colour.

A somewhat smaller but still large plate brooch in the collections of the Verulamium Museum was analysed for comparison.[5] This brooch was in two large joining fragments, both sampled by drilling, and believed to be roughly comparable in date to the harness brooch (TABLE 10).

TABLE 10. METALLURGICAL ANALYSIS OF PLATE BROOCH FROM VERULAMIUM MUSEUM

	Fe	**Co**	**Ni**	**Cu**	**Zn**	**As**	**Sb**	**Sn**	**Ag**	**Bi**	**Pb**	**Au**	**S**
#11	0.13	0.02	0.03	85.96	0.01	<0.20	0.09	13.22	0.09	0.03	0.31	0.04	0.06
#3	0.06	0.05	0.08	87.96	0.01	0.16	0.10	11.36	0.06	0.04	0.05	0.03	0.04

As can be seen the brooch was cast in unleaded bronze and is much more typical of later Iron Age practice in southern Britain. The composition is very similar to that given above for the toggle.

8. *Junction ring* (DAC 15) (FIG. 55)

Tiberio-Claudian harness ring for a cavalry horse (e.g. Bishop 1988, fig. 29). This consists of a ring and four connecting loops, each of which were originally riveted to a leather strap. The ring (diameter 48 mm, internal diameter 25 mm) is ridged around the circumference and also at the top, but not on the underside. The four loops (length 74mm) have a simple rectangular plate which arches up as it is bent through the ring and is then riveted to the strap; one rivet from back to front through the centre and two others through the terminal of the top plate. The thickness of the leather was 4 mm. The top plates were decorated with an inlay of silver, a delicate, repeated pattern of twinned, curling stems ending in pointed leaves, mirroring the silver inlay on the band (no. 11 below). Little of this now remains. The loops through the ring are moulded (Bishop 1988, 102), side ridges with transverse ridges between them.

The loops from this junction most resemble Bishop's group 5: rectangular with a broad decorated band at one end. These were used throughout the first century A.D. Most British examples are of a completely different shape from this (Bishop 1988, figs. 50 and 51), though 5b comes from Colchester and Sheepen and 5e from Newstead.

Bishop illustrates the evidence for Romano-Celtic harness (ibid., 105). The saddle of a Romano-Celtic horse was held in place by straps under the tail and across the breast, to prevent the saddle shifting backward and forwards. This was especially important in the Iron Age and Roman period as stirrups were not used. These straps were joined with phalerae junctions or, as here, ring junctions, two on the haunches and two on the shoulders.

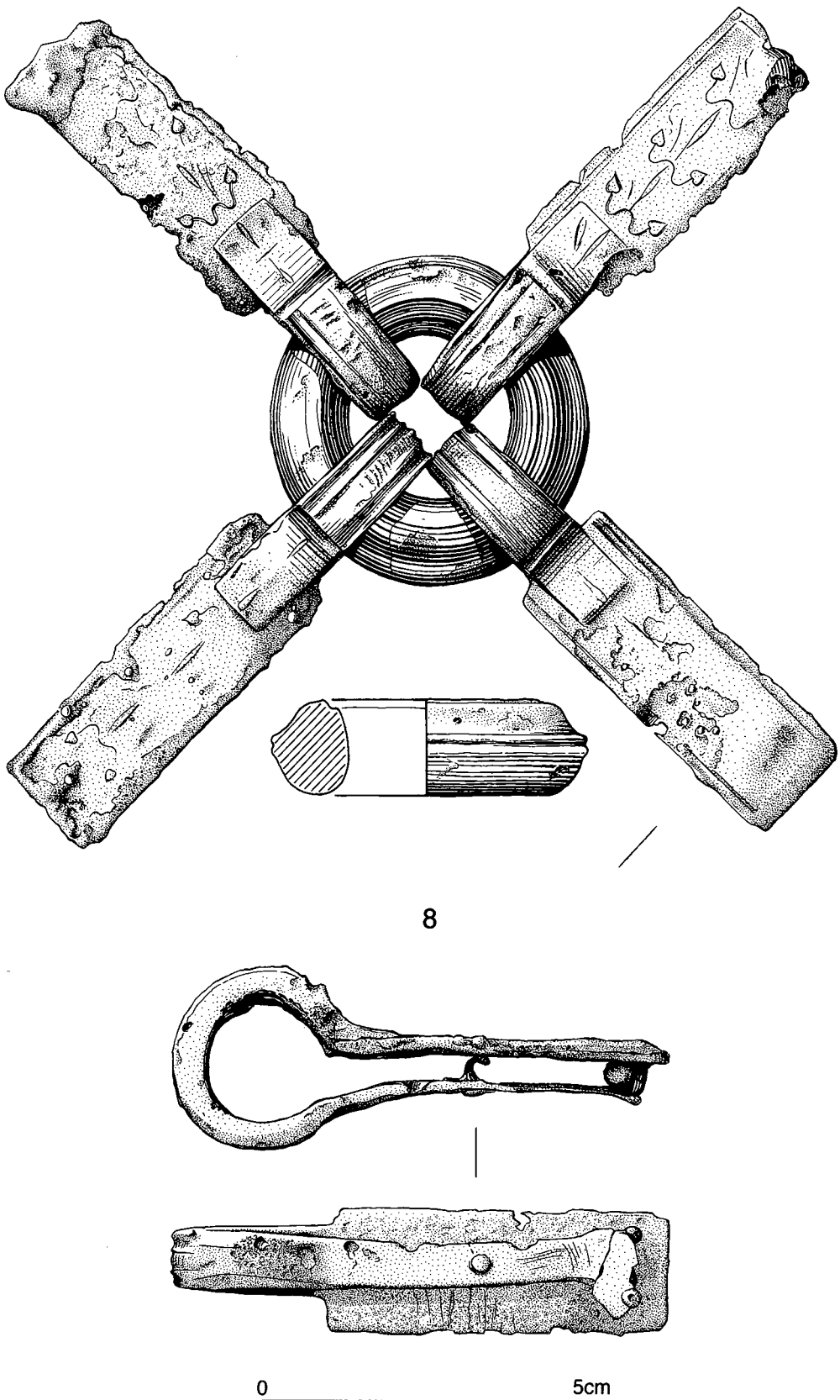


FIG. 55. Junction ring from the main burial pit. Scale 1:1.

It is unusual to find complete junctions as the loops took a great deal of strain and often broke. This again, like the bit, may have been a fairly new piece of equipment.

Metallurgical analysis of junction ring, by J. P. Northover

One sample (#10) was drilled from the junction ring, while two (#27, #26) were cut from two of the strap ends (TABLE 11).

TABLE 11. METALLURGICAL ANALYSIS OF JUNCTION RING

	Fe	Co	Ni	Cu	Zn	As	Sb	Sn	Ag	Bi	Pb	Au	S
#10	0.15	0.00	0.02	82.23	14.53	0.11	0.06	0.56	1.44	0.07	0.72	0.04	0.07
#27	0.10	0.00	0.01	75.31	23.76	0.61	0.03	0.02	0.07	0.03	0.02	0.04	0.00
#26	0.02	0.03	0.01	74.19	0.64	<0.20	0.11	5.76	18.22	0.00	0.80	0.08	0.16

This group of compositions illustrates very clearly the problems of analysing material that has been partially melted and in contact with other molten or near molten pieces of metal. Sample FL26 clearly contains adventitious material; certainly some of this is silver but from this sample the possibility cannot be excluded that the strap end was made of bronze. However, unless deliberately patinated, a bronze of this description would be very different in colour from the strap-end. FL27 (the strap-end) is a clean unleaded brass whose composition agrees very well with the composition of the few analysed examples of brass stock from early Roman Britain (see below, p. 176). The brass can be regarded as fresh from stock and uncontaminated with bronze or other metals. It also matches the composition of small Roman or Romanized military and harness fittings. The junction ring itself is also a brass but the 1.44 per cent silver strongly indicates contamination with either silver inlay or the shower of silver droplets which penetrated the cremation. The loss of zinc and the acquisition of small amounts of lead and tin could also have taken place in the fire; more probably the ring was actually a different alloy.

9. *Keyhole strap fastener* (DAB 20) (FIG. 56.9)

A strap fastener from cavalry harness of first-century A.D. type. Cast ?brass. The fitting has two decorative finials on either side. This end is separated from the strap terminal by a rectangular moulding decorated with incised lines. The terminal is simple, rectangular and undecorated except for one incised line around the edge. The leather strap (thickness 4 mm) fitted under a pointed curved extension and was held in place by two rivets, one of which still survives. The entire fastener appears to have been gilded but the surface is very corroded.

This fastener would have been twisted to fit over a T-shaped strap terminal to join the strap together (see Bishop 1988, fig. 26, nos. 7 and 8). This was a specialized fitting as it was not adjustable, though Bishop does not suggest where on the harness these fasteners would have been placed. Similar fasteners are used on modern horse blankets.

Length 66 mm, width 18 mm, width of moulding 25 mm.

10. *Fragmentary iron buckle* (DAC 202, 203) (FIG. 56.10)

Missing the loop. Made from a rectangular section piece of iron rod. The square section tongue was simply bent round the rod and overlapped. The strap would have been at least 55 mm wide, with 5 mm holes for the tongue; this is very wide for a belt, so this was probably a harness strap, perhaps for the girth. Bishop illustrates military girth buckles; they are the same size as this example, but are cast with a separate iron spindle on which the tongue was fitted (Bishop 1988, fig. 36).

Length of tongue 33 mm, thickness of tongue 5 mm maximum, buckle at least 657 mm wide and 290 mm long, but ends broken.

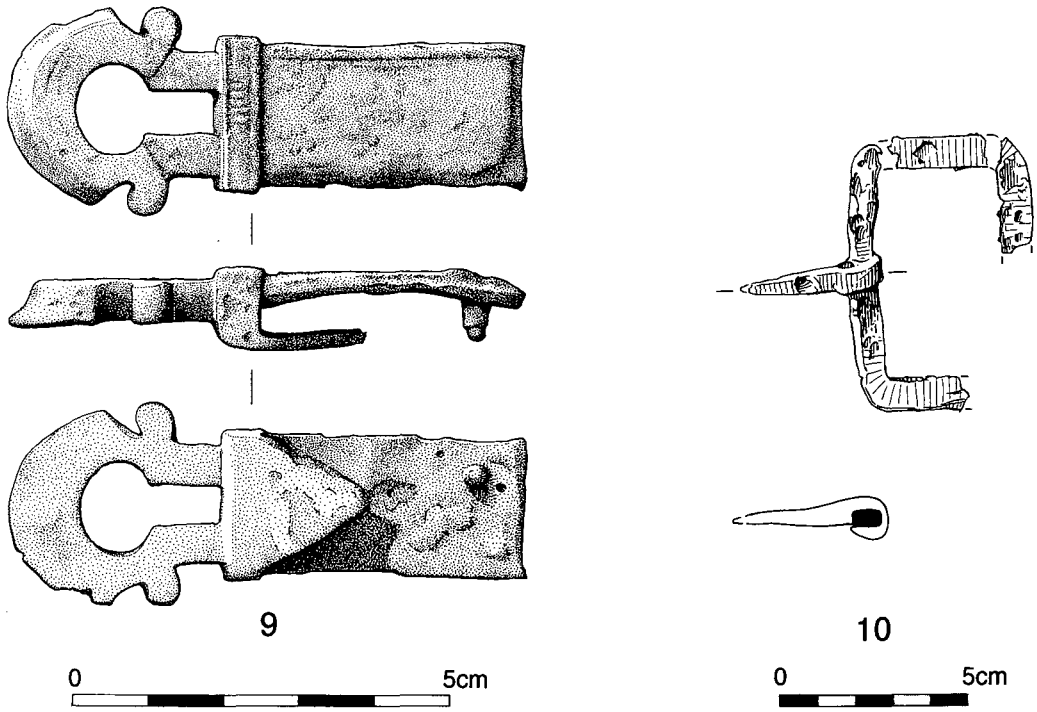


FIG. 56. Pyre goods from the main burial pit. Scale No. 9, 1:1; No. 10, 1:2.

11. Copper alloy nave band (DAB 21) (FIG. 57)

A cast copper alloy band, originally a circular binding, but so deliberately flattened before burial that it has cracked. One edge is thickened and squared off, possibly by hammering, and is ridged. The other edge has an incised line. The band is decorated with a repeating pattern in inlaid silver around the entire circumference, repeated eight times. Though very corroded it is possible to say that each repeat is slightly different, so the design was probably cut into the cold metal rather than cast onto the surface. The design is Roman rather than native: a plant with two pointed leaves between which rises the stem with two curly tendrils ending in ivy leaves. The same motif is found on the junction ring.

Width 59 mm; original circumference 391 mm; original diameter 130 mm; thickness 1 mm.

The design is intended to be seen from the side (see reconstruction FIG. 57). This object is probably a nave band, a binding over the outer end of a wheel hub. Iron Age and Roman wheel hubs are fairly consistent in diameter from 130 to 180 mm (Piggott 1983, 213), so this is at the smaller end of the spectrum. Later Iron Age nave bands are simple affairs compared to those of Hallstatt date, usually plain bands of iron or bronze, although some, for example from Llyn Cerrig Bach (Fox 1946, pl. XVIII), are cordonned.

Wheels in burials were usually deposited complete, though dismantled from their vehicles, for example in the Yorkshire burials (Stead 1965, 31–2; Stead 1991). In contrast, this nave band had been deliberately removed (if indeed it had ever been used) and crushed, probably by being trodden on, before being put in the grave. This suggests a token presence to represent a wheel or waggon, rather than the deposition of a complete item.

Other possible pieces of nave band (not illustrated)

DAC 135, DAC+ 4, DAC 138. Three fragments possibly of the same object, melted and corroded. Possibly part of another nave band, as DAB 21. All three have the same thickened, squared-off edge. None have any remains of inlay.

DAC+ 4. Piece of band edge. Width at least 31 mm.

DAC 135. Width at least 35 mm. Appears to have an edge on the other side, which would

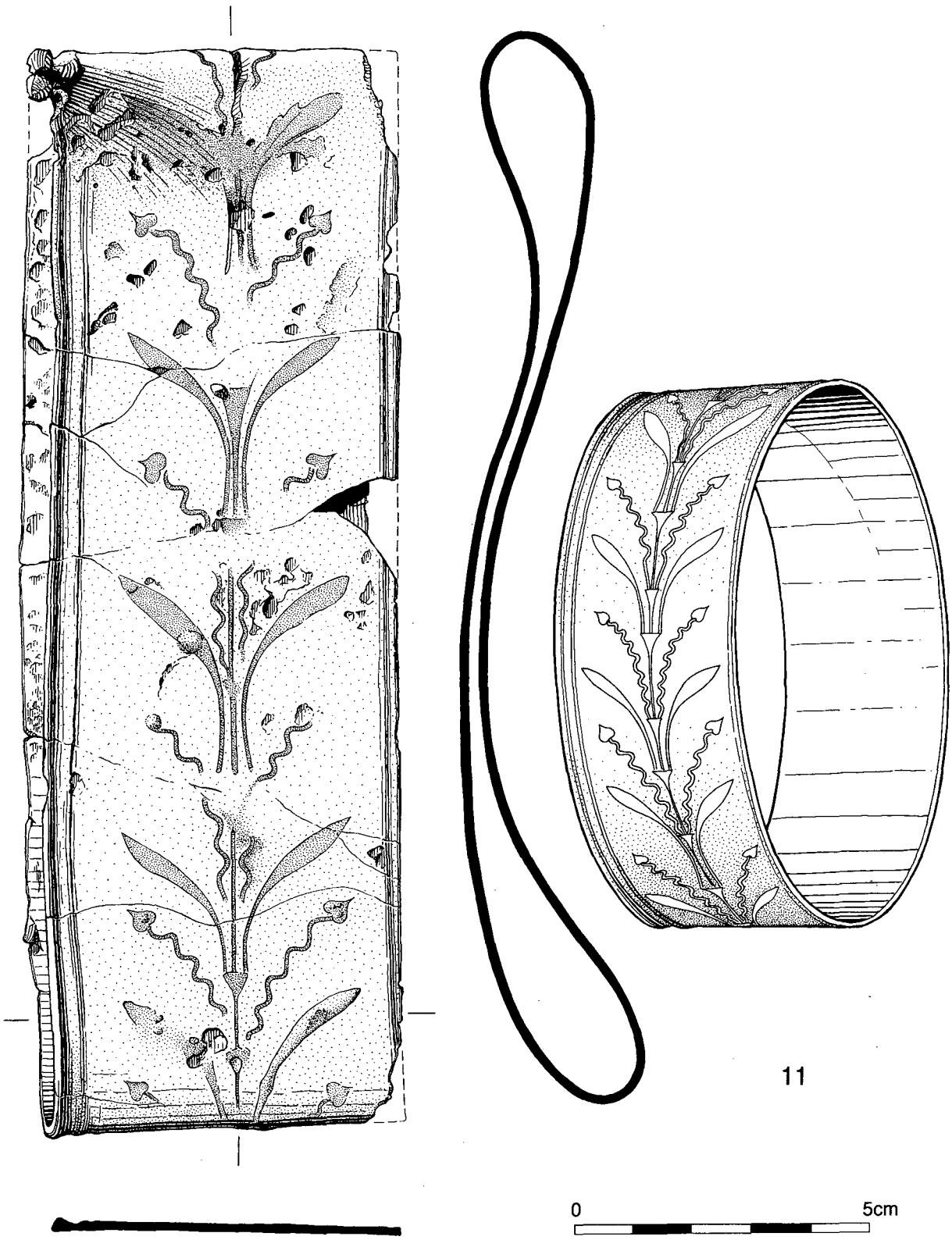


FIG. 57. Nave band, and reconstruction, from the main burial pit. Scale 1:1.

make it only 35 mm wide, but this is probably where it has melted and cooled against a flat surface.

DAC 138. Width at least 27 mm.

DAC 3, 78, 218. Other fragments.

DAC 17a. Curved edge piece with thickened rim and possible inlay of ivy leaf. 36 mm by 37 mm.

DAC 196, 221, 228. Fragments of band similar to DAB 21, with same squared-off edges and ridges, but much narrower (width 35–7 mm). One piece (DAC 228) appears to have a series of raised loops in a continuous figure-of-eight along the centre; the others appear undecorated, but are very corroded. Only DAC 228 is curved, the others are flat. Perhaps a nave band for the inner edge of the wheel. Length 196: 48 mm, 221: 75 mm, 228: 63 mm. Thickness 1.5-2 mm.

Metallurgical analysis of inlaid copper alloy nave bands, by J. P. Northover

All samples were cut; #22 was taken from DAB 21 and was analysed for both substrate and inlay; #23 was taken from DAC 135 and #34 from DAC 138 (TABLE 12).

TABLE 12. METALLURGICAL ANALYSIS OF THE INLAID COPPER ALLOY NAVE BANDS

	Fe	**Co**	**Ni**	**Cu**	**Zn**	**As**	**Sb**	**Sn**	**Ag**	**Bi**	**Pb**	**Au**	**S**
#22	0.02	0.03	0.00	87.14	12.05	<0.20	0.04	0.66	0.00	0.01	0.04	0.00	0.01
#23	*0.00*	*0.01*	*0.01*	*76.05*	*0.15*	*<0.20*	*0.05*	*1.40*	*6.97*	*0.01*	*0.14*	*0.01*	*0.01*
#34	*0.00*	*0.00*	*0.02*	*82.23*	*0.20*	*0.14*	*0.02*	*0.03*	*0.86*	*0.00*	*0.00*	*0.02*	*0.00*
#22	0.00	0.00	0.00	2.12	0.03	<0.20	0.00	0.00	97.05	0.06	0.04	0.69	0.00

NOTE: The use of italics in the above table denotes the analysis of a sample consisting only of corrosion products.

All copper alloy parts of these bands were badly corroded and it is not possible to determine the original alloy accurately. #22 contained sufficient metal for a partial analysis indicating that the metal was a brass; judging by the colour the true zinc content was probably in the range 15–18 per cent. Unfortunately none of the surviving particles of metal in #22 is big enough to encompass a single grain so that the method of manufacture of the band cannot be determined; the use of brass, though, suggests that the metal was wrought sheet rather than a casting. In either case the metal has become sufficiently heated, perhaps by hot ash rather than the cremation itself, to produce a large grain size. The two corroded samples, #23 and #24 are mostly cuprite and other copper corrosion products containing a network of intermetallic particles. The corrosion products are optically similar to those in #22 so that the conclusion that these too derive from brass is supported, while the absence of zinc need not contradict this. The metallic particles are probably redeposited silver from the corrosion inlay, and silver-zinc intermetallics from the reaction of the inlay with the brass substrate.

The silver alloy used in the inlay is of high fineness with an addition of only 2.12 per cent of copper. This alloy is typical for first-century A.D. silver coins (Walker 1976) and for high quality silverware in the Roman world (see Baratte *et al.* 1985). The metallographic examination of the inlay showed both a very large grain size and also a reaction between the inlay and the brass substrate, implying lengthy heating. This heating is most probably the associated with the cremation process and not the manufacture of the bands. In the resultant fully annealed state they would have been too soft for practical use.

12. Fitment, possibly a cart pole end (DAC 115) (FIG. 58.12)

Part of a copper alloy sheet object, arch-shaped. There are two convex mouldings; these and the central portion are outlined with ridges. On both sides the edges are thickened, but on one the edge is also slightly flattened and inturned. There are no rivet holes or other

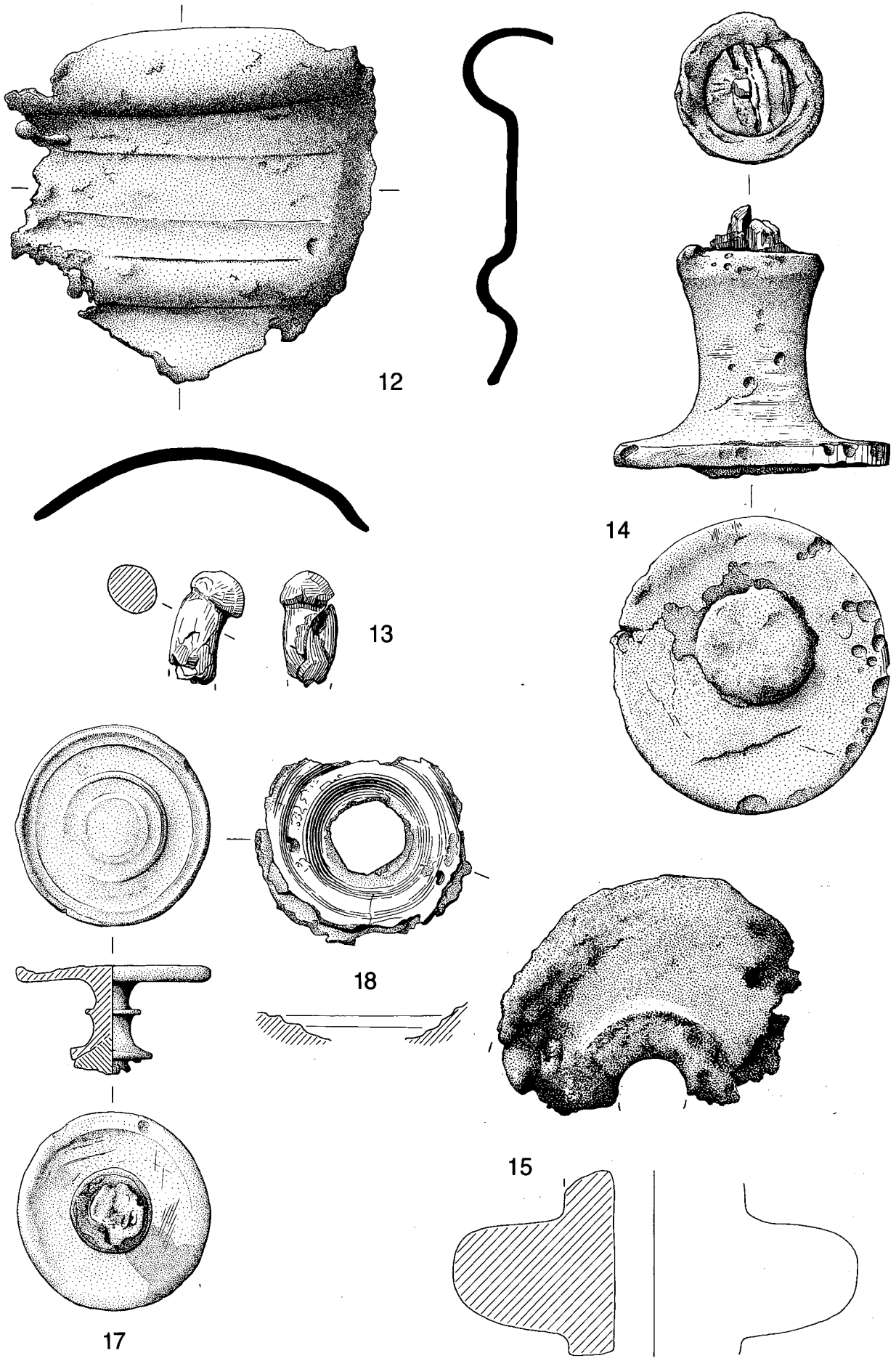


FIG. 58. Pyre goods from the main burial pit. Scale 1:1 except no. 13, 1:2, shaft.

signs of attachment. The object has been in the pyre and both sides are melted. It was either made from sheet bronze with the flanges produced by *repoussé* and the ridges by turning, or perhaps more likely, in view of the thickness (1 mm), cast with the flanges and ridges in place. Very little of the original surface survives, but within the base are scraping marks consistent with casting.

It is difficult to identify this object, but in view of the predominance of horse equipment in the grave, this may be a similar object. It seems ideally designed to fit the top side of a large round pole, like the pole of a chariot. Objects from the Somme Bionne burial are similar to this, six arched mouldings each with a convex moulding, were found fitted together. Their internal diameter is exactly the same (60 mm). These are of course from a much earlier date, but very similar in shape. The arch was buried between the bridle bits in the place where the end of the pole would have been (Morel 1898, ML1401–6, Planche, 12, figs. 11–13; see also Piggott 1983, 217).

Diameter of largest moulding 90 mm; inner diameter 60 mm; length 60 mm.

Furniture

13. *Firedog* (DAG 131) (FIG. 58.13 illustrated at half size)

Terminal of the horn of an iron firedog, similar to those from British Iron Age graves, such as Baldock, Hertfordshire (Stead and Rigby 1986, 58–60). These are designed as a horizontal bar, with two uprights on either side supported on two feet and surmounted by a bull's head with knobbed horns. The knob here is circular and mushroom-shaped with the horn circular in section. No other pieces from the grave are likely to be part of a firedog.

Length 40 mm, diameter of shank 20 mm.

Fittings for furniture

14. *Cast copper alloy furniture foot* (DAC 31a) (FIG. 58.14)

Turning marks can clearly be seen on the upper surface. In the top is a 16 mm diameter hole into which has been fitted the leg, identified as ash (*Fraxinus* sp.) from remains surviving due to impregnation by bronze and iron. The end of the leg was turned to the right diameter to make a tenon to fit the hole, ash being an excellent wood for turning. The leg could have been this diameter all the way up, or could have been as wide as the top of the foot (25 mm). An iron pin 3 mm square was thrust right up through the base of the foot and into the wooden leg. The lower end of the pin was probably split and turned under. The foot is splayed at the base (diameter 50 mm) and slightly dished underneath so the iron pin probably fitted snugly, though it is now a large mass of protruding corrosion. The top edge is slightly angled.

This is almost certainly a furniture foot, not a handle, as the lower surface was obviously not intended to be seen. It was probably for a small chair rather than a couch or table as the leg was very slender and unable to take much weight. Decorations for a wooden chair leg from the Corbridge hoard were for a leg of exactly the same diameter (Allason-Jones and Bishop 1988, 77).[6]

*15. *Copper alloy fitting for a wooden leg of a couch or chair* (DAC 31b) (FIG. 58.15)

From the same area as no. 14, the foot. Very vesicular from having been burnt, and some melting. Half of a circular chair leg decoration with one surviving cordon, though both top and bottom are broken and it was probably longer.

Like the leg decorations from the Corbridge hoard, which this resembles (ibid.), this fitting is very heavy and contains a moderate proportion of lead (see below). The internal diameter of the hole (14 mm) is smaller than the tenon in the foot, but they are probably from the same piece of furniture; the leg probably being turned to different sizes or made in separate pieces and jointed. This would make the leg extremely weak, unless there was

a sleeve to strengthen the leg. In this case, it appears that ivory sections, which also prevented the bronze sections from sliding down the leg, were used for this purpose (see below, no. 52).

Liversidge illustrates a sarcophagus with a carving of a couch that has leg ornaments of this type: they were extremely large and heavy, and would have protruded somewhat (1955, pl. 17). It is interesting that Roman furniture was already in use in Britain in A.D. 50, though of course furniture is known from Iron Age northern European graves, for example the unique wheeled bronze couch from the grave at Hochdorf, Baden-Wurrtemberg, *c.* 550 B.C. (Biel 1985, 92–113, 163). Occasional classical references imply that the native peoples sat on the ground (Diodorus Siculus, *Library of History*, V, 28–30), but this was not always the case: the remains of a possible folding stool came from the Lexden Tumulus (Foster 1986).

Metallurgical analysis of furniture foot and fitting (DAC 31a–b), *by* J. P. Northover

A single sample, #5, was drilled from the foot, and one, #35, cut from the circular fitting (TABLE 13).

TABLE 13. METALLURGICAL ANALYSIS OF FURNITURE FOOT AND FITTING

	Fe	Co	Ni	Cu	Zn	As	Sb	Sn	Ag	Bi	Pb	Au	S
#5	0.09	0.01	0.02	82.43	8.44	<0.20	0.08	7.74	0.08	0.01	1.08	0.02	0.01
35	0.43	0.01	0.01	83.93	8.39	<0.20	0.08	6.06	0.74	0.00	0.32	0.02	0.01

The close similarity of these two components supports the contention that they are part of the same assembly. The alloy is a gunmetal with a moderate lead addition. It is a good choice for a casting alloy, although modern equivalents generally have a lower total of tin and zinc. The addition of a small amount of lead would offer a small improvement to already satisfactory casting behaviour. It will also make it free-machining and turning marks have been noted on the top of the casting for the foot, presumably from skimming the top and truing it up to fit the attached leg. As discussed below (see p. 176) the context of this item provides a useful chronological marker in the development of ternary and quaternary casting alloys based on the Cu–Sn–Zn system. The differences in composition may relate to the thermal history of the two pieces. The metallographic study of #35 revealed that it had been strongly heated but in mainly reducing conditions. Both iron and silver could have been taken in by diffusion during the burning of the pyre.

**16. *Square section iron bar, broken at both ends* (DAP 38) (FIG. 59.16 illustrated at half size)

One end is at an angle, though there is no reason why this should not have been bent. The bar passes through a piece of wood preserved by replacement with iron, with the grain of the wood parallel to the bar. The wood was a fairly substantial piece, 50 mm long and at least 18 mm thick; there are no flat surfaces.

The wood was examined by Su Johnson (Department of Archaeology, University of Wales, Lampeter). It was not possible to make a definite identification as only three pores and a possible ray were visible. It was, however, not a conifer, so it was a hardwood. It was also not oak, ash or elm. It is possibly maple or cherry (or also hazel/alder, but these are not usually used for furniture).

There are various alternatives for this object. It is possibly a broken cross strut for a piece of furniture, e.g. a chair, for which there are other fittings from the grave, or it could also be part of an item such as a folding stool (e.g. from Lexden (Foster 1986)). Alternatively, the wood could be decorative rather than structural such as a turned wooden knob. Cherry wood can be used for decoration in small pieces.

Length 255 mm. Thickness varies from 8 to 10 mm, probably due to corrosion.

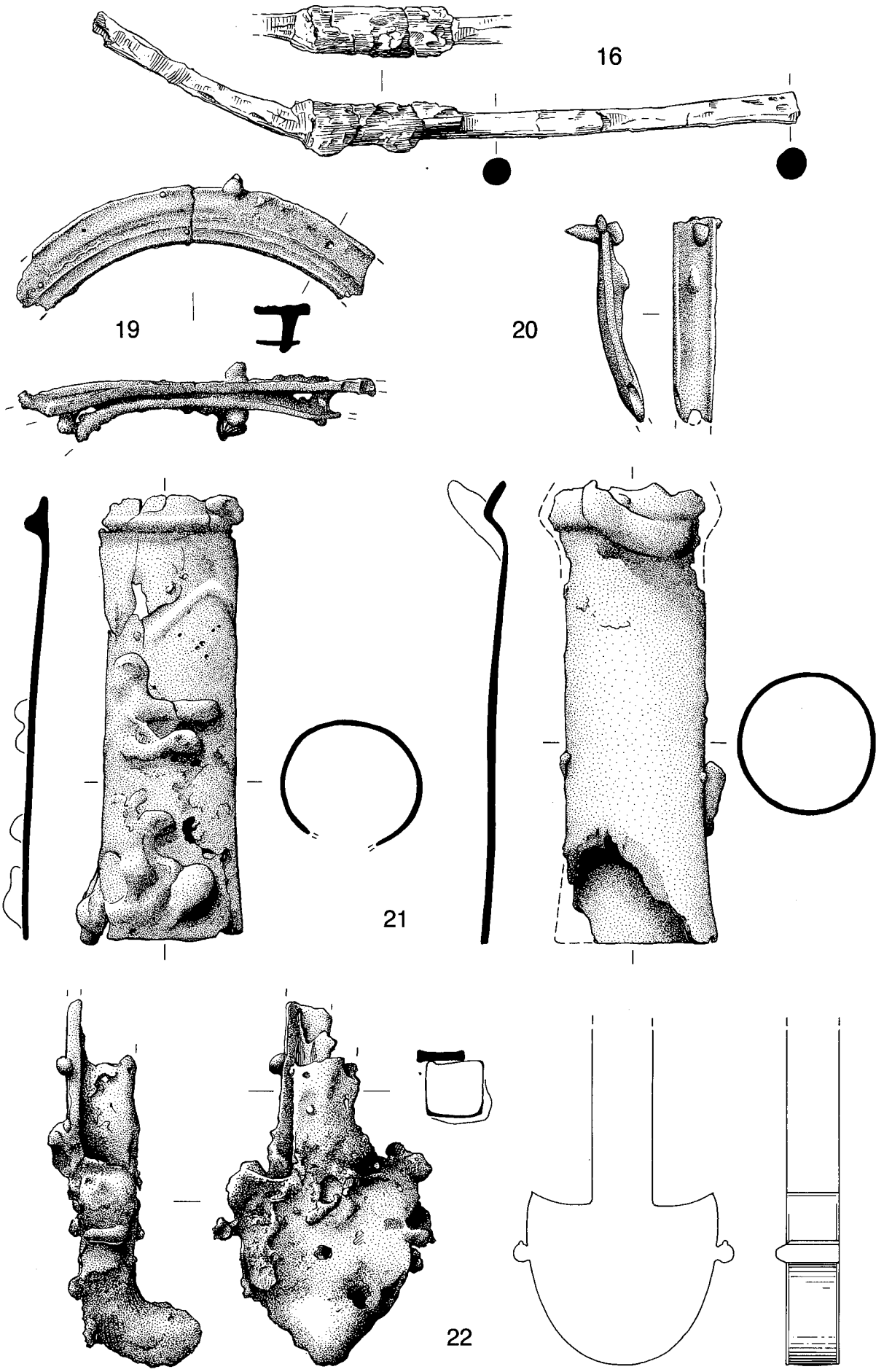


FIG. 59. Pyre goods from the main burial pit. Scale 1:1 except no. 16, 1:2, shaft.

Possible box fitments

*17. *Silver handle* (DAG 129) (FIG. 58.17)

A pretty and delicate silver handle, flat circular top decorated with two raised concentric circles and with a raised edge. The stem has one cordon. An iron shank of unknown shape (now corroded) protrudes from the base of the stem. There are a few deep scratches on the underside of the top, but it is otherwise in good condition. For a small drawer or lid. Found on the floor of the funerary shaft.

Diameter 35 mm, length 18 mm, diameter of base 15 mm.

Metallurgical analysis of handle, by J. P. Northover

The metal appears to be silver. A single sample, #30, was cut from the base but on mounting and polishing was seen to consist mostly of corrosion products; cracks within the corroded mass were lined with redeposited silver, and small clusters of intermetallics were also visible. Despite the corroded state the sample was still analysed (TABLE 14).

TABLE 14. METALLURGICAL ANALYSIS OF HANDLE

	Fe	Co	Ni	Cu	Zn	As	Sb	Sn	Ag	Bi	Pb	Au	S
#30	*0.06*	*0.02*	*0.02*	*0.68*	*0.44*	*<0.20*	*0.00*	*63.81*	*4.46*	*0.05*	*3.17*	*0.01*	*0.03*

NOTE: The use of italics in the above table denotes the analysis of a sample consisting mainly of corrosion products.

The corrosion product mainly consists of hydrated tin oxides; the lead shows that the alloy was originally pewter or solder, and the silver is a measure of the presence of redeposited silver. The intermetallics are probably from the copper-tin system. It is assumed that the metal was solder used to make a joint between the handle and the silver washer described below.

18. Silver washer (DAC 53) FIG. 58.18

Sheet silver disc, slightly concave, decorated with three *repoussé* concentric raised circles. Originally laid on an iron object that was covered in bronze sheet. An oval hole in the centre (maximum length 14 mm), now irregular and corroded. One side of the disc has been flatttened by a blow that has left parallel striations on the surface. Probably a washer for the handle DAG 129; the hole is the size of the handle base.

Maximum diameter 37 mm.

Metallurgical analysis of silver washer, by J. P. Northover

A single sample, #31, was cut from the edge of the washer (TABLE 15).

TABLE 15. METALLURGICAL ANALYSIS OF SILVER WASHER

	Fe	Co	Ni	Cu	Zn	As	Sb	Sn	Ag	Bi	Pb	Au	S
#31	0.00	0.00	0.02	3.39	0.03	<0.20	0.00	0.00	95.36	0.06	0.15	0.97	0.02

This alloy is very similar to that used for the inlay on the nave-band, being of high fineness with a significant gold impurity. The metallographic examination showed fragments of worked and annealed silver sheet, heavy, general and intergranular corrosion embedded in a mass of corrosion products, probably silver chloride but perhaps also containing some tin oxides. The small grain size of the silver fragments, 30–50μm, shows that this piece had not been heated in the cremation but must have become detached and rolled aside at an early stage.

19–20. Pieces of flanged binding (FIG. 59.20)

There are sixty-four fragments of copper alloy flanged binding, probably all from the same object (TABLE 16). Total surviving length 1646 mm. Each piece has both edges slightly raised. There is a range of widths from 7–9 mm; this is probably due to distortion, the original width being 8 mm. The individual lengths were long: there are few rivet holes, only six in all, each with a diameter of 2 mm; one piece has two holes 30 mm apart, but there are lengths of 72 mm without a hole. The binding is flat, so cannot have been for a bucket, unless attached vertically, which would have been unusual and they are not particularly decorative. They are most likely, therefore, to have been for a flat object such as a box or casket. However, there are no corner pieces, though one end piece is cut at an angle. Some fragments are distorted by melting, but none were deliberately bent, so the object was not broken up before being put on the pyre.

TABLE 16. FLANGED BINDING

Number	Lengths in mm	Total length in mm	Comments
DAB 36		16	
DAB 29		29	
DAB 72		25	
DAB 73		28	
DAC 17	28, 17, 25, 27	97	
DAC 21	20, 25	45	
DAC 31	31, 20, 16, 23, 17, 18, 42	167	With one rivet hole
DAC 62		30	
DAC 78	18, 23, 15, 10	66	
DAC 79		13	
DAC 80	62 x 3, 55 x 2; 72 x 2; 34 x 2; 31, 47, 24, 38, 28, 10, 24, 10	720	Two with rivet holes
DAC 81		27	
DAC 119		27	
DAC 136		35	Two rivet holes, 30 mm apart, one with rivet still in place 10 mm long. Illustrated, FIG. 59.20.
DAC 180	35, 28	63	
DAC 184	42, 35	77	
DAC 217	25, 15	40	
DAC 218	32, 15, 34, 27	108	
DAC 230		18	End possibly cut off at an angle. One rivet hole 2.5 mm across.
DAC 232		15	
	TOTAL	1646 mm	

Decorated sheet (not illustrated)

Seven fragments, none of which join, of a panel of thin sheet bronze, decorated with tiny incised lozenges (length 6 mm), with the triangles (3 mm) between decorated with punched dots. The ornament ends with an incised line. The entire decorated panel was probably not more than 40 mm across. One of the pieces has an edge with an impression left by a ridged piece of binding, parallel to the decoration; perhaps the flanged binding (above).

Basketry or hatched lines are commonly engraved on Iron Age metalwork, for example the Tal-y-Llyn shield mount (Megaw and Megaw 1989, 214) and mirrors (ibid., 212).

Punched dots (*pointillé* ornament) are less common, but are used occasionally in the late Iron Age to enhance enamelled decoration (Spratling 1972, 267), on terrets, bits (ibid., no. 173) and strap unions (ibid., nos. 203–4). These pointing panels are, however, all contained within curved lines. This decoration of triangles and lozenges is more familiar from objects of Hallstatt date (ibid., 29), rather than Iron Age or Roman date.

DAB 60. Four fragments, 11.5 mm by 8 mm, 5 mm by 7 mm, 6 mm by 9 mm, 7 mm by 3 mm.

DAC 81. Two fragments. 13 mm by 12.5 mm, 12 mm by 11 mm (with impression of binding on edge at right-angles to the decoration).

DAC 232. One fragment with only dots surviving.

Decorative carpenters' pins (not illustrated)

Pins with circular section bronze shanks and decorative copper heads.

DAC 82. Length 18 mm (incomplete), shank 2 mm, head 6 mm.

DAC 233. Head 4.5 mm, length 15 mm (incomplete).

DAC 233. Head 10 mm, length 15 mm.

Copper or bronze carpenters' pins (not illustrated)

Pins with circular section shanks, flattened ends and small rectangular heads, varying 2-4 mm in length: DAC 79. Complete pin length 15 mm, head 3 mm. DAC 79. Another length 14 mm, head 4 mm. DAB 62. Another length 14 mm, diameter of head 4 mm. DAC 180. Another. DAB 74. Another. DAC 233. Two others.

Miscellaneous objects

21. *Two cast copper alloy cylinders, slightly tapering* (DAC 33) (FIG. 59.21)

Both cylinders have been in the pyre and melted slightly. Around the top end of each is a distinct convex ridge and the rim is thickened. Both have regular ripples internally. *Cylinder a* has a thickened rim and a slightly splayed base. It has a complete circumference and shows no sign of a join, so must have been cast rather than made of sheet; the thickness also suggests this (1 mm). *Cylinder b* is incomplete. It appears to be decorated by a raised zig-zag, though corrosion and melting make this uncertain.

The splayed end of *Cylinder a* fits exactly over the top of *Cylinder b*, resting on the ridge. This suggests that they were segments of a long tube.

a Length 74 mm, internal diameter of base 24 mm. *b* Length 77 mm, internal diameter of base 24 mm.

Other cylinder fragments (not illustrated)

DAB 9. Four fragments with raised *repoussé* ridge, exactly same diameter. One 17 mm wide, another 14 mm wide, two fragments.

DAB 63. One fragment with ridge, four of body of cylinder, one rippled internally as DAC 33.

DAC 117. Much distorted and melted, 40 mm wide.

DAC 216. Possible piece of cylinder, the bottom edge as there is no ridge. It is possibly the missing part of DAC 33a, into which it fits, though the edges are melted. Maximum length 16 mm.

DAC 227. Probable fragment, of same diameter with ridge. Length 20 mm, width 24 mm.

Interpretation

There are three possible interpretations of these tubes: part of a musical instrument; furniture fittings; or part of a sceptre.

Trumpet: They could conceivably be two segments from a wind instrument. Iron Age

trumpets, e.g. that from Llyn Cerrig Bach (Fox 1946, 44–5, 86–7) and Ireland, are of a very different construction, being fine, thin, curving and made of sheet bronze bent round in a much longer tube and riveted at the back. These cylinders seem more similar to the war trumpets or carnyxes figured on the Gundestrup cauldron (Klindt-Jensen 1979, 30), straight tubes with wide animal mouths. Megaw (1991) discusses the representations of the vertically held carnyx. However, the two carnyx sections known are also of thin soldered sheet metal (Spratling 1972, 261), and there is a sheet metal carnyx mouth in the shape of a boar's head from Deskford, Banff (Megaw 1970, 160). The Folly Lane sections are possibly too thick (2 mm) for a long item like a carnyx, which would make it very heavy (Dr Fraser Hunter, pers. comm.). They are more likely to be from a smaller instrument, or a horizontally played instrument. Roman trumpets (the *tuba*, a straight trumpet and *lituus*, curved) were similarly segmented and were played horizontally (Liversidge 1968, 358–9). A ceramic model of a small trumpet-like instrument, which looks similar to the fragments from Folly Lane, came from Grafesenque (Pinette 1993, 80). This has five tubular sections divided by raised rings; at one end it curves slightly and ends in an expanded trumpet. It is suggested (ibid.) that the model is the same size as a metal trumpet; in this case the length is 320 mm, each section 40 mm, so slightly smaller than the Folly Lane segments. Two metal trumpets illustrated by Pinette (ibid., 80, 83) are less similar, being tapering and highly decorated, but again they are formed in sections with expanded rings joining each section. Other archaeological examples come from Corbridge (Allason-Jones 1988, fig. 80 and p. 170), which is 165 mm long, with a possible mouthpiece at the narrower end, and grave D at Goeblingen-Nospelt. Interestingly, the occupant of this grave was a horseman (Metzler *et al.* 1991, 113, fig. 86, dating *c.* 50–25 B.C., and 520).[7]

Furniture fittings: In the absence of a mouthpiece, identification as an instrument must remain speculative. The tubes could be furniture fittings, decorations for the leg of, for example, a couch or chair. There are other fittings from the grave (nos 15–18). However, these have an internal diameter of 24 mm as opposed to 14 mm.

Sceptre: A further suggestion is that they were part of a sceptre, bindings around a wooden core, like the object from Willingham Fen (Green 1976, 46), although that is covered in votive castings. The reconstructed sceptre from Brough on Humber (Corder 1938) is nothing like these, being on an iron rod, although this may not be a sceptre, but part of a folding chair. The recently published fragments from Wanborough (O'Connell and Bird 1994) are more positively identified, coming in a group from a ritual context.

All of these explanations would fit the context of the grave. Trumpets were used by the cavalry; on British coins for example carnyxes are always played by a man on horseback (Megaw 1991, 645). Furniture fittings would fit in with other items from the grave, while the ritual nature of the site suggests that a sceptre would not be out of place, especially in view of the possible sceptre mount found on the site after the completion of excavations (see appendix 2).

Fitments

22. *A heart-shaped cast bronze fitment* (DAC 114) (FIG. 59.22)

Fitment with rectangular section, and a hollow, square-section shank projecting from the top (as drawn). This possibly once held wood or an iron shank (width 8 mm). It projected at least 30 mm from the fitment, but is broken. Attached to this by corrosion and not *in situ* is a 31 mm long fragment of flanged binding (see below). At the base of the fitment is what appears to be a projecting knob, but is melt as it is asymmetrically placed to one side and the left side has melted, losing the original edge. Two small knobs project on either side.

This may be an unusual linch pin head but in which case it was not cast on to the shank, which has been lost.

Length 63 mm, width *c.* 35 mm, thickness *c.* 10 mm.

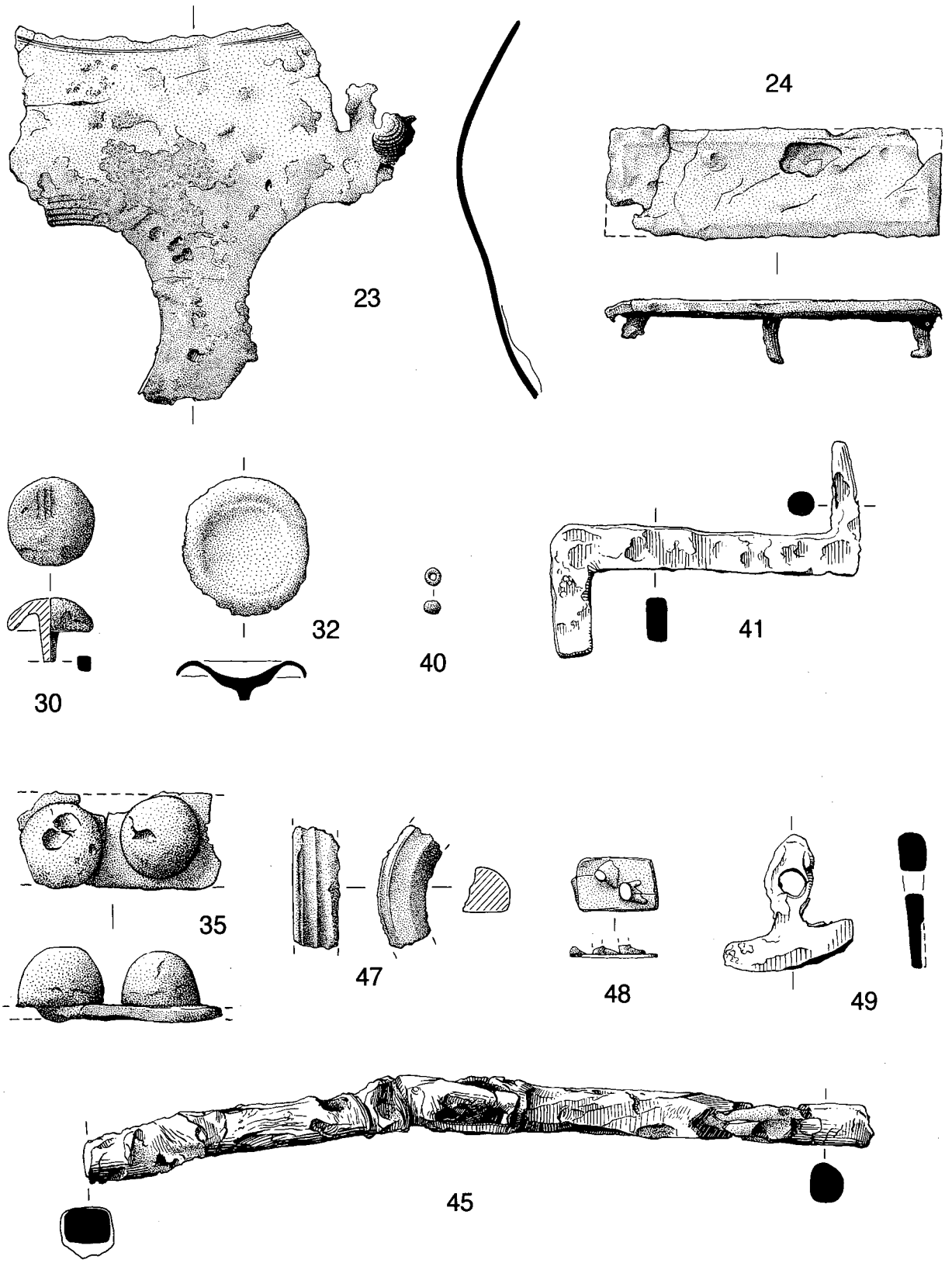


FIG. 60. Pyre goods from the main burial pit, shaft and from the pyre debris in the post pit beneath the Romano-Celtic temple (nos 47–9). Scale 1:1 except no. 45, 1:2.

23. Fragment of ?mask (DAC 195) (FIG. 60.23)

Sheet metal mount designed to fit onto a convex surface, curved in profile with a stepped ridge at the top and two circular holes cut out at the side (diameter 32 mm); the edges are unworn and still retain a burr. Distance between the holes is only 15 mm. There are no rivet holes. All edges broken, with some melting.

This is superficially similar to the Torrs chamfrein (Atkinson and Piggott 1955), though of course much smaller. It is possible that it was a face mask, but there are no other examples known.

Width 70 mm, depth 60 mm.

24. *Rectangular fitment with bevelled edge* (DAC 17a) (FIG. 60.24)

Three rivets, one in the middle, and ones on opposing sides. Length 56 mm, width 18 mm, 3 mm thick.

25. *Flat, circular binding* (DAC 80) (FIG. 59.19)

The binding is in two layers, the upper section has wide ridge around edge and two ridges on the internal curve. Held to lower section with rivets every 50 mm, carefully disguised on the surface, though one has pulled through the hole. The lower section is distorted, but there was a gap of 2 mm between the two.

This could have been the base of a small vessel such as a tankard. A bucket fitting from Santon, Norfolk was of this type with two rings of wrought bronze riveted together. This was 180 mm in diameter, twice as large as this one. It could not have been the rim of a container, but could have bound a small lid.

Circumference 314 mm; external diameter 96 mm; internal diameter 78 mm. Length of rivets 6 mm.

DAC 79. Another fragment. Length 25 mm.

DAC 175. Another fragment. Length 28 mm.

26. *Rim* (DAC 20) (not illustrated)

Possible rim of vessel, slightly curved, with incurving hooked rim with a squared off edge. Length at least 48 mm.

27. *Fragment of plate* (DAC 111) (not illustrated)

With rolled edge. Length 22 mm.

28. *Fragments of tube* (DAC 86, 78 and 79) (not illustrated)

Three fragments of plate rolled into a tube, all broken at both ends but probably part of the same object. Edges abut, but overlap in places due to distortion. Diameter 10 mm, inner diameter 7 mm, lengths DAC 86 (43 mm), DAC 78 (43 mm), and DAC 79 (23 mm).

Studs and rivets

29. *Mushroom-shaped rivet* (DAF 108) (not illustrated)

Mushroom-shaped, very large rivet, solid head slightly concave underneath, decorated with transverse incised lines, rather roughly executed. Circular shank, the splayed base of which has a burr. Length 17 mm, diameter of head 16 mm, length of shank 7 mm.

*30. *Stud* (DAA 37) (FIG. 60.30)

Stud, with circular head decorated with incised lines, possibly in a basketry pattern, but obscured by corrosion. Square section shank. From turf filling in the funerary shaft. Diameter 14 mm, length 10 mm, tip of shank missing.

31. *Rivet* (DAC 31) (not illustrated)

Rivet with circular head, dished centre, concentric *repoussé* groove. End of shank hammered to form rivet (thickness of wood only 5 mm). Diameter of head 25 mm, length of shank 6 mm.

32. Rivet (DAC 83) (FIG. 60.32)

As DAC 31, slightly smaller. Diameter 22 mm, broken shank.

33. Rivet (DAC 184) (not illustrated)

As previous. End of rivet bent over (thickness of wood 8 mm). Diameter 22mm, length 11 mm.

**34. Large rivet* (DAF 114) (not illustrated)

Large rivet with oval head decorated with incised lines around the edge. From lower fill in the funerary shaft. Length 15 mm, length of head 11 mm, shank 4 mm. Thickness of object riveted 10 mm.

**35. Two domed rivets* (DAA 38/39) (FIG. 60.35)

Two domed rivets on a strip of copper alloy sheet. The stem of the rivets can be seen on the underside. Possibly part of binding for a wooden bucket, for example as used on cauldrons at Glastonbury and Spettisbury (Spratling 1972, nos 401–4), but there the rivets were directly riveted into the sheet to join two sections together; they were not on strips of sheet. Found in the turf filling the funerary shaft.

Length of sheet 33 mm; width of sheet 15 mm. Rivets 13 mm, height 9 mm.

**36. Domed rivet* (DAF 108) (not illustrated)

Fragment of another, with one rivet. From the lower filling in the funerary shaft. Diameter of head 15 mm, height 9 mm. Length 12 mm. Width of rivet base 6.5 mm.

**37. Rivet* (DAF 108) (not illustrated)

Another rivet with solid head, dished underneath. From the lower filling in the funerary shaft. Diameter of head 15 mm, height 12 mm. Length 13 mm. Rivet base 6.5 mm.

38. Rivet (DAB 001) (not illustrated)

Another. Diameter 13 mm, height 8 mm.

Other rivets (not illustrated)

DAB 1; DAC 17a; DAB 78. White metal rivet. Length 7 mm, head 3 mm; DAC 165. White metal rivet with square flat head. 15 mm square. Shank broken.

Items for personal wear

39. *Mail* (DAC 198)

Near the south-west side of of the burial pit in a mass of charcoal was a large lump of chain mail. It was either in a bag gathered at the top (PL. XLI) or more likely had been displayed on a pole which collapsed during the burning of the pyre. The mail was examined by Brian Gilmour, who supplied the following report.

The mail shirt, *by* B. J. Gilmour

Apart from a few detached, small fragmentary groups of rings this object consisted of a single corroded lump of mail which looked likely to have been a complete (or nearly so) mail tunic burnt in the funeral pyre, described elsewhere in this volume. Exposure to the heat of the pyre had affected not only the iron rings of the mail, but had left a series of fused blobs or droplets of silver and partially fused pieces of copper alloy adhering to the underside of the mail. These were a small part of the heat affected remains of a series of silver and copper alloy objects which were also put on the pyre and are reported in more detail elsewhere.

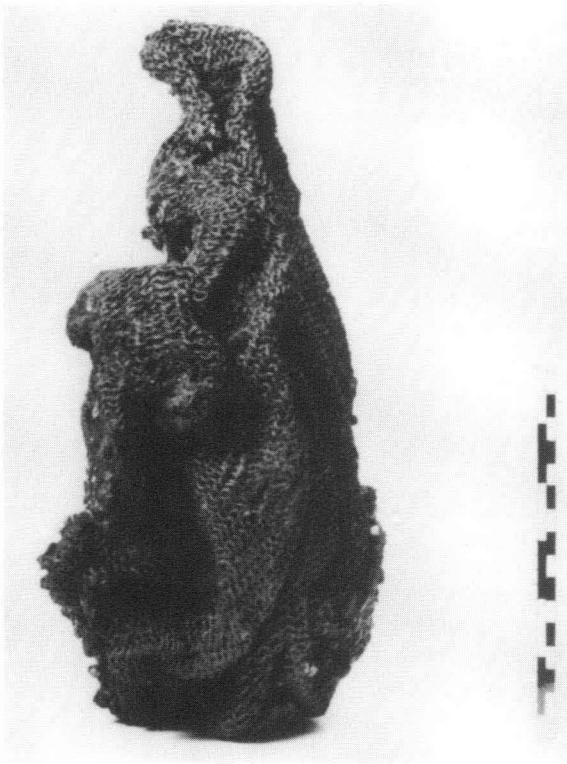


PLATE XLI. The mail tunic.
Photograph: P. Carter, St Albans Museums.

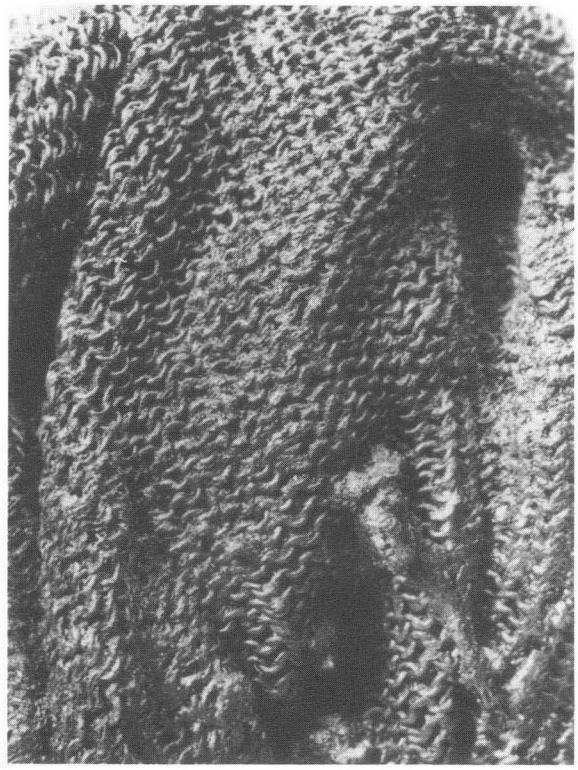


PLATE XLII. The mail tunic, detail.
Photograph: P. Carter, St Albans Museums.

Examination of the surviving mail

Comparison with a modern reproduction mail shirt, manipulated into a pile of a very similar shape and size (and weighing approximately 14 kg), would suggest that what now survives of the Folly Lane mail is the remains of a complete mail shirt or tunic. The surviving corroded lump that it now consists of (PL. XLI, FIG. 61) measures approximately 330 mm long by 247 mm wide by 145 mm high and weighs approximately 10.2 kg. Detailed examination and photography of this corroded lump was made possible by the extensive conservation cleaning[8] which revealed a surprisingly well preserved original surface to the mail despite the fact that there appeared to be no metal surviving in the rings.

Over much of the cleaned surface of the mail the shape of the individual rings survived well enough for their dimensions and method of manufacture to be fairly reliably recorded. This mail tunic is made up of alternate rows of riveted and plain or solid rings which would appear to have been welded rather than having been made of loops of wire with their ends simply butted together. The usual overall construction method for mail was used in which each ring was looped through four others, two in the row above and two in the row below. As far as can be seen, the individual rings are all of much the same size and are made of wire of a fairly uniform and circular section measuring 1.5–1.6 mm in thickness. The outside diameter of the rings mostly varies within the range 6.8–7.1 mm. The rows of riveted rings were easy to identify by the regular appearance of the bulging, flattened areas where the ends of these wire loops were riveted together. In each case the rivets had a distinctive domed-headed appearance on one side, although they appeared to be more flattened on the other. This would suggest that the riveting was done using a shaped swage block, possibly using much the same technique as that suggested by Burgess in his mail reconstruction experiments (Burgess 1953a, 1953b).

Unfortunately since no metal survived it is now difficult to be sure whether or not the plain rings of the Folly Lane mail are definitely welded, but enough surface detail, as well as overall structure, survives (preserved as hard and stable iron oxide) to be fairly confident that these rings were not made of butted wire loops. It is still possible to see that these plain rings consisted

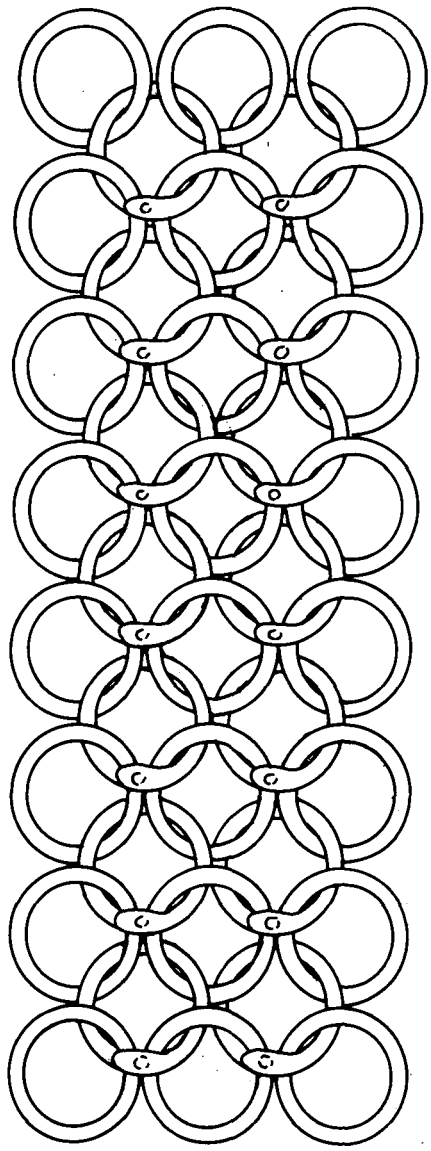


FIG. 61. Schematic diagram of the 4 → 1 construction of the mail tunic, involving riveted and welded links.
Drawn by David Williams, based on a sketch by Brian Gilmour, after O'Connor 1992.

of wire with an approximately circular cross-section that is fairly consistent around the circumference in each case (PL. XLII). No evidence was found of any gaps which would be consistent with a butted ring construction. Although the products of corrosion might have been expected to fill much of any narrow gaps like this, some evidence for the cutting of the wire might have been expected to be visible somewhere around the circumference of the rings if butted wire loops had been used. This evidence would be expected to take the form of single or double (opposed) notches indicating the use either of a chisel or wire snips to cut the wire.

Also, had these plain rings consisted of butted wire loops, although it is likely that the gaps between the ends would have become filled by corrosion products during burial, the corrosion products may be expected to be less dense and therefore visible on X-ray. The surviving structure of the plain rings was next investigated using projection X-radiography (which, by necessity, uses a micro-focal beam X-ray tube to project a clear enlarged image on to a piece of film) and this work was carried out on a small detached fragment of mail.[9] No evidence of any gaps was found to indicate the presence of the butted ends of wire loops. As far as could be seen all the plain rings appeared to be continuous around their circumference and therefore there seems little doubt that these were solid rings, whether or not they were made from welded wire or punched from iron sheet.

In the many cases where broken plain (or riveted) rings were visible in transverse section, the profile of the wire always appeared approximately circular. This contrasts with a D-shaped section that might be expected for any plain ring punched from an iron sheet then placed round a mandrel and finished with a hammer to give a more rounded profile (D. Sim, pers. comm.). This is the method shown recently to have been used for at least some of the plain rings in the five or six sets of mail from the third-century Danish votive bog deposit at Thorsbjorg (Sim forthcoming). These were previously described as being of an alternate riveted and welded construction with a diameter of 'a little less than half an inch' (Engelhardt 1866, 46 and pl. 6). This is equivalent to 12 mm, which according to the published drawings is the maximum dimension of the riveted rings. The plain rings are shown varying generally between 9 and 10 mm in diameter with a thickness of approximately 1 mm. If the two fragments of Thorsbjorg mail illustrated are both accurate and representative of the rest of the mail garments from this site then the Thorsbjorg mail is clearly both of a much coarser construction as well as being made of thinner rings than nearly all the late pre-Roman Iron Age examples (where measuring was possible) shown in TABLE 17. The apparent (but seemingly unlikely) exception to this is the unusual (with its 6:1 ring construction) late La Tène mail reported from Tiefenau, Switzerland, which is rather similar in its recorded ring size (diameter 13 mm and thickness 1 mm) to that from Thorsbjorg, although it is recorded as being of a butted ring construction.

TABLE 17. TECHNOLOGICAL DETAILS OF IRON AGE MAIL FROM BRITAIN

Site/context/date	General description	Outside diameter of rings	Gauge of wire used	Comments
Kirkburn, Yorks. barrow cemetery cart burial of third century B.C.	complete mail tunic: butted rings only	8.2–9.2 mm	1.5–1.6 mm	see Stead 1991, 54 and fig. 45.
Stanwick, Yorks. hoard of *c.* A.D. 50 poss. just pre-Roman	fragments of mail: butted rings only	not yet known	not yet known	see: MacGregor 1962, 28 and no. 117–20.
Lexden, Essex; cremation burial of about 15–20 B.C.	fragments of mail: riveted and (?) welded rings in alternate rows	5.5–5.8 mm	1.4–1.6 mm approx. circular in section	see Foster 1986
Baldock, Herts. cremation burial, *c.* A.D. 20–35	small fragments of mail: riveted and (?) welded rings in alternate rows	4.8–5.0 mm	1.2–1.3 mm approx. circular in section	
St Albans, Herts. cremation burial, *c.* A.D. 50	(?) complete mail tunic: riveted and (?) welded rings in alternate rows	6.8–7.1 mm	1.5–1.6 mm, approx. circular in section	
Maiden Castle Dorset from 'Belgo-Roman' levels near entrance, *c.* first century B.C. to first century A.D.	single triangular fragment: butted rings only (shown on drawing)	~7.0 mm	~1.0–1.3 mm	see: Wheeler 1943 284 & fig. 95.6

Site/context/date	General description	Outside diameter of rings	Gauge of wire used	Comments
Woodeaton, Oxon. votive deposit from temple site ?late IA or RB, ?e-m *c.* first century A.D.	unstratified larger fragment (in pot) riveted and punched rings in alternate rows	riveted rings 7.0–7.5 mm; punched rings 7.0 mm	~circular section, 0.8 mm across squarish section, ~1.0 mm x 0.8 mm	see: Jope 1957, 106–7 and Bagnall-Smith 1995
Hayling Island, Hants.; votive deposit from temple, ~early first century A.D.	larger fragment — now destroyed ?X-ray exists (? + other frags.)	?	?	King and Soffe 1994 115, and Soffe *pers. comm.*

The plain rings from the Folly Lane mail, however, look very similar in their continuous circular profile to the plain rings (8 mm diameter and wire thickness 1.1 mm) of the mail curtain attached to the eighth-century A.D. Anglian helmet from Coppergate, York, which survive much better and have been shown by metallography to be of a welded construction (Lang *et al.* 1992, 1024). The surface of the Coppergate mail rings, however, did not survive well enough to allow the identification of parallel surface marks which would have confirmed that drawn wire was used to make these, although this seems to be indicated by the longitudinal distribution (of the little) slag found in the iron of these rings. One interesting observation, which is mentioned but not further discussed, is that a cleaner (i.e. less slaggy) grade of iron appears to be used for the welded as against the riveted rings of the Coppergate mail. An obvious possible explanation for this is that relatively slag-free iron would be required for wire drawing if excessive and rapid wear of the drawplate that would otherwise occur, even if made of steel, was to be avoided (see Smith 1959, 67). Smith's objection to the suggested use of the drawplate to make early iron wire, by which he meant anything made before the sixteenth century, seems to be based on the assumption that all early iron was of rather variable, and uncontrolled, slaggy composition. Until regular and thorough metallographic investigation is carried out on iron from various periods and different types of objects, or parts of objects, then there can be no basis for a conclusion like this. On the contrary, there seems to be no good reason why Iron Age or later smiths were not perfectly competent in controlling the quality of their products. The wire for the Folly Lane mail may also have been made by forging, possibly with the aid of swage blocks to enable an even thickness and diameter to be achieved.

Since the appearance of the rings seems to be much the same it seems, on balance, most likely that the same welded construction was used for the plain rings of the Folly Lane mail as shown to be the case for the Coppergate plain rings. There seems to be no particular reason why the welded construction seen in the plain rings of the Coppergate mail should not have been in use by the late Iron Age, although only the very careful study and identification of future mail finds (preferably with metal still surviving) will confirm this. This method of joining the ends of wire loops at any period would seem likely to have been carried out in much the same way and, therefore, to have produced similar diagonal scarf welds to those shown metallographically (by examining rings both longitudinally and at right-angles to the plane of the weld) to be present in the plain rings of an early sixteenth-century German armour (Smith 1959, table 1 and fig. 3). Overall, the results of the investigations reported here lead to the conclusion that the plain rings of the Folly Lane mail were made of wire loops with their ends welded together.

Following an initial surface inspection the mail was examined using X-radiography. The purpose of this was partly to see if any indication of surviving metal could be found inside the lump, and also to test another possibility that was suggested — that the mail garment might

have been used as wrapping for some other object. The thickness, density and irregular shape of the mail lump necessitated the use a comparatively high energy (320Kv) X-ray set together with filters to improve the contrast (this examination being carried out at the Royal Armouries at the Tower of London).

There was no indication from the resulting radiographs of the mail having been used as any kind of wrapping and it would appear that the mail was simply put or dropped into the burial pit and, in this way, ended up in its present shape. Again, experiments by the author with the same modern reproduction mail shirt mentioned above, showed that it would very often fall into a heap of a similar shape and size when dropped, which means that the Folly Lane mail tunic may well not have been in a bag when it went into the pyre, as has previously been suggested (Selkirk 1992, 486).

Radiography of this mail also confirmed that there is likely to be little or no iron left in the surviving corroded lump, which is only to be expected given the very long exposure in non-waterlogged burial conditions, together with the naturally aerated conditions that would have existed around what was essentially a pile of thin rings of iron wire. What is much more surprising is that such a relatively well preserved original surface should survive underneath an outer incrustation of iron corrosion products. Much of the original appearance of the rings would appear to have been relatively well preserved as a hard, dark grey or black surface layer of magnetic iron oxide (magnetite — Fe_3O_4). This gives the deceptive first impression that this mail is well preserved, whereas beneath the surface there actually appears to be little or no metal left at all.

It is quite possible that when this mail tunic went into the burial pit the outer surface of the iron rings from which it was made already consisted of a thin layer of magnetite, the evenness of which might suggest that this layer was present as an induced surface layer before the exposure of the mail to the pyre in which the extent of oxidation perhaps would have been more variable. Alternatively the whole pile of mail would have to have been subjected to a very even, semi-reducing atmosphere which, on heating, could have resulted in much of the upper surface layer of the rings being converted to magnetite. In any case conditions in this part of the fire would have to have been moderately reducing for magnetite to have been preserved at all rather than being burnt away.

From what survives, it seems not possible to demonstrate conclusively whether or not this mail already had a stable black oxide coating before it went into the pyre. Protective oxide coatings of this kind may well have been common or even usual at this time for many iron objects, especially where a valuable thing such as this was particularly vulnerable to corrosion in a damp atmosphere. For most archaeological ironwork, the destructive effects of corrosion during burial in the ground will mean that the presence (or former presence) of a layer such as this is going to be difficult to demonstrate unless it is looked for and consistently found at the original surfaces of corroded early iron artefacts.

The technology of early mail

There seems to be comparatively little yet known of the early development of mail manufacture and use in Europe. The earliest known examples of mail came from a group of artefacts, found in the remains of a boat, which formed a votive bog or pool deposit of material, from Hjortspring in southern Denmark, which recently has been dated from radiocarbon results to the second half of the fourth century B.C. (Stead 1991, 56). This deposit, which has been interpreted as the equipment of a defeated army (numbering about sixty), included between about ten and twenty sets of mail although these survived as little more than rust stains (Jenson 1989).

From Britain the earliest find of mail is a complete tunic accompanying a cart burial (K5) in the Iron Age barrow cemetery at Kirkburn in North Yorkshire which has been dated to the La Tène I period of the third century B.C. (Randsborg 1995, 20). It is reported as being made of all butt-jointed rings, one of the three methods of mail ring manufacture which Stead says was used to make the rings for the mail found in a number of Iron Age and early Roman contexts;

the other methods involving the forming of rings from iron wire, the ends of which were flattened and riveted together and, thirdly, the punching of complete rings from iron sheet.

Not mentioned is the other possible method of making individual rings — by making loops of iron wire and (hammer) welding the ends together to produce a 'solid' ring which, as in the case of the punched rings, would have to be used in combination with one of the other types of ring. Welded rings have recently been shown to have been used in combination with riveted rings to make the curtain of the eighth-century A.D. Anglian helmet found at Coppergate in York (O'Connor 1992a, 1992b).

The recent examination of fragments of mail from a cremation burial from Baldock (Gilmour in Burleigh and Stevenson forthcoming) — more or less contemporary to that at Folly Lane — have shown that the surviving fragments, possibly from a single mail garment mutilated or 'ritually killed' before burial, consisted of alternating riveted and, as far as can be seen both by surface inspection and projection X-rays, welded rings, rather than the butted ring construction previously reported (Selkirk 1983). Apart from being smaller, both the plain and riveted rings from the Baldock mail survived in much the same way and appeared to have been made in very much the same way as the Folly Lane mail rings (TABLE 17).

At the same time that the Folly Lane mail was studied, the more or less contemporary mail fragments (mainly larger than those from Baldock) found in the tumulus burial at Lexden, Essex (Foster 1986) were examined so as to get a further comparison of the construction methods used in the late pre-Roman Iron Age. Although this material has not so far been fully cleaned it was possible to see (under a low power lens) the dimensions and shape of the individual rings, as well as the overall form of the mail. Like the mail from both Folly Lane and Baldock, the Lexden mail fragments were also made of alternating rows of riveted and plain rings and also, from the similarity in their appearance, possibly from a single mutilated mail garment.

Fragments of mail from both Lexden and Baldock were examined in very much the same way as that described above for the Folly Lane mail. Again, projection radiography failed to find any evidence for a butted wire loop construction for the plain rings, as did examination under a lens, which also failed to reveal any evidence for earlier gaps. This and their circular (rather than D) shape cross-sectional appearance would seem to leave welding as much the most likely method to have been used to join the ends of the wire loops of the plain rings from all three sites (TABLE 17). In size the Lexden mail rings are approximately mid-way, both in diameter and gauge of wire, between the rings from Folly Lane and those from Baldock, which are the smallest or finest of the three.

In each case the wire used looked to be of a consistent diameter and circular cross-section, suggesting that drawn wire may have been used for each of these three sets of mail although, if so, no wire drawing marks appeared to have survived on the surface of the rings, or at least none were found during the examinations reported here. Although (so far as I can find out) draw plates have not been recognized from any Iron Age context, they are now known to have been used as early as the Bronze Age (Northover 1995). Until early mail rings in sufficiently good condition can provide more conclusive evidence for the use of draw plates it seems just as likely that, during the Iron Age, iron wire was made by hand forging as is known to have been the case for the gold wire used for objects such as the Snettisham torc (Northover pers. comm.). Clearly more detailed technological investigation is needed before production methods such as these can be more positively identified.

The Kirkburn mail is much earlier than the other known examples of Iron Age mail which, apart from the eleven mail fragments in the Stanwick hoard from Yorkshire (MacGregor 1962), all come from southern Britain and all seem to be roughly contemporary in their deposition. This belongs to the final Iron Age phase with both Folly Lane and Lexden likely to postdate the early years of the Roman occupation of south-east Britain in the mid-first century A.D. A summary of the technological information relating to these examples of early mail is included here in TABLE 17. Some of this material has been re-examined recently but where earlier descriptions have been used the sources are shown. The mail from the Roman temple site at Woodeaton is included here as, although it was an unstratified find, it may belong to a late Iron Age phase, possibly as a votive offering (Jope 1957; Bagnall-Smith 1995).

It would appear from the reported construction of the Kirkburn mail tunic and the Stanwick fragments, as well as the continental European examples from Çiumesti, Romania and Tiefenau, Switzerland, that some Iron Age mail, particularly from earlier contexts, is being reported as being of an all butted-ring construction (quoted in Stead 1991, 56; see TABLE 18 below). By the late Iron Age, in Britain at least, the more technically demanding, but better quality technique involving alternate rows of riveted and welded rings may have been more common whereas the technique involving alternate rows of riveted and solid rings punched from sheet iron seems usually to be judged a Roman technique (Sim pers. comm.). The large third- century A.D. votive bog (or pool) deposit at Thorsbjorg, Schleswig (formerly southern Denmark) included five or six sets of mail which have been described as consisting of alternating rows of riveted and welded rings (Engelhardt 1866, 46), although some of this material has been re-examined and the plain rings identified as punched from sheet iron (Sim 1998).

TABLE 18. TECHNOLOGICAL DETAILS OF SELECTED IRON AGE MAIL FROM CONTINENTAL EUROPE

Site/context/date	General description	Outside diameter of rings	Gauge of wire used	Comments
Hjortspring, Denmark; votive bog or pool deposit (mid–late 4th century B.C.)	Very corroded and fragmented. Remains of approx. 10–12 mail coats	6.0–8.0 (most)? 4.0 (some)? 9.0–10.0 (a few)?		See: Randsborg 1995, 27
Tiefenau, Switzerland; metalwork deposit — La Tène II–III (first century A.D.)	fragments of mail: butted rings of rare 6 → 1 construction?	13 mm	1.0 mm wide	See: Stead 1991, 56 (from Müller 1986)
Çiumesti, Romania; cremation burial: late La Tène I (third century B.C.)	fragments of mail: butted rings only, usual 4 → 1 construction	mostly 8.5–9.2 mm; some finer, 7.2–7.5 mm	0.8–1.8 mm wire; 1.2–1.4 mm	See: Stead 1991, 56 (from Rusu 1969)
Thorsbjorg, Schleswig votive bog (or pool) deposit: third century A.D.	parts of 5–6 mail garments: alternate rows of riveted and plain, —? welded or punched, rings.	approx. 12 mm	approx. 100 mm	See: Engelhardt 1866, 46–8 + plate 6; Todd 1975, 170–1; Sim, 1997

As yet, too little surviving dated mail has been found to reconstruct more confidently the earlier technological developments of this form of defensive armour, although there seems no reason to doubt the suggestion by the Roman writer Varro that mail was a Celtic development adopted by the Romans (Bishop and Coulston 1993, 59) who, during this early period, according to Polybius writing in the second century B.C. (VI, 21), rated mail shirts as only affordable by soldiers who possessed more than 10,000 drachms, the less wealthy having to use plate armour instead (Engelhardt 1866, 48). The value of mail in the late Iron Age communities of northern Europe can perhaps be gauged partly by the contexts in which they are found — such as wealthy or important burials like that at Folly Lane — and partly by the instances found in Roman sculpture of this period where the wearer is depicted as being of Gallic or Celtic origin (Robinson 1975, 164).

Note, by Jennifer Foster

Mail was a consistent feature of Iron Age rich burials and before the Roman conquest denoted a wealthy individual. Mail was adapted by the Roman army (Robinson 1975, 164–73; Bishop

and Coulston 1993, 60), and was used by both legionaries and auxiliaries from the first century A.D. Cavalry mail had slits in the skirt for ease of movement. Most of the examples from the Roman period are only fragments, presumably because it was easy to repair; the fragments we have may have been the damaged pieces that were replaced (Bishop and Coulston 1993, 60). The statue from Vachères (50–0 B.C.; Szabo 1991, 332) shows the form of mail shirts before mid-first century A.D. They were long (knee-length) with a leather undergarment to prevent chafing and a belt to hold up the weight of the skirt (Robinson 1975). The shoulder flaps edged with leather were fastened with concave headed studs. The suit from Kirkburn has all these features (Stead 1991, 56) except a leather undergarment, though fragments of sewn leather were found at Lexden (Foster 1986, 139–42). Some suits were sleeved, as in the Vachères statue, others sleeveless (for example the Delphi relief (Robinson 1975, 165)). Around the mid-first century A.D. skirts become shorter, to hip level, and the belt was abandoned; there were still sleeves, but no shoulder flaps. This might be the type of shirt from Folly Lane: there is no sign of flaps, fastenings or studs, though these could, of course, be inside.

Hobnails

There are at least 299 hobnails from the grave, mostly occuring as single nails, but a few were fused together by corrosion. Some are fused three in a line, others are in groups: e.g. from DAC 78 is a group of five small hobnails (head diameter 4–5 mm) with short unbent shanks (10 mm long) that come together to a point. The great majority of the hobnails have bent-over ends to their shanks, which is the usual method of fastening the hobnail into the shoe. Unlike most archaeological examples, however, most of these are relatively unworn; they still have pointed heads, looking remarkably like toadstools from the side. A few are not worn at all and are probably replacements. In one fused pair from DAC 78, one nail overlaps its partner and is possibly later. Another appears to have a double shank where the old head only was removed and a new hobnail hammered in beside the old shank.

There is some variation in size, with head diameters ranging from 4–9 mm, and length from 7–19 mm. The square-section shanks are about 2 mm thick. Length was measured as they are now with bent shanks, because this is how they were worn in the shoe. When the dimensions are plotted out there are no clusters; the shorter nails have smaller diameter heads, as in a normal distribution expected for hand-made nails. There is no evidence, therefore, for different sized nails that might indicate different shoes. A survey of (almost) complete hobnailed shoes (TABLE 19) shows that the average had only sixty-seven hobnails: at 149 nails the shoes from Folly Lane would have have been abnormally large. It is likely, therefore, that at least two pairs of footwear are represented here, relatively unworn, though not new. The presence of shoes in the grave is another example of Roman influence, as hobnails rarely occur in pre-Conquest contexts.

TABLE 19. NUMBER OF HOBNAILS PER SHOE

Site	Number per shoe	Reference
Folly Lane	146	
Coventina's Well	68	Allason-Jones and McKay 1985, 37
York	82	MacGregor 1978, fig. 27
	47	
	25	
	5	
	60	
Mainz	49	Bishop and Coulston 1993, fig. 61
Valkenburg	124	Bishop and Coulston 1993, fig. 61
Velsen	98	Bishop and Coulston 1993, fig. 61
Lankhills	90	Clarke 1979, fig. 39
	91	

40. *Bead* (DAB 56) (FIG. 60.40)

Tiny copper alloy bead, shape an irregular cylinder, flattened top and bottom. Some melting, but still probably a bead. Diameter 2.5 mm, height 2 mm.

Miscellaneous iron objects

**41.* *Z-shaped wrought iron object* (DAG 3) (FIG. 60.41)

Made from an iron bar 5.5–6 mm thick, the ends bent at right-angles, one end rectangular (length 42 mm) and the other circular (length 43 mm), the diameter of the tip being 6mm. This is similar to objects known as latch lifters, levers for opening doors; an example came from Colchester (Crummy 1983, 125, no. 4144), though this is slightly smaller and more angular. It is very comfortable in the hand, but the circular end could be a tine for a wooden handle. Found on the floor of the funerary shaft.

Length 104 mm.

42. DAC 23 (not illustrated)

A mass of spongy black, heavy metal, like melted iron, one edge curved. On one surface is a layer of melted and congealed bronze, with six attached hobnails. On the upper surface is a pattern of raised ridges, irregularly shaped and varying in height, but enclosing squared areas. On the underside is a roughly rectangular hole. This looks superficially like a lockplate that has partially melted.

Length 135 mm, width 85 mm.

**43.* DAG 130 (not illustrated)

Rectangular iron plate with overlapping fragments of wood on the upper surface. Most of these are probably not *in situ* as the grain of the wood is at an angle. One edge piece is at right-angles and may be *in situ.* Another fragment of iron plate, probably originally the same size, is attached by corrosion to the lower side. Found on the floor of the funerary shaft.

Length 40 mm, width 26 mm, thickness 2 mm.

44. *Tapering iron rod* (DAB 88) (not illustrated)

Rod with slightly oval section, tapering to a rounded point. Length 90 mm, diameter 16 mm.

45. *Iron bar* (DAC 17e) (FIG. 60.45, illustrated half size)

Two fragments, section sub-rounded with one side flattened. One end rounded, the other broken. Length at least 320 mm, width 14 mm.

Nails

There are at least 131 nails of which fifteen were found in the funerary shaft, and the remainder in the burial deposit; some could not be counted because they are in corroded lumps. Only sixteen are complete (TABLE 20), which makes it difficult to quantify them or draw any meaningful conclusions. Most are Manning Type 1B (Manning 1985, 134). They all have rectangular section shanks width 4–6 mm. Apart from a very few with square heads, the heads are flat (1–2 mm thick) and oval, usually asymmetrically placed above the shank. Perhaps this is a feature of hand-made nails, or it may be an idiosyncrasy of the blacksmith and could indicate that the nails were all made by one person. The heads were made separately and the shanks passed through a hole in the head and beaten over. Most of the longer examples are straight though a few are curved.

The larger nails, and those marked * in table were found in the funerary shaft, and may have been used for the chamber or revetment (although the scarcity of nails in the shaft suggests that

TABLE 20. DIMENSIONS OF COMPLETE NAILS FROM FOLLY LANE

Number	Length in mm	Diameter of head in mm	Shank thickness in mm
*DAA 33	57	18 x 15	6
DAB 5	50	15	6
DAB 7	60	16	4 tapering
DAC 31	64	14	4 D
DAC 31	74	14	5.5 D
DAB 29	46	12	tapering
DAC 66	33	11 x 9	5
DAC 66	42	difficult to measure	4
DAC 70	60	13 x 9	4
DAC 75	60	12	4 square head, curved shank
DAC 200	34	12 x 10	3
DAC 154	46	13	5 square head
DAC 214	46	11	4
DAC 176	64	16 x 18	3.5
*DAF 71	112	15	10 covered in wood
*DAF 124	68	20 x 15	6
*DAG 125	38	15	5 curved
*DAQ	44	missing	4

most of the timbers were pegged). Iron nails are rare though they became more common immediately before the Conquest. They were used at King Harry Lane (Stead and Rigby 1989, 110–11) particularly for gaming boards and caskets. These were of a very similar size: 50–60 mm long, oval heads 14 mm in diameter.

**46.* *Fragment of bronze bar* (DAA 32) (not illustrated)

Part of a very heavy curved bronze bar, oval section. Very corroded. Length 60 mm, width 22 mm. If circular the external diameter would be 180 mm.

Metal sheet fragments

**Bronze sheet* (DJE 1) (not illustrated)

A small fragment from the filling of pit DJE, in the floor of the funerary shaft.

Metallurgical analysis of bronze sheet, by J. P. Northover

A single sample, #32, was snipped from the edge of the sheet (TABLE 21).

TABLE 21. METALLURGICAL ANALYSIS OF BRONZE SHEET

	Fe	Co	Ni	Cu	Zn	As	Sb	Sn	Ag	Bi	Pb	Au	S
#32	0.02	0.01	0.02	87.96	0.01	0.16	0.10	11.36	0.06	0.04	0.05	0.03	0.04

This context is a small pit containing cremated material cut into the floor of the mortuary shaft. In the context and period of the cremation this fragment could be seen as emanating from the native tradition of metalworking, since Romanized wrought products would tend to be based on brass.

Pieces of copper alloy sheet, deliberately folded before burial (not illustrated)

DAC 6: Length 40 mm, width 20 mm. DAC 116: 35 mm by 25 mm. DAC 79: ditto.

DAC 115: ditto 15 mm by 12 mm. DAC 3: Fragment of plate, one edge folded back, 40 mm by 20 mm. DAC 184: Large piece of sheet buckled and bent probably before burial. One edge a simple rounded rim. No rivet holes. 65 mm by 42 mm.

Silver sheet (DAC 170)

Sheet of silver, looks like melted silver that has coagulated on a flat surface.

Zinc sheet (DAC 7) (not illustrated)

Folded fragment. Length 45 mm.

Metallurgical analysis of zinc sheet, by J. P. Northover

A single sample, #29, was cut from the edge of a rolled up piece of white-metal sheet (TABLE 22).

TABLE 22. METALLURGICAL ANALYSIS OF ZINC SHEET

	Fe	Co	Ni	Cu	Zn	As	Sb	Sn	Ag	Bi	Pb	Au	S
#29	0.01	0.01	0.01	0.05	97.98	0.16	0.01	0.01	0.03	0.05	1.65	0.03	0.01

The sheet proved to be of zinc with lead as the major impurity detected. Lead is a common impurity in zinc, as is cadmium, but this latter element was not sought. The low melting point of zinc (650° C) and the modest grain size revealed by the metallographic examination mean that this piece of metal had not been heated to any extent and was therefore not part of the pyre. The context is secure, the only possible interference being an animal burrow datable to the twelfth century A.D., so that we may assume that the fragment of zinc had been lying on the ground near the ash pile from the cremation when it was shovelled into the burial pit along with the earth and turf which sealed it.

The presence of zinc in a Roman context need no longer surprise us and further pieces can be expected to be identified in the next few years. It is clear from classical texts, such as the writings of Strabo, that zinc metal was known to the ancient world as a by-product of lead smelting and brass making (for a review of the evidence see Craddock 1990, 1995). The earliest securely stratified piece of zinc is a small sheet from the Agora in Athens and dated to the fourth-second centuries B.C. (Farnsworth *et al.* 1949). This is recorded as containing 1.3 per cent lead and 0.006 per cent copper, not dissimilar to the analysis of this fragment. A more recent analysed find is an inscribed zinc tablet found with a metal detector in the area of the Enge peninsula near Bern in Switzerland in 1984. The reported find-spot was later identified as a Gallo-Roman sanctuary and a detailed linguistic and technical study has determined that the piece is authentic. Again the impurities show similarities to those recorded here — 1.06 per cent lead, 0.29 per cent iron, 0.11 per cent copper and 0.069 per cent tin (Rehren 1994). This is not the only piece of metallic zinc recovered from Roman Britain, another fragment having been found in excavations at Charterhouse-on-Mendip, Somerset (Todd 1994).

If there had been more zinc associated with the Folly Lane cremation and it had been placed on the funeral pyre the temperature through much of the pyre would have been sufficient to melt it and even, in some zones to vaporize it. Any metal that stayed in the pyre would probably have reacted with either the copper or silver alloy pieces present. The selection of droplets examined metallographically showed no structures that could be associated with such a process.

Notes on metal objects from pyre debris in post-pit DCA, *by* Sarah Adamson.

47. Fragment of ribbed ring (CBZ1) (FIG. 60.47)

One fragment of a ring, with a ribbed external circumference. Almost square in section. External diameter 30 mm.

TABLE 23. METALLURGICAL ANALYSIS OF RIBBED RING

	Fe	Co	Ni	Cu	Zn	As	Sb	Sn	Ag	Bi	Pb	Au	S
#21	*0.36*	*0.01*	*0.01*	*52.74*	*0.14*	*0.03*	*0.46*	*17.67*	*0.09*	*0.01*	*7.24*	*0.06*	*0.43*

Note: The use of italics denotes the analysis of a sample consisting mainly of corrosion products.

Metallurgical analysis of ribbed ring, by J. P. Northover

A single sample, #21, was cut from this ring which was in a highly corroded and oxidized state (TABLE 23).

This object was found in a context which strongly suggested that it was residual from the burial of the cremation debris. The totally oxidized and corroded structure supports this. The remains of the αδ eutectoid suggest a cast structure but could result from partial melting. The bronze is a leaded bronze which was a late introduction to Iron Age bronze-working in Britain and was more common in a Roman context. Leaded bronze makes its reappearance in the latter part of the first century B.C. An occurrence of interest in relation to Folly Lane is in a pedestal and a figurine of a boar from the Lexden tumulus (Foster 1986, 55). Also to be considered are a mirror handle and the bowl of a cup from Colchester (Northover, unpublished data); these two have a significant antimony impurity as do these corroded remains.

48. Moulded strip (CBZ3) (FIG. 60.48)

One fragment of copper alloy strip, decorated with two 'three-toed' bird feet. Possibly all that remains of a small bird figurine. Martin Henig has commented that birds were sometimes surmounted on priestly head-dresses, as in the Felmingham Hall hoard (Gilbert 1978; Bagnall Smith 1995, 181).[10]

Length 13 mm, width 0.8 mm, thickness 0.8 mm.

49. Iron object (CBZ2) (FIG. 60.49)

A slightly curved iron blade with a short perforated handle. No parallels have been found but the object has a certain similarity with a type of cosmetic pestle which is only known in copper alloy (Jackson 1985). Alternatively, it may have been a small amulet.

The wooden objects, *by* Rowena Gale

50. ?Handle (DAB 25) (FIG. 62.50)

Pomoideae, which includes *Crataegus* sp., hawthorn; *Malus* sp., apple; *Pyrus* sp., pear; *Sorbus* spp., whitebeam, rowan, wild service. Pomoideae wood is close grained, hard and has been used traditionally for tool handles, turnery and small items (Edlin 1949). The exceptionally smooth, hard and rounded surface of the charcoal suggests an artefactual origin from a handle or similar item.

51. ?Worked wood (DAC 93) (FIG. 60.51)

Corylus sp., hazel, roundwood. Toolmarks were present on one transverse surface.

Fragment: possibly worked (DAB 24) (not illustrated)

Fraxinus sp., ash. Ash wood is ring-porous: the wide vessels in the earlywood (visible in TS) create a line of weakness along which tangential fracturing occurs easily, particularly when charred, to expose a smooth surface. The curvature of the outer surface of the sample appears to conform to the line of the growth rings. It is, therefore, very difficult to determine whether this piece could have formed part of an artefact, but since there are no obvious tool marks, it is more likely to have arisen from a natural fracture.

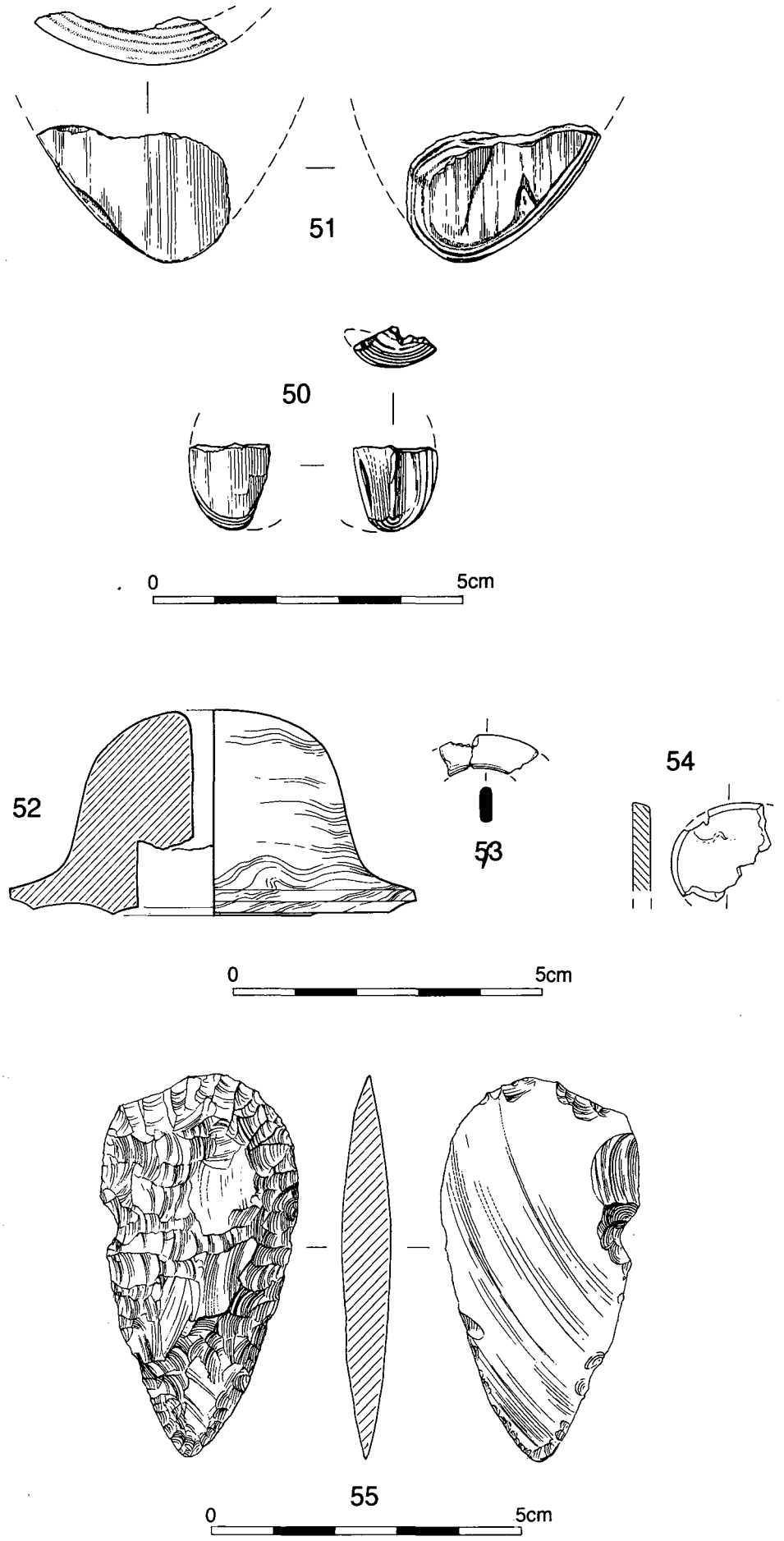


FIG. 62. Wood, ivory and flint objects from the main burial pit and the funerary shaft. Scale 1:1. *Nos 50–1 drawn by Alex Thorne.*

The ivories, *by* Stephen Greep

The Folly Lane site is remarkable in having produced two ivories. Both are unique in Roman Britain. The first (nos 52–6), the remains of an ivory decorated piece of furniture from the main burial, is represented by a number of small fragments only. It had been clearly burnt on the funeral pyre. The second item (p. 215 above), a worked and sawn piece of ivory, is the first example of working (or reworking) ivory from Roman Britain. In this respect, while perhaps less exciting than the furniture, it is none the less significant.

Ivories are rare in Roman Britain — the author has recorded only seventy examples from the whole of the province (Greep in preparation). Verulamium has previously only produced a single example, a knife handle from a robber trench (Frere 1972, fig. 55.209) but of a form which is datable to the first century A.D. (Greep 1982, 96 and fig. 5.3). The recovery of two items from such a small collection, therefore, gains added importance.

52. *'Bell-shaped' object* (DAC un-numbered) (FIG. 62.52)

Several fragments of burnt ivory, reconstructed to form a 'bell-shaped' object, 32 mm high and 64 mm in diameter. It has a central perforation 9 mm in diameter at the upper end, opening out in the interior to 23 mm. The whole is well made and lathe-turned. There are traces of ferrous corrosion on the interior of the object but also across the breaks, suggesting that some, at least, of this staining occurred post deposition.

53. *Fragments of disc* (DAC 129) (FIG. 62.53)

Two small fragments of an ivory disc. Burnt. Length of largest piece 11 mm. Certainly from the same object as the other items of ivory but of uncertain function.

54. *Small plate* (DAC 127) (FIG. 62.54)

Small, flat, plate of ivory, 19 mm maximum length. Burnt. Surviving edges suggest that this once formed a part of a circular object/plaque. There are hints of 'arcaded' decoration on one side only.

55. *Two fragments* (DAC 126) (not illustrated)

Two fragments of burnt ivory, at least one preserved edge indicating an oval perimeter. Possibly from the same (or similar), element as DAC 127 above.

56. *Fragments* (DAC 114) (not illustrated)

Three small fragments of burnt ivory. Surviving and preserved edges indicate an oval perimeter. Length (maximum) of largest piece 22 mm.

Discussion

A number of individual pieces of ivory (nos 52–6), all burnt, represent a minimum of three items. The first (no. 52) is a bell-shaped decorative fitting with a circular central perforation. While it has been possible to reconstruct the profile of this item from several fragments, it is possible that at least one of the other fragments listed separately are from this incomplete piece too. Two of the other fragments of burnt ivory, one decorated, are certainly from separate items (nos 53 and 54) but are too small to be sure what their original shape and function were. While it is possible that a number of separate objects are represented by these items, it is more likely that each of the fragments identified are from a single find.

These fragmentary pieces are derived from a unique find in Britain. They are all that remains of the ivory fittings from an elaborately decorated item of furniture, possibly a funerary couch, although an alternative explanation, such as that they are from some other item such as a footstool, is possible. Although most fragments are small and it is uncertain from what part of the furniture they are derived, the largest (no. 52) is from part of one of the legs of the object, the central perforation being to receive an iron rod.

It is clear that the relatively small number (both in size and quantity) of fragments are only a part of the original. This is easily explained. It would appear clear that the furniture (if a couch, presumably upon which the body was laid) was burnt in the funeral pyre and afterwards only a small proportion of the surviving fragments recovered to be placed alongside the cremation in the grave. Given the rarity of the find it is unfortunate that more of the item was not deposited.

The context

Despite this being the first recorded example of the remains of ivory furniture from a funerary context from Britain, parallels are well known, in particular through two recent publications based on the non-British collections at the Fitzwilliam Museum, Cambridge (Nichols 1978 and 1991 with many further references). Although the overwhelming majority of examples of furniture with ivory fittings have been recovered in funerary contexts, it is possible that this was not their primary or original function and they may have had a use as functional beds or even dining furniture (Nichols 1979, 26; although see idem 1991, 43 fn. 11). The form of furniture represented by the Folly Lane example is of uncertain nature, although it would appear that it fits within the context of furniture with bone (usually) fittings produced in Northern or Central Italy and widely exported.[11]

The use of ivory on items of furniture, and couches in particular, are mentioned by several ancient writers. All stress the richness of the material. In addition to the references quoted by Nichols from Horace, Ovid, Suetonius and Macrobius (Nichols 1979, 27, fn. 4), Catullus (64, mentioning specifically Indian ivory) and Martial (*Epigrams* 2, XLIII) also mention the richness of ivory furniture. The use of ivory inlay on funerary furniture can be seen from the Hellenistic period onwards (e.g. Hill 1963) and are known to have been produced in Alexandria (Nichols 1991, 42).

Chronology

Nichols believes the broad dating of the couches to have 'spanned the first century B.C. and (to) have extended at least until the earlier part of the first century A.D.' Although this creates some difficulty explaining the apparent 'late' date of some of the examples (Nichols 1991, 25), it is into this period that the Folly Lane example falls. The use of such furniture in funerary contexts of the first century A.D. is, however, well paralleled. Although there is only one British example (see below) Nichols records three from Vindonissa and one from Bonn (ibid., 22–4), all with bone rather than ivory decoration and dating to the first century A.D. On the question of whether the 'later' examples represent the continued use of 'antique' Augustan furniture or a continued (or revived) production, Nichols prefers to leave the question open (ibid., 27).

British parallels

The identification of remains from further funerary furniture from Britain is difficult. While there are a number of isolated decorative elements from Britain that may have formed parts of such items, there is only one definite further example from the province.

A rich grave in the Joslyn Collection, Colchester, excavated in 1866 (grave 3/124; Hull grave 3: Crummy 1993, 260) contained, amongst many other items, the burnt decorated remains from a couch. In his brief description of the finds, May describes the bone elements as 'portions of handles, combs, cups, caskets, partly destroyed by fire' (May 1930, 251–3). This is clearly incorrect, however, and examination of the remaining finds identify the bone elements as the surviving parts of a funerary couch. Although not described by May, the remains include the cylindrical iron rods which passed through the middle of the legs (e.g. Nichols 1979, 4, A1).

The burial has never been fully published, but has become well known through its contents and early date (the couch has curiously remained undiscussed in detail). The date of the grave is pre-Flavian — it contained coins of Agrippina (eleven) and Claudius (twenty-five), together with pre-Flavian central Gaulish glazed wares and glazed and unglazed figurines (May 1930, 251–3 and pl. LXXV; Toynbee 1962, 186, pl. 172; Crummy 1993, 259–60 and 270). The cemetery from which this burial came lay along the main road into the early Colonia of Colchester

and was clearly important: from the same cemetery came the famous tombstones of Favonius and Longinus, both of which are also pre-Flavian. May dated the Colchester grave to *c.* A.D. 40–50 and Hull closely after A.D. 43 (Hull 1958, 251). The date of the Colchester grave is entirely in line with the dating of such couches suggested by Nichols and others, and was deposited at a date not too far distant from that of the Folly Lane example.

There are a number of isolated finds which *may* derive from couches and other items of furniture of a similar nature. There are a small number of carved bone plaques recorded from Britain (e.g. Toynbee 1964, 360–3), although none really compare with quality of the decorative elements on the couches. Among the ivory carvings from Roman Britain can be identified four examples which may fit into this group. None are closely dated, although two from Caerleon, depicting a tragic mask and a bacchic scene (Boon 1972, pl. 72), must have been deposited during the Flavian period at the earliest. The plaque from Gestingthorpe, a Bacchus or cupid, probably belongs to the later Roman period (Cooper 1969; Henig 1985, pl. X, 483), although the fitting method appears somewhat similar to that illustrated by Nichols (Henig 1985, pl. IV). The ivory plaque from Greenwich, probably depicting a maenad, is effectively undated (Greep 1983, pl. 1). The chronology of all the above examples may well exclude them from our present discussion, but serve to highlight the paucity of richly decorative items of furniture with ivory elements previously recorded from Roman Britain.

Conclusion

The remains of the ivory decorated furniture from Folly Lane represent a unique find in Roman Britain. Together with a more complete but perhaps comparable couch decorated in bone from Colchester, it derives from an important burial of the earlier years of the conquest. It is of a type that finds its best parallels amongst furniture produced in workshops in Northern or Central Italy in the late first century B.C./early first century A.D. and widely exported during this period. The majority of this production utilized bone for its decoration. The Folly Lane example in ivory represents the luxury end of this market. While it is unfortunate that more of the furniture did not find its way into the grave, the location of the funerary pyre itself may have provided more evidence for the exact form and decoration of what must have originally been an expensive import to the early province of Britain. That its final resting place was as the funeral bier to be destroyed by the cremation pyre surely adds weight to the richness and overall importance of the burial.

The flint, *by* Robin Holgate

*57. *Pressure flaked ovate* (FIG. 62.55)

Implements of this type and form are usually found in late Neolithic and Early Bronze Age contexts. Found in the lower fill of the funerary shaft, just above the shaft floor, close to the north corner.

THE FUNERARY FINDS — GENERAL DISCUSSION, *by* Jennifer Foster

The selection of grave goods in this grave consists of the usual items such as pottery and brooches, but also high status objects like silver, amphorae, horse gear, furniture (a casket, firedog and ivory-decorated couch), and personal belongings (mail suit and shoes). He also had a possible trumpet or sceptre. It is probable that many, if not all, of the objects were made especially for the burial, perhaps while the body was on display in the shaft (above p. 136). The bridle bit, for example, had not been used and had sloppy engraved lines as if the work was rushed.

Some of the objects can give an indication of the date of the group. The harness with *champlevé* enamelling has parallels that are all in the very late Iron Age, e.g. the hoards from Seven Sisters, Polden Hills and Santon. Spratling argued cogently (1972, 304–18), on the basis of associated objects such as brooches (Santon) and Roman military equipment (Seven Sisters), that these items date to the mid-first century A.D., from just before the conquest to about the Boudiccan

rebellion. The hobnails could argue a post-conquest date as these have not been found in pre-conquest contexts. The Roman horse gear also indicates a mid-first-century date: the junction ring is pre-Claudian (Bishop and Coulston 1993, 105); the strap junction is paralleled at Camerton (Jackson 1990, 36, no. 67); while the nave band has decoration derived from samian.

At first sight the collection of horse gear seems an incongruous group: a bridle bit, harness brooch and toggle of native British design, along with Roman military items decorated with Roman style silver inlay. However, Roman cavalry consisted of 'Celtic' auxiliaries; by the time of Hadrian most cavalry commands were Celtic and the designs of the equipment were originally Celtic (Bishop 1988, 113).[12] This suggests that the occupant of the grave at Folly Lane could have been, at the time of his death, an officer in the Roman cavalry; either that or he had been in the recent past. Roman (or Romano-Celtic; (ibid.)) cavalry rode male horses, probably usually stallions. The bridle bit from the grave suggests that the horse was a stallion.

Another incongruity is that there was not a full complement of harness: there is only one nave band (of two), one junction ring (out of four or five), and one strap toggle (of two), with no strap terminal for it to fit into. The pole end and nave band suggest a chariot or cart; although the vehicle would not have fitted into the grave, and there are no terrets or lynch pins, it could have brought the deceased to the site (see Stead 1991, 61). The strap junction and bit are for a ridden pony, not one that is pulling a chariot. So this is not a full set of equipment, but probably just token items to represent the range of activities of the deceased. It looks as if the missing items were never put on the pyre, and perhaps were never even put into the shaft in the first place.

Some of the objects were fragmentary (see above, p. 139), and were evidently broken up before the cremation. The silver handle (no. 17), for example, was left behind, perhaps deliberately, in the shaft. The nave band from the cart wheel had been deliberately removed and crushed. The firedog was represented by a single horn. The harness brooch may have been broken up before it was put on the pyre. This is very reminiscent of the grave ritual at Lexden (Foster 1986, 163–70), and other features are similar, such as broken rather than complete pottery and amphorae, the large pit and mortuary chamber, the presence of chain mail and furniture, the absence of weapons, and the fact that the ashes were not inurned.

In conclusion, the small finds indicate that this was the burial of a high-ranking man, who had been in the Roman cavalry. He was buried in *c.* A.D. 50. Some of the grave goods were specially made for the grave and were broken up as part of the cremation ritual. Most of the grave goods went onto the pyre with the body, some being melted beyond recognition, though some fragments were left in the shaft.

ANALYSIS OF THE METALWORK FROM THE FOLLY LANE CREMATION,

by J. P. Northover

The varied metal finds from the cremation and its surroundings were analysed with several objectives in mind. The first, given the effects of heat including melting, was to identify the alloys present in both recognizable objects and in the melted and fused droplets. In the latter case, of course, different alloys could easily have become mixed and where possible the individual components were to be identified. Secondly, identifiable objects were studied to correlate their metallurgy with their archaeological characterization. A number of changes in the non-ferrous alloys used in Britain took place in the first century A.D., notably the growth of the use of brass and the reintroduction of leaded bronze for casting. These metallurgical events must be related in some way to the spread of Romanized technology, but datings within the first century A.D. have been too imprecise to follow these processes in detail. The relative precision of the dating of the cremation gives us a most useful *terminus ante quem* for assessing their progress. Finally, the melted material was sorted and quantified, with a random selection of material characterized metallography, to estimate the range and amount of unidentifiable metal goods associated with the cremation.

Twenty-seven items were sampled for compositional analysis by electron probe microanalysis with wavelength dispersive spectrometry. Twelve samples (1–12) were drilled using a hand-held

modelmaker's electric drill with a 0.7 mm or 0.9 mm diameter bit, while the remainder were cut with a fine jeweller's saw or, in the case of small drops, were mounted whole (21–35). Approximately a hundred droplets were selected for metallographic examination only and, again, were mounted whole. All samples were hot-mounted in a carbon-filled thermo-setting resin, ground and polished to a 1 μm diamond finish. The details of the analysis routine have been published elsewhere (e.g. Northover 1994). All cut samples were examined in both the as-polished and, where appropriate, etched states.

The analysis of individual, identifiable objects of all metals are described and discussed above following the description of each individual object; the assessment of the melted material is described and suggestions made about the original form of the objects concerned. Here, aspects of the alloys present in the find as a whole are discussed, especially in relation to the chronology of the site. Finally, the contribution made by metallurgy to our understanding of the cremation ritual is discussed.

Cremated metal, *by* J. P. Northover and V. Cheel

In the preceding discussions it has been shown that even recognizable and describable artefacts were affected by the heat of the pyre and some at least had been on the pyre or on the body. Besides this material, a large weight of metal was either totally melted or had been fused to an extent that made it unrecognizable. Almost all this metal was recovered from the burial pit (DAB, DAC) by hand and by sieving, with solidified droplets of sizes even below 1 mm being retained. The droplets were sorted into four size ranges by sieving and have been weighed and counted. A small random selection was then made from the most important contexts and prepared for metallographic study to determine the relationship between the external appearance of the droplets and their actual composition. It was found that many droplets were completely corroded so the possibilities for identification were limited. Nevertheless the metal could be generally sorted into copper- and silver-based alloys and the results are given in TABLE 24.

Although so much metal was completely melted and fell through the pyre in drops of various sizes, it is assumed that their distribution in the ash-pile after the pyre had burned down would reflect the original distribution of objects on the pyre. While the collection of the debris from the pyre and its deposition in the burial pit could well have extensively randomized this, it was thought possible that the differences in the composition of the major metal clusters in the pit could ultimately derive from the pattern in which objects were placed on the pyre. The data have also been tested against this hypothesis.

The weights (in grammes) and number of particles are summarized here:

TABLE 24. COPPER- AND SILVER-BASED ALLOYS

Metal	>10 mm	>5 mm	>2.5 mm	<2.5 mm	>10 mm	>5 mm	>2.5 mm	<2.5 mm	pieces	weight
Cu alloy dominant	84	890	1679	827	1657.2	366.3	173.6	14.8	3480	2211.9
Mixed metals	86	398	1224	638	342.2	307.7	142.2	13.7	2346	805.8
Ag alloy dominant	136	997	5265	4080	517.8	966.1	899.2	120.9	10478	2504.0
Grand total	306	2285	8168	5545	2517.2	1640.1	1215.0	149.4	16304	5521.7

From the results of experimental cremations (Northover *et al.* forthcoming; Lambot *et al.* 1994) it has been determined that temperatures in many parts of the pyre, although not in or on the body, can easily exceed 1000° C, more than sufficient to melt any silver alloy present, pure silver melting at 963° C. The addition of copper to silver brings the liquidus temperature down quite rapidly and so silver alloy objects placed on the body could easily have melted at around 900° C. The fact that all the silver and silver alloy was fully liquid is shown by the number and size of the droplets. With about 90 per cent of the drops less than 5 mm in diameter the metal was falling as a rather fine spray rather than flowing in a stream. It is reasonable to conclude that the silver had melted quickly and early in the burning of the pyre and that the height of the pyre had had a similar effect to a shot tower, with the metal splashing on the still partially intact structure of the pyre further dispersing it, as would splashing on the ground.

Metallography showed a wide range of cooling rates among the many droplets with some clearly being air-cooled while others have effectively been furnace-cooled in the hot ash and with the resultant microstructure being characterized by the *continuous* precipitation of copper within the grains. The droplets have also been exposed to a range of atmospheres, some being badly oxidized, others being formed in reducing conditions and then protected from oxidation under the ash-pile.

Two samples of the silver droplets were analysed quantitatively to see how the silver present compared with that in identifiable objects. The samples came from DAB 18 and DAC 179 (TABLE 25).

TABLE 25. METALLURGICAL ANALYSIS OF SILVER DROPLETS FROM DAB 18 AND DAC 179

	Fe	Co	Ni	Cu	Zn	As	Sb	Sn	Ag	Bi	Pb	Au	S
#33	0.05	0.01	0.04	69.26	0.48	0.14	0.03	9.51	19.06	0.00	1.13	0.25	0.04
#35	0.01	0.01	0.01	3.03	0.40	0.00	0.00	0.10	94.81	0.10	1.15	0.37	0.02

The droplet of fine silver, #35, with 3.03 per cent copper and gold and lead impurities closely parallels the other samples of fine silver analysed, #23 from the inlay in the nave band, and the ribbed ring, #31. Comparison with other Roman silver (Baratte *et al.* 1985) suggests that any tin and zinc could either be present as an impurity in the alloy from some incorporation of bronze or brass, or picked up in the pyre with the silver dissolving some copper-based alloys. Meanwhile, the mixture of silver and bronze represented by #33 must be the result of the mixing of a rather high tin bronze with silver in the pyre, the tin content being sufficient for the bronze to be molten at the same temperature as the silver.

How much silver there was and in what form it might have been present on the pyre must also be considered. The total of 2.50 kg in TABLE 24 can only be approximate for several reasons. First, many of the droplets will today be light because of the effects of corrosion; secondly we are not certain how much silver might have been removed from the scene at the time, and some has not been counted because it was adhering either to the mail or to some of the large copper alloy masses, or was in the 0.81 kg recorded as mixed. On the other hand it is certain that many droplets will also have been mixed with copper-based alloys in the pyre. To some extent these factors will neutralize each other and the figure of 2.50 kg can be taken as a good guide to the amount of silver originally present. One obvious source of the silver is vessels similar to those in Welwyn type burials. If this was the sole source then the number of vessels would be rather larger than that known in the other graves. The silver content in the measured droplet is compatible with this, while cast components soldered in place would tend to be form droplets that were rather more base. A second source, which would account for some of the very base droplets, is silver inlays in copper alloy objects. We have also referred to the possibility of silver furniture mounts being present. The presence of silver coins of either Roman or Trinovantian types cannot be ruled out as they would have much the same compositions as the silver vessels.

Although none were analysed, the copper alloy droplets will logically be overwhelmingly of bronze or gunmetals. This is simply because with brass the alloy has a very narrow freezing range while the addition of zinc only very slowly depresses the liquidus temperature. The metallographic survey confirms this, with no droplets observed to have the typical colour of brass. In the bronzes a wide range of tin contents (based on colour) is observed, from 2 per cent to 15 per cent. Surprisingly few of the particles were severely oxidized suggesting protection by the burning of the remains of the body, or of the bier, followed by being covered by the ash. Where the metal has melted the droplets are usually significantly bigger, an effect of differences in surface tension and, also, viscosity given that some of the copper alloy must have been barely molten. With regard to the probability that brass is the least likely alloy to have melted it may be noted that a majority of the least altered artefacts are zinc-rich alloys, for example the harness brooch and the junction ring. Other bronze pieces such as the toggle (#2) are small enough and high enough in tin for them to have melted if placed in any of the hot parts of the fire. The

large, more or less fused masses of copper alloy such as DAC 23 may also have been of these alloys. The total of copper alloys recorded is 2.21 kg (with the same provisos as for the silver alloy). While this is sufficient to account for many of the apparently 'missing' harness items, there is nothing from the shape of the larger masses to suggest that this is a complete explanation; other objects must have been present.

An examination of the contexts of the larger assemblages of copper and silver alloys does suggest some differentiation in deposition although this may not be significant. For example, the larger conglomerations of copper alloy would have been pulled out of the ash-pile as single pieces, as would the mail shirt. In contrast the silver would presumably have been scooped up with the ash and not necessarily sorted from it. Some seems to have been sufficiently confined to be kept together and deposited as the 0.825 kg in DAC 31, a possible weight for a vessel or pair of vessels.

The materials present

This section presents a brief summary of the materials identified in the context of the early years of the Roman occupation of southern Britain, beginning with brass. One analysis from the junction ring (#27) was identified as being made from brass uncontaminated by tin (or more probably bronze). This can be compared with the compositions of brass ingots from the first century A.D. in southern Britain (TABLE 26).

TABLE 26. METALLURGICAL ANALYSIS OF FIRST-CENTURY BRASS INGOTS FROM SOUTHERN BRITAIN

	Fe	Co	Ni	Cu	Zn	As	Sb	Sn	Ag	Bi	Pb	Au	S
#27	0.10	0.00	0.01	75.31	23.76	0.61	0.03	0.02	0.07	0.03	0.02	0.04	0.00
CP1	0.41	0.01	0.04	78.19	20.57	<0.20	0.02	0.01	0.03	0.02	0.64	0.03	0.00
SS15	0.17	0.01	0.04	80.61	18.94	<0.20	0.06	0.01	0.04	0.00	0.08	0.00	0.00
SS16	0.19	0.01	0.02	75.70	23.63	0.19	0.02	0.00	0.08	0.00	0.15	0.00	0.00

(CP1 from Claydon Pike, Oxfordshire; SS 15–16 from Seven Sisters hoard, Glamorgan (Northover, unpublished data))

A tin-free billet of brass from Sheepen (Musty 1975) contained 26.8 per cent zinc. Thus this part of the junction ring is representative of brass available in Britain after the start of the Roman occupation. The first brass objects to appear in Britain were possibly Celtic coins of the last few years of the first century B.C. (Northover 1992). These have 20–23 per cent zinc and a small tin impurity, a feature common in other early brass in south-eastern England. Such brass which can be identified as being pre-conquest is almost always formed into brooches of types which exploit the ductility of the brass. In the South-East these may contain up to 1 per cent or so of tin (Bayley 1989; 1990), although nearer the presumed source of the brass among the zinc ores of the Mendips, the corresponding brooches are tin-free. The point at which the deliberate addition of tin to the alloy to enhance either strength or casting properties, or to change the colour, is not certain. Thus the 1 per cent or so tin in the harness- brooch (#7–9/28) may well not be purposeful but the 13 Zn-3 Sn alloy of the bridle bit almost certainly is. This bit, and the bit component analysed from Seven Sisters, also demonstrate the use of Roman style alloys by craftsmen working in the Roman tradition. Another mixed alloy, the 8 Zn-7 Sn-1 Pb of the furniture fitting could also be a deliberate formulation. With the present state of knowledge it is reasonable to presume a craftsman who came with the Romans or one working directly under Roman patronage. It is to be regretted that these ternary and quaternary alloys are too often simply recorded as gunmetal without an examination of the possibility of alloy selection within the range implied by that term.

Compared with a pure 20–23 per cent zinc brass, a 10–12 per cent tin bronze will have a different colour, greater hardness and strength but lower ductility and, through its much increased freezing range, better casting behaviour. The castability will be further improved by the addition of lead, but even the most intricate castings of the majority of the pre-Roman Iron

Age are in lead-free bronze. The addition of lead to the alloys, as with the spread of brass, are suggested to be a symptom of the growing contact with and technical influence of the Roman Empire. Among the identifiable artefacts from Folly Lane bronze is only found in the toggle and a fragment of sheet, both unleaded. This is not so surprising as much of the bronze was melted or rendered unrecognizable in the pyre and was only identified metallographically among the droplets, either on its own or mixed with silver.

The dominant 'white' metal is silver. The quantity of silver of reasonable fineness (up to 97 per cent) indicates that a number of vessels similar to those in the Welwyn-type burials was present, but here the vessels were placed on the pyre and have been completely melted. Silver was also used as inlays and some of the base-metal droplets must come from the melting of inlaid copper alloy pieces. Silver was a metal unknown in the pre-Roman Iron Age in Britain until the activities of the Snettisham smiths in the first century B.C. and the introduction of a silver coinage (Northover 1992). The presence of silver vessels is a still later phenomenon and is associated with the Welwyn group of graves.

One furniture mount associated with a pewter washer has survived unburned, presumably because it fell outside the pyre, and silver-tin droplets have been recovered as well. So far no droplets entirely of tin, pewter or lead have been identified. The presence of a fragment of zinc has been commented in detail and no further discussion is necessary, save to reiterate what a fortunate survival it is.

The principal piece of ironwork is the mail shirt. This has fortunately preserved a great deal of information about its construction despite the totally oxidized state of the metal. All other iron pieces were either too oxidized or too corroded to retain any metal and no further comment is possible.

The last material to consider is glass. Three objects (the bit, the harness brooch and the toggle) were decorated with coloured glass. Glass was worked throughout the pre-Roman Iron Age in Britain for decorating metal objects and for beads and bracelets, and the glass has been the subject of extensive analysis (e.g. Henderson 1987, 1990; Henderson and Ivens 1992). When inlaid into metal objects the glass was heated until it was soft and pressed into place with a suitable tool (it is not true enamelling where ground coloured glass is fused *in situ*). The most important is opaque red glass; the type which is ubiquitous in the pre-Roman Iron Age is a high lead oxide-soda-lime-silica glass, the colour coming from a dispersion of cuprous oxide. Around the middle of the first century A.D. this began to be replaced by a paler red enamel with a low lead oxide content (Henderson 1990). Although no analysis was carried out it seems probable that this later type is not present. The red glass can also give some further information about the pyre and the placement of objects. If the temperature is too high and the atmosphere too oxidizing the cuprous oxide will be oxidized to cupric and the glass will become transparent and bluish in colour. This transformation has not occurred indicating a relatively low temperature and reducing atmosphere but not, necessarily, that the pieces were not placed on the pyre. The lack of oxidation, very large grain sizes in the silver inlay on the nave band, the harness brooch and the junction ring show that the harness equipment had been heated under similar conditions.

The other colours present are opaque blue and white, although the blue can be streaked with yellow or white. Henderson (1990) suggests that the white could be a soda-lime-silica glass with a relatively high magnesia content and opacified with calcium antimonate, while the blues are probably a soda-lime-silica glass with a lower magnesia content, and also opacified by calcium antimonate. The colour would come from cobalt. The streaking of yellow and white may come from the reuse of glass from, say, beads, but might also derive from reactions in the pyre.

The cremation

This discussion of the progress of a cremation is based on experiments carried out by Ms J. Mckinley and Dr A. Marshall at Guiting Power, Gloucestershire in 1994–5, and we are indebted to them for their invitation to participate in the project and to follow the effects of the fire on metal artefacts placed in and on the pyre, and to relate these to the monitoring of temperature and atmosphere during the burn.

The pyre was constructed from a framework of oak baulks at the lower level, and pine at the upper, and filled with brushwood. The pyre measured 2 m by 1.5 m by 15 m and the body being burned was of a sheep wrapped in a woollen shroud. A small pit was cut under one end. Samples of 10–12 per cent tin bronze were placed both in the pyre and on the body. Wind speeds were typically 3–4 m/s.

After ignition the fire spread rapidly and after fifteen minutes the frame was burning rapidly but the structure was still intact. After twenty-five minutes, though, the brushwood fuel stack had started to collapse downwards allowing the body to settle, although the frame still stood. After one hour and fifteen minutes the top of the frame was beginning to collapse inwards, and after one hour and forty minutes the frame was reduced to one third of its original height. A little past two hours the pyre consisted of a very hot ash bed with charred timbers projecting and fragments of cremated bone visible. When five hours had elapsed the larger wood was all converted to ash but the pile was still too hot to approach or handle. After another two hours pieces could have been sorted and extracted from the ash-bed with some difficulty or (as at Folly Lane) could have been shovelled into a pit with the ash certainly hot enough to scorch the surrounding grass. It was not until nine hours had passed that the bed was cool enough for the cremated bone to be sorted and collected. This timing is interesting since the Folly Lane pyre could have been much the same size or even a little larger. Nine hours is essentially dusk

PLATE XLIII. Silver droplets adhering to the mail tunic.
Photograph: P. Carter, St Albans Museums.

to dawn at midsummer or dawn to dusk at midwinter, consistent with the proposal that the cremation was carried out at an important date in the calendar such as one of the solstices (see p. 58).

The fate of the metalwork in the cremation experiment was similar to that observed in Folly Lane. Some metal had received prolonged heating in reducing conditions resulting in a highly homogenized structure with a very large grain size; predominantly this metal was placed on the body. However, at Folly Lane we do not know the condition of the body. It was perhaps not too decayed, but other features of the construction of the pyre might have given a reducing atmosphere over a sufficiently wide area, perhaps the use of green or resinous wood. In the experiment the temperature on the chest of the corpse briefly reached 1000° C and then decayed quite rapidly. This would be enough to melt or partially melt the silver and bronze at Folly Lane but not necessarily the brass. In other parts of the pyre high temperatures were maintained in an oxidizing atmosphere for a much longer time and this would have been rather destructive of the copper alloy metalwork. Silver was not included in the experiment but clearly at Folly Lane it had been taken well above its liquidus temperature. Some pieces must have been close to the edge for the spray to have been air-cooled.

If the mail shirt was displayed above the pyre as a trophy or banner the rapid initial burning of the pyre would have cut its support at an early stage allowing it to crash through the burning fuel to land in a heap, picking up melting metal fragments on the way, other drops falling later. The results of the experiments are still being analysed and further cremations are possible which may well enable us to improve our interpretation of the Folly Lane cremation.[13]

THE POTTERY FROM THE FUNERARY SHAFT AND BURIAL PIT

GALLO-BELGIC WARES AND LOCAL IMITATIONS, *by* V. Rigby

Method

The pottery is fragmented and fragmentary: there are no complete vessels and none can be restored to complete. Sherds of grog-tempered ware recovered from within the enclosure are evidence of the preceding phase of occupation (p. 124, FIGS 49–50). It has not been possible to distinguish with certainty residual material generated by the earlier occupation from the remains of vessels used in the memorial and burial rites; therefore the precise number and function of ritual vessels cannot be determined. It has been assumed that vessels found in the lower layers of the shaft filling and on the floor of the shaft and represented by a number of sherds including rims and bases are likely to have been part of the rite, while single body sherds particularly those from 'turfs' in the shaft filling, are not.

Sherds were sorted into probable vessel groups and for the archive record the related groups and remaining individual sherds were then classified by form and fabric. Vessel groups have been recorded by sherd count and the amount of surviving body circuit has been estimated. The fabric and form classifications have been integrated with the King Harry Lane (KHL) cemetery. All recognizable rims have been included in the illustrated catalogue arranged by fabric and form: body sherds are listed separately by context fabric and form.

Vessel forms in local fabrics

Form 1: Carinated cup copying the import Cam. 56C

The prototype was produced in a number of variants from the late Augustan period. Variant C with a deep undercut rim was introduced around A.D. 20 and production continued into the Neronian period. All three or four examples at Folly Lane were made at the same workshop if not by the same potter; none occurred in the King Harry Lane cemetery.

Form 2A: Platter with a plain tapered rim

cf. KHL 1A1

Form 2B: Platter with out-curved rim

No close parallels in the King Harry Lane cemetery.

Form 2C: Platter with tapered rim

cf. King Harry Lane 3C1. Four examples represented in mortuary contexts. Three of five examples found in the King Harry Lane cemetery were in graves assigned to Pottery Phase 3 and hence dated to the Claudio-Neronian period.

Form 3: Platter with tapered rim and groove on the inside below the lip

One example only, probably not part of the grave goods.

Form 4: Platter with plain wall and beaded lip

cf. KHL 5Al. Seven similar platters found in the King Harry Lane cemetery: five appear to have been made by the same local potter, one was in a grave assigned to Pottery Phase 3 and hence a post-conquest product.

Form 5: Platter copying the rim shape of Cam. 8/14 with grooved cordon forming a useless foot-ring

Two examples clearly made by the same potter in mortuary contexts. The product, i.e. form and fabric, is not represented in the King Harry Lane cemetery but similar platters occur in early Roman contexts at Baldock (Stead and Rigby 1986, fig. 129.304–5).

Form 6: Platter copying the rim shape of Cam. 8/14 with a triple concentric foot-ring

Close parallels in the same fabric-type occur in the early Roman contexts at Baldock (Stead and Rigby 1986, fig. 119.185–7). The triple foot-ring is most common to the north of Verulamium in the area of the headwaters of the Ivel, Nene and Ouse river systems.

Form 7: Necked and cordoned bowl

cf. KHL 1C2. Made any time between mid-first century B.C. and A.D. 60. The wheel-thrown version was first produced in the early first century B.C. and the form was adopted by potters using Roman techniques in the early Flavian period. Ten examples of Variant 1C2 found in the King Harry Lane cemetery. The size range is wide, but the proportion of maximum diameter to height is maintained suggesting standardized sizing.

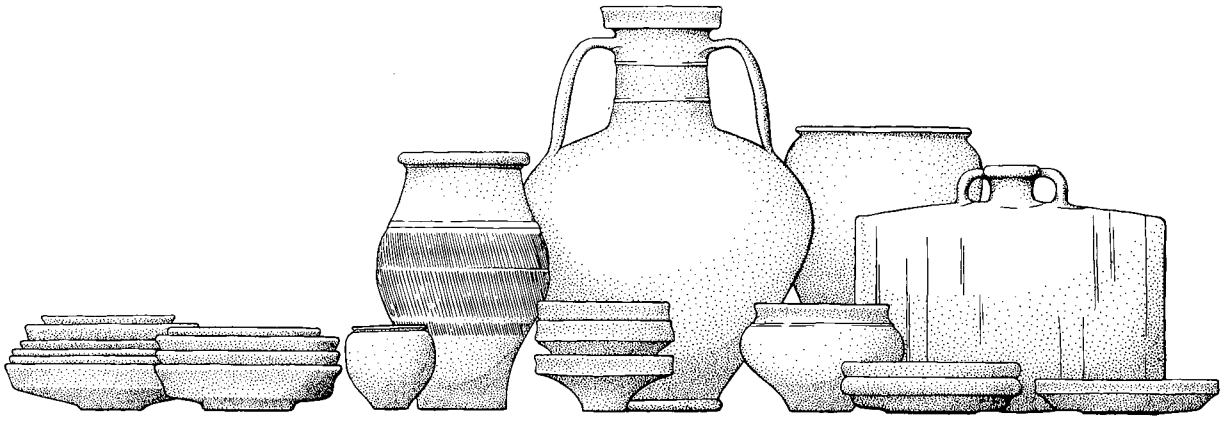
Form 8: Lid-seated jar with high shoulder

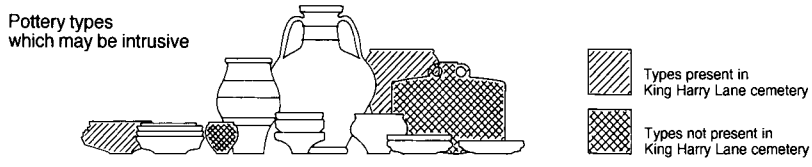
No examples of this variant found in the King Harry Lane cemetery. Probably intrusive domestic debris.

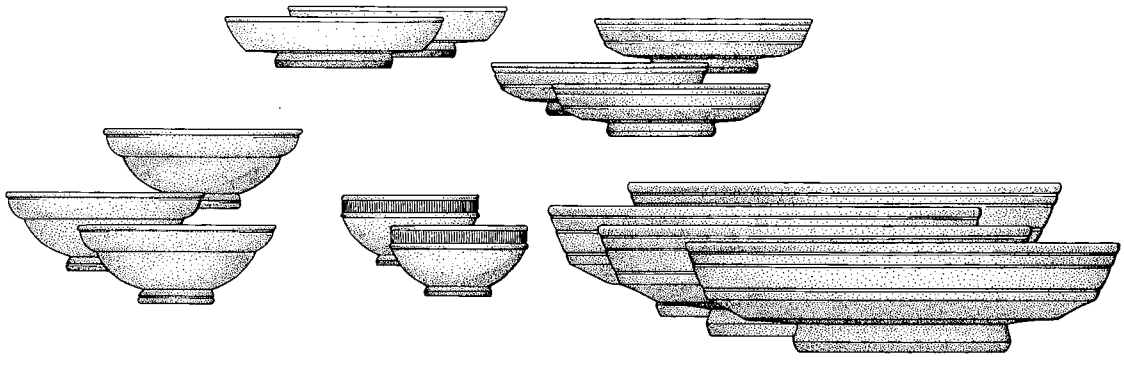
Form 9: Kostrel or unknown closed form

The configuration of the base and slim line of the body suggest as kostrel, rather than a closed jar form. Probably a product of the Verulamium Region potteries although it is without parallel there.

Chronologically this is the most significant vessel found in the shaft. Between A.D. 50 and 55, the mortarium potter Oastrius began production at Bricket Wood, just outside Verulamium, and output included a varied range of collared flagons with one and two handles and honeypots; none was found in the primary phase of use of the King Harry Lane cemetery (Saunders and Havercroft 1977). Mortaria were not acceptable grave goods at that time, but flagons were, so why are there no early Verulamium flagons in the King Harry Lane cemetery? The reasons may







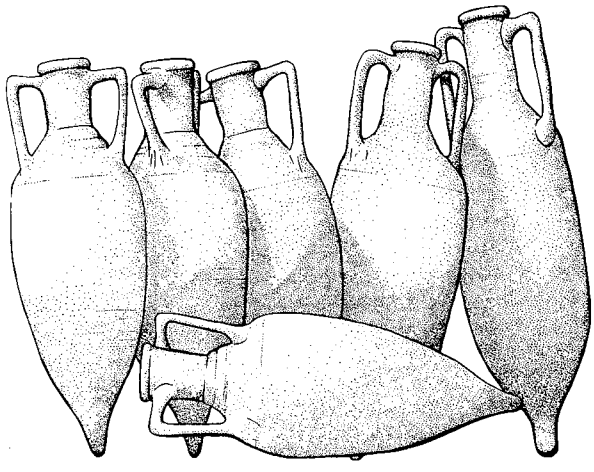


FIG. 63. Samian, amphorae and fine ware from the funerary shaft and burial pit. Not to scale.

be chronological or cultural, either the first period of use ceased before Oastrius began production, or families who continued to use their traditional cemetery after the Roman occupation did not chose to use new pots or did not have access to them.

CATALOGUE OF POTTERY FROM THE FUNERARY SHAFT (FIG. 64)

Date of deposition: after A.D. 50 and before A.D. 60.

I. Gaulish imports

a. Gallo-Belgic

Both imports found scattered in the same context areas

1. Butt beaker Cam. 113, variant 2C2
   Typical white fine quartz sand-tempered parchment ware.
   Condition: complete profile and about ⅔ circuit, rims, bases and sherds missing: possibly in large sherds which were further fragmented. It is the most most complete surviving vessel. Complete when taken down into the shaft, broken and a few sherds removed as mementoes.
   Contexts: DAA 87 (turf fill); DAF 87 (slippage from shaft wall); DAG 70 (shaft floor); DAP 6, 8, 10–17 (on shaft floor — most and largest sherds from this context).
   Tiberio-Neronian: In the King Harry Lane cemetery butt beakers were not exclusively pre-Claudian imports. They belong to the most common imported functionally specific vessel-type in the King Harry Lane cemetery with sixty-five examples; Variant 2C2 was the most common of the twenty-one variants classified. Study of examples in cremation burials of the late Iron Age and early Roman period elsewhere in southern Britain confirm this popularity; the butt beaker is the most popular import and 2C2 the most common variant. None occurs in King Harry Lane Pottery Phase 1, that is in definitely pre-conquest burials. They are shared between the later Phases 2 and 3, those spanning the conquest and definitely post-conquest.
2. Flagon or Lagena, Cam. 136 or 140, 161 or 163
   White pipeclay.
   Condition: almost complete but not conjoining base circuit; no upper body sherds. All four sherds should belong to the same vessel although they are spread in three different contexts. So little survives that it is difficult to suggest that the pot reached the bottom complete.
   Contexts: DAA 14 (turf in shaft fill); DAF 88 (slippage from shaft wall); DAG 72 (on shaft floor); DAP 36 (on shaft floor).
   Tiberio-Claudian, *c.* A.D. 50 for the latest import? Imported flagons and lagenae in white pipeclay wares were fairly common in the King Harry Lane cemetery being found in burials of all sizes from single pots to the maximum of ten and in all three Pottery Phases. There is considerable variety in size and typological detail implying supplies from a number of different sources over a considerable period. Although less common than butt beakers, vessels in pipeclay wares occur widely in cremations of the early first century A.D.

b. South Gaulish

3. Small beaker everted rim and shoulder groove
   Buff fine quartz sand-tempered ware.? Rough-cast CCW Beaker Camulodunum 94? Claudio-Neronian.
   Context: DAG 91 (on shaft floor).
   No imported Gaulish colour-coated vessels were found in the King Harry Lane despite the occurrence of a small lead-glazed flagon. A group of copies thought to be from a local source was found in one of the inhumations dated to the pre-Flavian period (Stead and Rigby 1989, fig. 102, burial 88).

II. Local products

a. Grog-tempered ware

Fine sandy matrix tempered with black crushed grog. Typically fired in uncontrolled conditions in a bonfire which results in patchy light and dark brown burnished surfaces. Grog-tempered ware is the basic fabric-type used for all vessel forms in the King Harry Lane cemetery, totalling 450 out of over 700 vessels overall. It is represented in all three Pottery Phases including the post-conquest Phase 3 (Stead and Rigby 1989, p. 200, TABLE 42). Groups from native settlements in the region suggest that use continued into the Neronian without discernible interruption by the Roman occupation.

4. Platter Form 2A with tapered rim cf. KHL 1A1
   Grog-tempered ware, light grey core, brown undersurface, dark grey-brown surfaces smoothly burnished interior, roughly smoothed exterior.
   Condition: about six large subsequently fragmented sherds comprising the total base and ⅔ rim circuit non-conjoining.
   Contexts: DAA 6 (turf filling); DAF 52 (in wall slippage), DAG 75, 78, 80, 83, 86; DAP 23 (all on the shaft foor), DJE 6 (in pit in shaft floor).
5. Platter Form 2B with out-curved rim
   Grog-tempered ware, brown core, black soapy burnished finish, smoothly burnished interior faceted exterior.
   Condition: originally about six large, subsequently fragmented, sherds comprising ⅔ non-conjoining circuit.
   Contexts: DAF 91 and 95 rims (wall slippage); DAG 73 and 84 bases, 94 and 95 rim (shaft floor); DJE 8 rims, 10 bases (pit in shaft floor).
6. Platter Form 2C with tapered rim cf. KHL 3C1
   Grog-tempered ware brown core, red-brown undersurface, brown surface with traces of burnished finish.
   Condition: small sherds less than ⅓ non-conjoining circuit.
   Contexts: DAG 89 (shaft floor); DJE 13 (pit in shaft floor).
7. Platter Form 2C with tapered rim cf. KHL 3C1
   Grog-tempered ware grey core, brown undersurface, dark grey matt finish.
   Condition: numerous small non-conjoining sherds comprising about half base circuit and less than ⅓ rim, few joins.
   Contexts: DAG 93 stamp joining DAF 99, DAG 16, 35, 81, 85, 97, ?74, DAF 99 joins stamp 101? (on shaft floor or in wall slippage).

The stamp (FIG. 64)

Bordered Mark within burnished circle.

The die is unique, but the die-style using simple V-motifs and spots is well known and widely found in eastern Britain in Roman contexts of the first and second centuries A.D. — Baldock and Weston, Herts., Camulodunum, Essex, Wereham and Scole, Norfolk, and West Stow, Suffolk (Stead and Rigby 1986, fig. 100.1–3). This is the earliest example, and the first recorded on a grog-tempered vessel. None of the five examples in the King Harry Lane cemetery had been stamped with a maker's stamp.

8. Platter Form 3 with tapered rim and slight groove at the lip
   Grog-tempered ware red-brown.
   Condition: 1 rim
   Context: DAP 4 (on shaft floor); DJE 2 possibly the base of this platter (pit in shaft floor). None of the platters in grog-tempered ware in the King Harry Lane cemetery had an internal groove on the wall.
9. Platter Form 4 with beaded lip cf. KHL 5A1
   Grog-tempered ware red-brown.

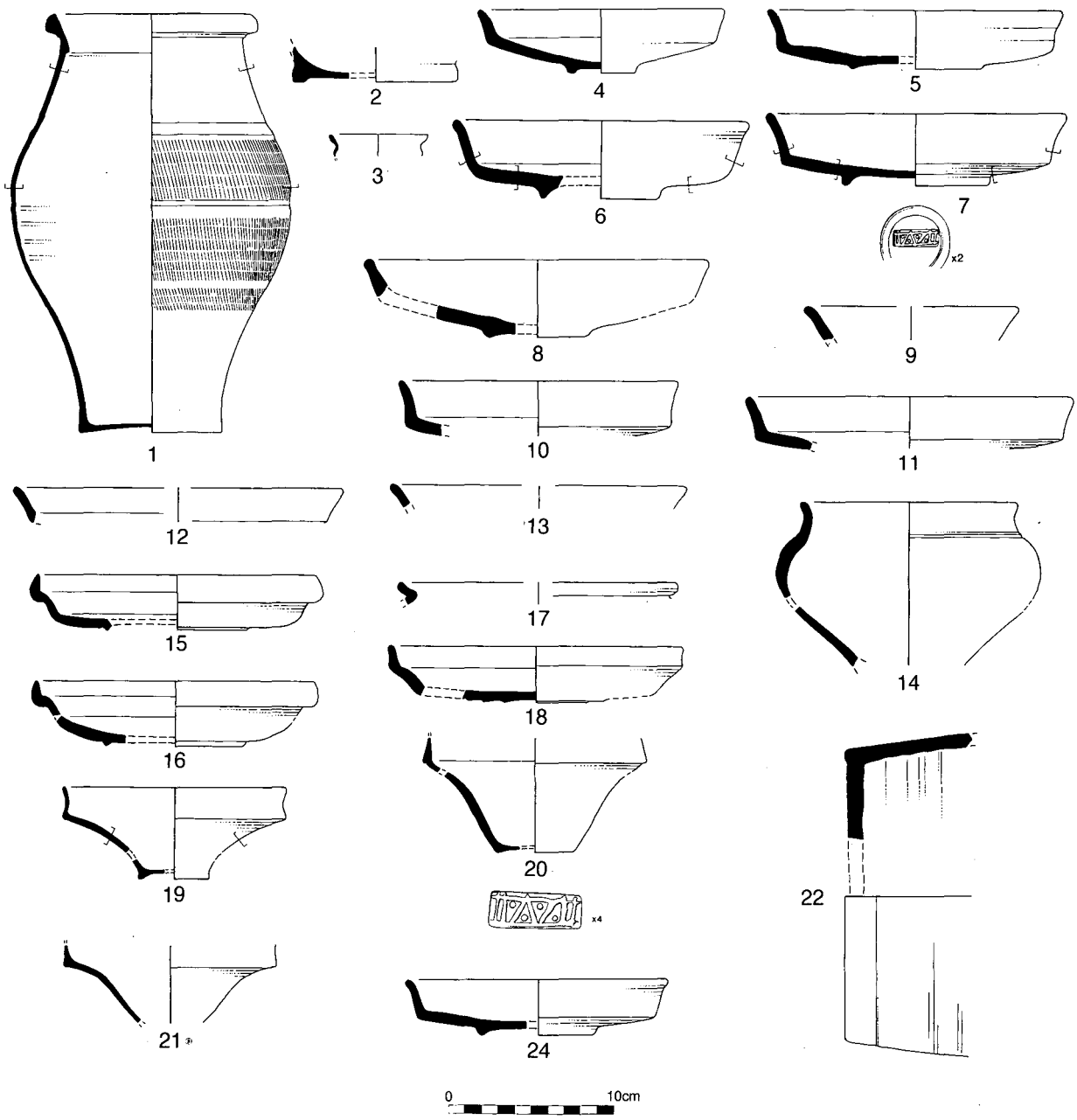


FIG. 64. The imported pottery and local imitations from the main burial pit and the funerary shaft. Scale 1:4.

Condition: 1 rim.
Context: DAP 28 (on shaft floor).

10. Platter Form 2D with curved and tapered rim
Heavily burnt grog-tempered ware.
Condition: 1 rim.
Context: DAG 74 (on shaft floor).

11. Platter Form 2C
Heavily burnt grog-tempered ware.
Condition: 1 rim.
Context: DAF 45 (slippage from shaft wall).

12. Platter Form 2C
Grog-tempered ware, grey core, red-brown burnished surfaces.
Condition: 1 rim.
Context: DAF 47 (slippage from shaft wall).

13. Platter Form 2C similar in form and fabric to platter 7
    Condition: 2 rims.
    Context: DAG 96 (on shaft floor).
14. Necked bowl Form 7. cf. KHL 1C2
    Grog-tempered ware, grey core, orange buff interior and under surface, grey-brown exterior; unevenly fired, no finish survives.
    Condition: rims, shoulders and lower body sherds forming almost complete non-contiguous profile. No base sherds: looks like ten small further fragmented sherds.
    Context: DAP 14, 24-26, 27 (all on the shaft floor; no. 27 may be one sherd from a second example).

b. Smooth ware

Fine-grained, even-textured smooth ware with a carefully burnished finish. Very smoky conditions produced during the final firing phase so that carbon was deposited on the surfaces to produce a black glossy finish. Two identical platters found in different contexts of the funerary shaft. The fabric is not represented in the King Harry Lane cemetery but occurs at Baldock, in early Roman contexts (Stead and Rigby 1986, 262).

15. Platter Form 5
    Smooth ware, dark grey with soapy burnished finish.
    Condition: about five large subsequently fragmented sherds comprising ¾ non-conjoining base and rim circuits. One sherd, possibly from this vessel, was found in the filling of the burial pit.
    Contexts: DAG 63 92 rims (on shaft floor); DJE 7 12 (pit in shaft floor); DAF 057 (slippage from shaft wall); ?DAC 39 (fill of burial pit).
16. Platter Form 5 made by the same potter as 4 above. Burnt and discoloured
    Smooth ware, orange core, buff surfaces, no finish survives.
    Condition: 1/5 non-conjoining circuit.
    Context: DAF 18 46 48 and 50 rims 90 base (all from slippage from shaft walls)
17. Lid-seated jar Form 8
    Smooth ware, possibly also grog-tempered, grey core, orange undersurface, brown soapy burnished finish.
    Condition: 2 rims.
    Context: DAP 19 (on shaft floor).
    Not a variant identified in the King Harry Lane cemetery.

c. Vesicular ware

Fine-grained smooth matrix with mixed inclusions of black grog and iron oxide pellets and angular voids which are likely to represent shell. Glossy burnished surfaces fired to produce redbrown. Typically fired in the uncontrolled conditions of a bonfire resulting in variable surface colour and finish. The fabric is not represented in the King Harry Lane cemetery but occurs in early Roman contexts at Baldock (Stead and Rigby 1989).

18. Platter Form 6
    Vesicular ware, silty matrix with grog, iron oxide pellets and fine voids, grey core, very abraded and laminated red-brown surfaces. A base sherd with triple concentric off-sets forming the base could be part of the same vessel.
    Condition: ⅓ non-conjoining rim circuit and separate base sherd.
    Context: DJG 14 including circuit rims (pit in floor of shaft); DAF 28 base (in collapsed material from shaft walls); DAG 76 77 (on shaft floor).

d. Fine quartz sand-tempered ware

A fine quartz sand-tempered fabric fired in a kiln. The final firing phase took place in a reducing atmosphere to produce grey or buff matrix with blue-grey burnished surfaces. Superficial

examination suggests that all three or four cups were made in the same workshop if not by the same potter but no other forms have been recognized. The fabric and firing resemble closely a group of fine-grained, kiln-fired silty wares represented in Pottery Phase 3 in the King Harry Lane cemetery. Silty ware was used to make a range of copies of imports — flagons, butt beakers, lid-seated jars and globular beakers but no carinated cups were found (Stead and Rigby 1989, fig. 68).

19. Carinated cup Form 1
    Blue-grey, fine-grained, quartz-sand tempered ware, traces of burnished finish inside and out.
    Condition: sherds comprising about ⅓ circuit but non-conjoined. Possible that more than one cup is represented.
    Contexts: DAA 23 24 (turf fill of shaft); DAG 67 rims, 69 base 64 66 62 body (all on shaft floor); DJE 15, 19, 22 (in pit in shaft floor).
    DAC 25, from the burial pit may be from this vessel or from vessels 20–21.
    Sherds from all sections of the cup are scattered in different context areas
20. Similar carinated cup Form 1 in the same fabric fired in slightly different conditions to give a brown core and blue-grey surfaces with traces of a burnished finish.
    Condition: lower body and base sherds comprising an almost complete but not conjoined circuit.
    Contexts: DAG 61 base, 88 (floor of the shaft); DJE 17, 21 rim (pit in shaft floor).
21. Carinated cup Form 1 from the same source as *a*
    Condition: 1/5 body circuit.
    Context: DAG 49 71 (floor of the shaft).

e. Reduced parchment ware

A quartz sand-tempered fabric which includes some coarse sand and fired in a kiln. The final firing took place in a reducing atmosphere to produce an off- white matrix and blue-grey surfaces.

The fabric is typical of coarse wares produced in Gallia Belgica from the first century A.D., but it also falls within the definition of products of the Verulamium Region kilns where production is estimated to have begun between A.D. 50 and 55.

None of these products was found in burials dated to the first century A.D., although they were predominant in later graves of the second century.

22. Form 9, kostrel or unknown closed form
    Reduced parchment ware: off-white matrix, blue-grey surfaces; traces of horizontal grooves which may be skeuomorphs for the horizontal hoops; no finish survives. Probably a product of the Verulamium Region potteries and made after A.D. 50/55.
    Condition: one medium-sized base sherd with abraded edges.
    Context: DAF 89 (slippage from shaft walls).

Discussion

Between six and thirteen platters were used in rituals in the funerary shaft, and taken together with samian examples greatly outnumber any other vessel type. More than sixty platters in grog-tempered ware were found in the King Harry Lane cemetery occurring in 12 per cent of all graves and in all three Pottery Phases. One had bird bones on it, otherwise there was no standard association nor evidence as to their function, but clearly platters were significant in the rituals of the King Harry Lane cemetery and the mortuary contexts at Folly Lane. In burials of similar date at Baldock, bird and animal bones were still *in situ* on several platters (Stead and Rigby 1986).

Summary of pottery found in the burial pit

Gallo-Belgic imports (not illustrated)

23. Rims from a small platter Cam. 8, heavily burnt *terra nigra* or *terra rubra*. Tiberian-Neronian. From iron sample 135.
24. Body sherd possibly from a necked or carinated beaker in black eggshell ware. Burnt. A.D. 50–85. Context DAC 22 36.

Local products (not illustrated)

25. Base sherd from a cup like nos 19–21, in same blue-grey fabric and possibly from of these vessels. Context DAC 36.
26. Platter form 5. Smooth ware, dark grey with soapy burnished finish. Condition: one sherd possibly part of no. 15 above. Context: DAC 39.

From the stakehole/scoop 5 near the mouth of the funerary shaft (FIG. 23, stakehole 5 context CRE)

27. Two rims from a platter Form 2C. Burnt grog-tempered ware.

From later contexts in the temple area (not illustrated)

28. Tiny burnt sherd from a cup in *terra nigra* or *terra rubra*. Pre- Flavian. Context BYR: in weathered surface, east of the temple.
29. Rim sherd Cam 13 in pale *terra nigra*, and a base sherd probably from the same platter. Contexts BZJ: in the weathered mound beneath the temple, and CDG: in a clay patch in late phase of temple floor.

Discussion

Sherds were found at the bottom of the shaft and in the burial pit but no absolute connection between pots in both features could be established. The only link to be made was one sherd from a cup which could easily belong to one of four cups found in the shaft but no join was found.

The total number of pots deposited deliberately in the shaft can only be estimated due to the fragmented condition of the sherds. There is one certainty; all the butt beaker sherds belong to a single vessel and most join (FIG. 64.1). Lacking joins, the remainder were sorted according to typological detail and fabric and then checked against a total rim circuit to give a minimum vessel count for key contexts within the shaft: if potters were capable of a high degree of standardized output, however, then each sherd could represent a separate vessel. The lack of joining sherds can only mean that the vessels had been deliberately broken, either in the shaft, after which sherds were removed as keepsakes or to be buried elsewhere, or somewhere else, when only some were recovered to be deposited in the shaft.

Whatever the actual vessel count and whether imports or local products, they had been deliberately selected to be a limited range of functionally specialized types — table wares used for eating and drinking. The exceptions are the amphorae, transport containers that presumably represent their contents, also food and drink. When drawn up as complete vessels the group looks like the pots from an enlarged version of a burial in the King Harry Lane cemetery, a similarity which supports the mortuary function of the shaft (FIG. 63).

Comparison with the King Harry Lane cemetery is instructive, the funerary shaft is much richer in imports than any individual burial in the cemetery. South Gaulish samian is by far the most common imported table ware in the shaft, the minimum vessel count being at least three times the total for the entire King Harry Lane cemetery. Moreover, with a date range of A.D. 40–55, it neatly fills a chronological gap in the cemetery list, fitting between the earliest pre-conquest Italian and provincial Arretine types and the South Gaulish Neronian pieces. Similarly the Dressel 2–4 amphorae count is well in excess of the single example discovered in a late

Augustan grave, burial 272, at the centre of one of the earliest enclosures in the cemetery (Stead and Rigby 1989, fig. 128).

Although only the foot-ring survives, it is predictable that the white pipeclay vessel was a two-handled *lagena* Camulodunum form 161/King Harry Lane GL6 imported from Gallia Belgica or the Lower Rhineland, since this is the most common version in the King Harry Lane cemetery and in cremation burials of the early to mid-first century A.D. in southern Britain (Parfitt 1995, 42). Similarly the presence of a parchment ware butt beaker is perhaps even more predictable, since it is the most common and widely found import in cremation burials in southern Britain (Parfitt 1995, 41–2). However, if the chronological implication of these two imports with a *terminus ante quem c.* A.D. 50, is to be believed, it raises the question why is there no contemporary *terra nigra* never mind *terra rubra*: the functional forms, platters and cups, are present but the special imported fabrics are not, and yet they were well represented in the cemetery with its *terminus ante quem c.* A.D. 60. Such differences suggest a more decided partiality for things Roman by those using the shaft.

The local products in grog-tempered ware, platters and a necked bowl, are typical of the King Harry Lane cemetery and could be lost without trace in that assemblage, the remainder in other fabrics could not. Both the forms and fabrics of the platters suggest areas of manufacture to the north of Verulamium and after A.D. 50. They are like examples found to the north at Baldock, in both cremation burial 7 and the settlement area, for example pit A405 (Stead and Rigby 1986, figs 32 and 119). The cups may represent the earliest production of Roman sand-tempered grey wares in the Verulamium area in the Claudian period. Some jars, but no cups, in quartz sand-tempered wares were found inserted rather as after-thoughts into the King Harry Lane cemetery, for example burials 6, no. 3, and 153 (Stead and Rigby 1989, figs. 89 and 114). A complete example was found in a pit dated to the Flavian period at Baldock (Stead and Rigby 1986, fig. 129.307).

The reduced parchment ware of the 'kostrel' (FIG. 64.22) may be a product of the Verulamium Region Potteries established by A.D. 55 and if so is the latest vessel in the assemblage from the funerary shaft (Saunders and Havercroft 1977). While no Verulamium Region flagons were found in the King Harry Lane cemetery, there is a possible product in burial 6 at Baldock with eight South Gaulish samian vessels, the latest dated A.D. 65–90 (Stead and Rigby 1986, fig. 28.9).

Four tiny, but identifiable, sherds were recovered from the cremated remains. While they may have formed part of the burial offerings, they may have been left over from a previous funeral pyre and accidentally included. Two are imports from Gallia Belgica, a *terra nigra* platter Camulodunum 8, dated *c.* A.D. 25–60, and a carinated beaker in eggshell *terra nigra*, dated *c.* A.D. 50–80. Neither type was found in the shaft but the former was fairly common in the King Harry Lane cemetery. Two sherds are from vessels in kiln-fired fine sand-tempered wares which were probably made locally after *c.* A.D. 50: one is from a cup and it may belong to the cups found in the funerary shaft, it is certainly from the same source and of the same date. Given the quantity of samian in the shaft its absence from the burial pit may indicate that the two events were entirely separate in cause and time.

Between six and thirteen platters were used in rituals in the base of the funerary shaft, and taken together with samian examples greatly outnumber any other vessel type. In the King Harry Lane cemetery, platters from all sources were a ritually significant food serving type accounting for 17 per cent of pots so their prominence in the shaft is not unexpected. One had unburnt bird bones *in situ* on it, otherwise there was no evidence as to their precise function. There were unburnt bones from a domestic fowl, a calf and a sheep on four platters in burial 7 at Baldock, but in burial 6, bones from domestic fowl, pig and sheep lay on the floor of the grave as they did in other King Harry Lane graves. Moreover, most cremated bone included a high proportion of burnt animal bone of the same species. Clearly platters were significant in the rituals of both the King Harry Lane cemetery and the mortuary contexts at Folly Lane, but just how is not apparent.

The number of platters throws into relief the solitary butt beaker for butt/barrel beakers were by far the most common functionally specialized vessel-type in the cemetery accounting for 25

per cent of the total. This is a major difference in vessel selection for the rituals of the cemetery and the shaft. If butt beakers were large capacity drinking vessels then the consumption of large amounts of liquid by individuals was greatly restricted by the presence of just one example. The difference is emphasized by at least eight rather small capacity cups, a functional-type much less common than either butt beakers or platters in the cemetery. Possibly the preferred liquid had changed to one which needed to be imbibed in limited amounts.

Over half of the vessels represented in the shaft had been imported and the preference for samian must have been a reflection of a deliberate choice of the most 'Roman' imported pottery, and in quantity. In contrast, in pre-Roman 'rich' burials like Welwyn, Welwyn Garden City and Hertford Heath, Herts., local products outnumber imports of all types, ceramics, glass and metals. In the first century B.C. the availablity of imported ceramics was severely restricted and this was a limiting factor, but such an argument is not tenable by the mid-first century A.D. when imported ceramics were available in quantity and variety.

It is not known how far the selection of grave goods reflected the taste of the deceased, surviving kin or prescribed convention. Perhaps there was simply a limit to the financial sacrifice that mourners would make. Some of the 'local products' appear to have been made outside the immediate area of Verulamium and are characteristic of settlements and burials further north. Possibly they reflect the presence of representatives or kin from different areas within Catuvellaunian territory bearing ceramic offerings typical of their locality.

The functional specialization and dates of the pottery support the hypothesis that the shaft was errected for funeral rites that took place while the King Harry Lane cemetery was still being used as a burial place and, according to the date of the latest coarseware vessel, was demolished after A.D. 55.

THE SAMIAN WARE

Fragments from at least thirteen and possibly seventeen South Gaulish samian vessels were found in the funerary shaft.[14] A total of seventy-five sherds were recorded; of these seven were contained in the lowest layer of laid 'turf' filling, and the remainder were strewn across the floor of the shaft. No samian was found in the burial pit. The samian included five stamps, four of which were legible and dated to the late Claudian/early Neronian period. These have been reported on by Brenda Dickinson, and are included in her report (p. 273 below). The distribution of sherds on the shaft floor is shown in FIGURE 28. The samian was without exception in extremely poor condition due to severe chemical erosion in the soil. In addition the sherds were generally very small. Due to its fragile condition, much of the samian was lifted in blocks of soil, and cleaned in the Museum Resource Centre.

Samian 1. Dr. 15/17R, approx 30 per cent present. Stamp illegible. Rim diameter 300 mm. One sherd in 'turf' fill, three on shaft floor.
Samian 2. Dr. 15/17, approx 30 per cent present. Rim diameter 300 mm.
Samian 3. Dr. 15/17R, approx 40 per cent of base, foot-ring diameter 155 mm.
Samian 4. Dr. 15/17 R, 50 per cent of base present, diameter 155 mm. One sherd in the 'turf' fill, two on shaft floor.
Samian 5. Dr. 15/17 R. Stamped Licinus. Diameter 150 mm. Three sherds in 'turf' fill, eleven on shaft floor.
Samian 6. Dr. 15/17, one sherd on shaft floor, slightly burnt, stamped Murranus footring diameter 90 mm. A rim sherd from the same vessel was found in the fill of the shallow stakehole or scoop (FIG. 23.5) on the western edge of the funerary shaft. It was associated with a platter sherd (FIG. 64.24).
Samian 7. Dr. 15/17, 70 per cent of base. One sherd in pit in shaft base, seven on shaft floor. Rim diameter 180 mm.
Samian 8. Dr. 18, two sherds on shaft floor. Rim diameter 170 mm.
Samian 9. Dr. 18, three sherds. Rim diameter 150 mm.
Samian 10. Dr. 27, one sherd, stamped Diorus. Possibly the same vessel as no. 11.
Samian 11. Dr. 27, three sherds, possibly the same vessel as no. 10.

Samian 12. Dr. 27, one sherd with illegible stamp.
Samian 13. Dr. 24/5, one sherd, stamped Vapuso. Possible the same vessel as no. 14.
Samian 14. Dr. 24/5, three sherds, possibly the same vessel as no. 13.
Samian 15. Dr. 24/5, very small fragments, one in 'turf' fill, two on shaft floor.

Possible additional vessels

Samian 16. One small burnt sherd from shaft floor.
Samian 17. Dr. 15/17, three sherds from a small platter, one in 'turf' fill, two on shaft floor.

THE AMPHORAE, *by* D. Williams

Ninety amphorae sherds were recovered from the area of the funerary shaft and burial pit. Eighty-seven were plain body sherds, often small, burnt and very friable. Three were small handle sections in the form of single rods. However, the latter were not completely rounded and a narrow flattish area can be made out running along the length of the rods. These undoubtedly formed part of the typical long bifid-handle arrangement, made from two joining rods side-by-side, that is characteristic of the Dressel 2–4 amphora form (Peacock and Williams 1986, Class 10). All of the body sherds tend to be relatively thin-walled. This, together with the closeness of fabric between a large group of body sherds and the three handles, and the general fabric similarities of the group as a whole (see below), suggest it is likely that all eighty-seven body sherds also belong to the Dressel 2–4 form rather than say the much earlier Republican Dressel 1 amphora.

The Dressel 2–4 type of amphora has a simple bead-rim, a pronounced shoulder and a long cylindrical body which develops into a solid, often slightly flared spike. The average liquid capacity of these vessels seems to have been in the region of 27 litres (Sealey 1985). Most of them transported wine, although on occasions other commodities were carried (ibid.). The form was based on Greek amphorae from the eastern Mediterranean island of Kos, and the western Meriterranean adaptation seems to have taken place in Italy around the middle of the first century B.C. (Tchernia 1986). Interestingly enough, for a time they seem to have been made side by side in the same range of fabrics as the earlier, and thicker-walled, amphora form Dressel 1B (ibid.).

Dressel 2–4 amphorae occur on both late Iron Age and Roman sites and come from a wide variety of sources. However, as far we can tell, the earliest examples arriving in Britain seem almost exclusively to have been Italian in origin (Williams 1989). At the rich chieftain's burial site at Lexden tumulus just outside Colchester, dated *c.* 15–10 B.C., six Dressel 1B amphora were recovered and eleven, possibly thirteen, Dressel 2–4, all most probably Italian (Williams 1986). By the time of the Boudiccan revolt, just over half of the forty-four Dressel 2–4 amphorae at Sheepen were non-Italian (Sealey 1985, table 10). In the intervening years between these two sites, more sources of supply of wine (and other commodities) had been coming onto the western market, notably from the Spanish provinces. Non-Italian wine would probably have been available to the occupant of the funerary chamber at Folly Lane during the middle of first century A.D. Was it accident or design that he, or his mourners, seems to have preferred an Italian vintage?

Fabric groupings

A limited programme of thin sectioning, combined with a detailed examination in the hand-specimen, suggests that the ninety sherds from the burial deposits can be divided into four broad fabric groups, all of them likely to be Italian. Taking into account these four groups and the slight nuances of fabric that seem to occur within Fabric 1, there would seem to be a minimum of four to six vessels present. However, it is quite possible that there are in fact more amphorae represented here. Much of the material examined in the hand-specimen consists of rather small friable sherds, and some of the fabric groupings, Fabric 1 for instance, which contains all three of the sections of rod-handles, may well represent more than one vessel, each of which share a similar fabric.

Thin sectioning of each of the fabric groups shows a roughly similar range of inclusions, differentiated largely on their frequency in each case. The latter include grains of quartz, small pieces of cryptocrystalline limestone, microfossils, a scatter of both green and colourless clinopyroxene, discrete grains of potash and plagioclase felspar, mica, chert and occasional volcanic material. It is difficult to try to tie down the exact source of this material at present, but the volcanic element that occurs in all of the fabrics suggests an origin along the Tyrrhenian coastal region. These vessels would almost certainly have been carrying Italian wine to Britain.

Fabric 1

Soft, very friable slightly sandy fabric, with occasional small white limestone inclusions, reddish-orange in colour.

Sherds in this fabric were found both on the floor of the funerary shaft, in the lowest layer of shaft fill and in the burial pit.

DAG (shaft floor) (34) [3 sherds], (140), (142), (143), (144) [4 sherds], (146), (147), (150), (151) [2 sherds including a handle rod], (152) [11 sherds including a handle rod].
DAS (shaft floor) (151)
DAP (shaft floor, south) (3), (10), (39), (43)
DJE (fill of pit in shaft floor) (23) [handle rod].
DAF (lowest gravel tip in shaft fill) (7), (8), (9), (34), (48), (50), (75), (149), (151).
DAE (fill of burial pit) (9), (10)
Three sherds, DAP (5), DAF (11) and DAF (23), which do not seem to have suffered much from fire damage, may also belong to this fabric group; they are much harder with a reddish-grey core and possibly represent perhaps one or two vessels. DAP (5) appears to have a patchy thin coat of black resin on part of the inner surface.

Fabric 2

Somewhat similar fabric to group 1 but much deeper red colour. Sherds were found on the shaft floor, and in both the gravel and the turf filling of the shaft.

DAG (shaft floor) (141), (145), (148) [4], DAF (76) [5], DAA
DAF (lowest gravel fill) (76)
DAA (turf filling) (36)

Fabric 3

Harder fabric than the previous two groups and slightly more sandy, with frequent small white inclusions of limestone, some small dark pyroxenes and sparse golden mica. Lightish buff to red surfaces and red core. Sherds in this fabric were found only in the turf filling of the shaft, and in the burial pit.

DAA (turf filling) (16), (17).
DAE (burial pit) (3), (4).

Fabric 4

Hard, sandy fabric with small white inclusions of limestone, lightish-buff outer surface, reddish-pink inner surface and core. Sherds in this fabric were absent from the funerary shaft and confined to the burial pit.

DAB (charcoal, gravel and turf fill) (15) [3 sherds], (43) [3 sherds], DAC (pyre debris) (14), (12/27) [3 sherds], (29), (31), (35/18), (49), (97) [4 sherds], (196), (287).

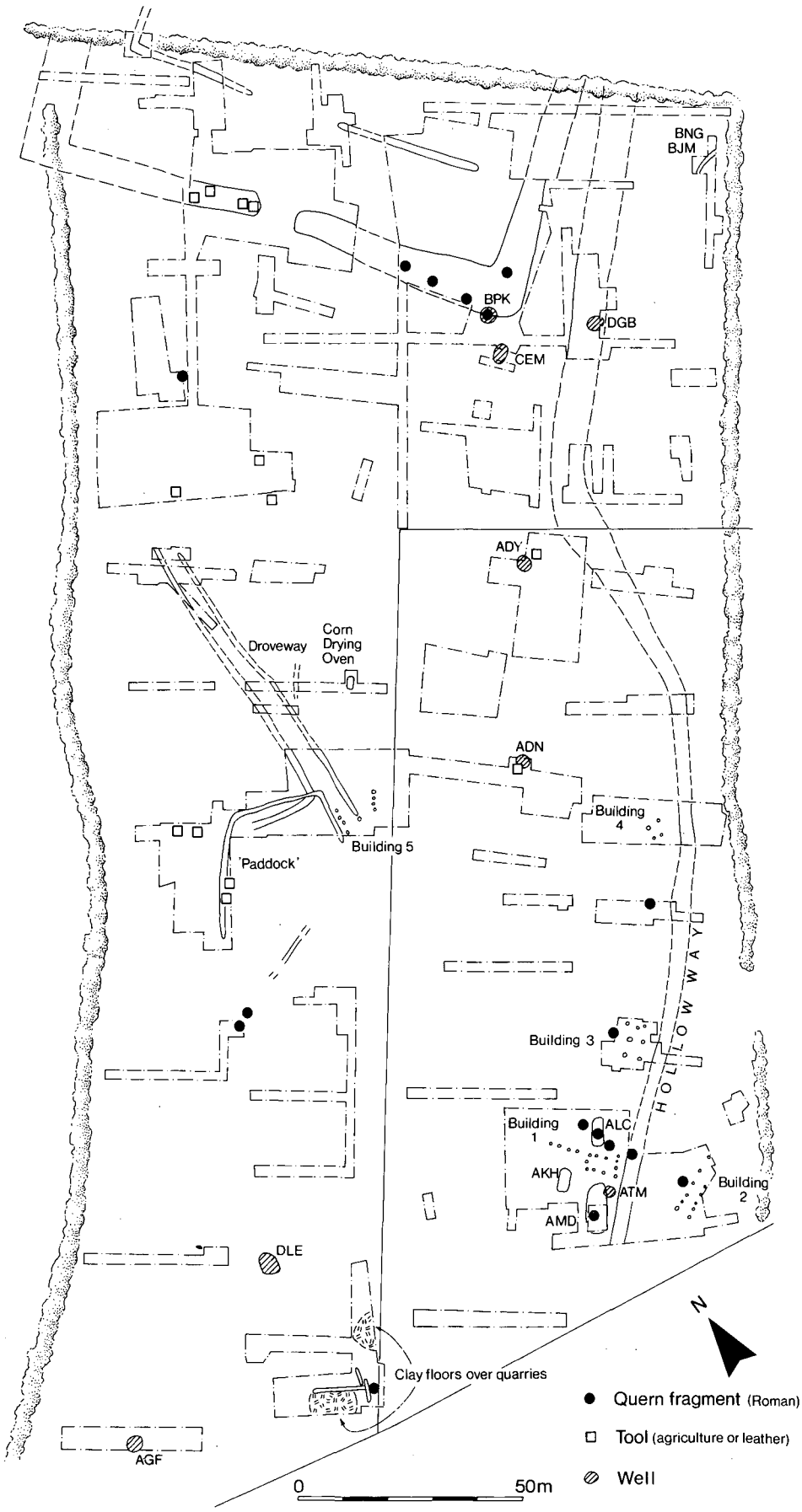


FIG. 65. The distribution of tools on the lower slope.

THE SMALL FINDS FROM THE LOWER SLOPE

by Sarah Adamson, with contributions by Stephen Greep, Martin Henig and Denise Allen

INTRODUCTION AND DISCUSSION

All the small finds have been catalogued and from the recognizable objects a representative number have been illustrated and described. Descriptions of objects or unidentifiable fragments not published can be seen in the site archive, location St Albans Museums. All the iron was submitted for radiography by St Albans Museum Service.

Where possible, comparisons have been made with material from other sites. The metalwork assemblage includes a wide variety of objects which reflect the use of the site, especially from the late second century to the fourth century (periods 5–7). It is from stratified contexts from these phases that most of the metalwork was recovered.

The assemblage includes tools, structural components, internal fixed fittings, transport items, animal husbandry items, small personal objects and domestic portable objects. The distribution of particular classes of object over the site has been looked at in the hope that patterns would emerge, allowing conclusions to be drawn about the use of those areas of the site. However, many classes of object showed no particular patterns and in fact their distribution appears random. So, for example, small personal possessions, perhaps the most easily lost class of object in the assemblage, have a random distribution pattern across the site, although there does seem to be some slight clustering of these objects in area P associated with the buildings 1 and 2.

Most interestingly, the distribution pattern of the tools across the site shows that they were concentrated in a broad band across the centre of the excavation north of 400N and south of 500N (using the A91 grid) (FIG. 65). This is significant in assessing the activity in that part of the site. The tools included two wool combs, no. 50 (gully period 7) and no. 51 (fill of shaft ABA, period 6), a lunette leather knife, no. 45 and a second possible example, no. 44 (both from the filling of shaft AET, periods 5–6), and two ox goads, no. 40 (gully period 7) and no. 41 (slump over period 6 well). Therefore, activity associated with the utilization of animals, leather working, wool combing and driving the animals (but the ox goads might simply have been lost while on route through this part of the site), seems to have been concentrated south of the Ceremonial Enclosure and north of buildings 1 and 2.

The range of tool types is wide. It includes another possible leather working tool, a slicker (slump over well ADN, periods 5–6), chisels, drill bits, files, a possible reaping hook and broken but distinctive rake prongs.

Folly Lane produced approximately 230 recognizable iron objects and more than one hundred unidentifiable iron fragments. These numbers largely exclude nails, although nails were sometimes given small finds numbers. The nails are from all areas, but show a pattern of concentration in the ditches and the top fills of the shafts. Approximately 125 copper alloy objects or fragments of objects were found and approximately one hundred unidentifiable fragments.

The bulk of the lead found is in the form of melted lumps and sheet fragments or offcuts. Thirty-one fragments or objects of lead were found. These include two weights from the period 7 rubbish over the main enclosure ditch (nos. 25 and 26).

CATALOGUE OF SMALL OBJECTS

All the recognizable objects have been described here and a representative selection of these have been illustrated. Unidentified fragments are listed and described in the site archive only. The catalogue has been arranged by function, with all the objects in that category included whatever their material. Each group of catalogue entries is discussed before listing. Every entry includes the context reference and the illustration number.

Finds from the burials and the iron nails are dealt with separately from this main catalogue.

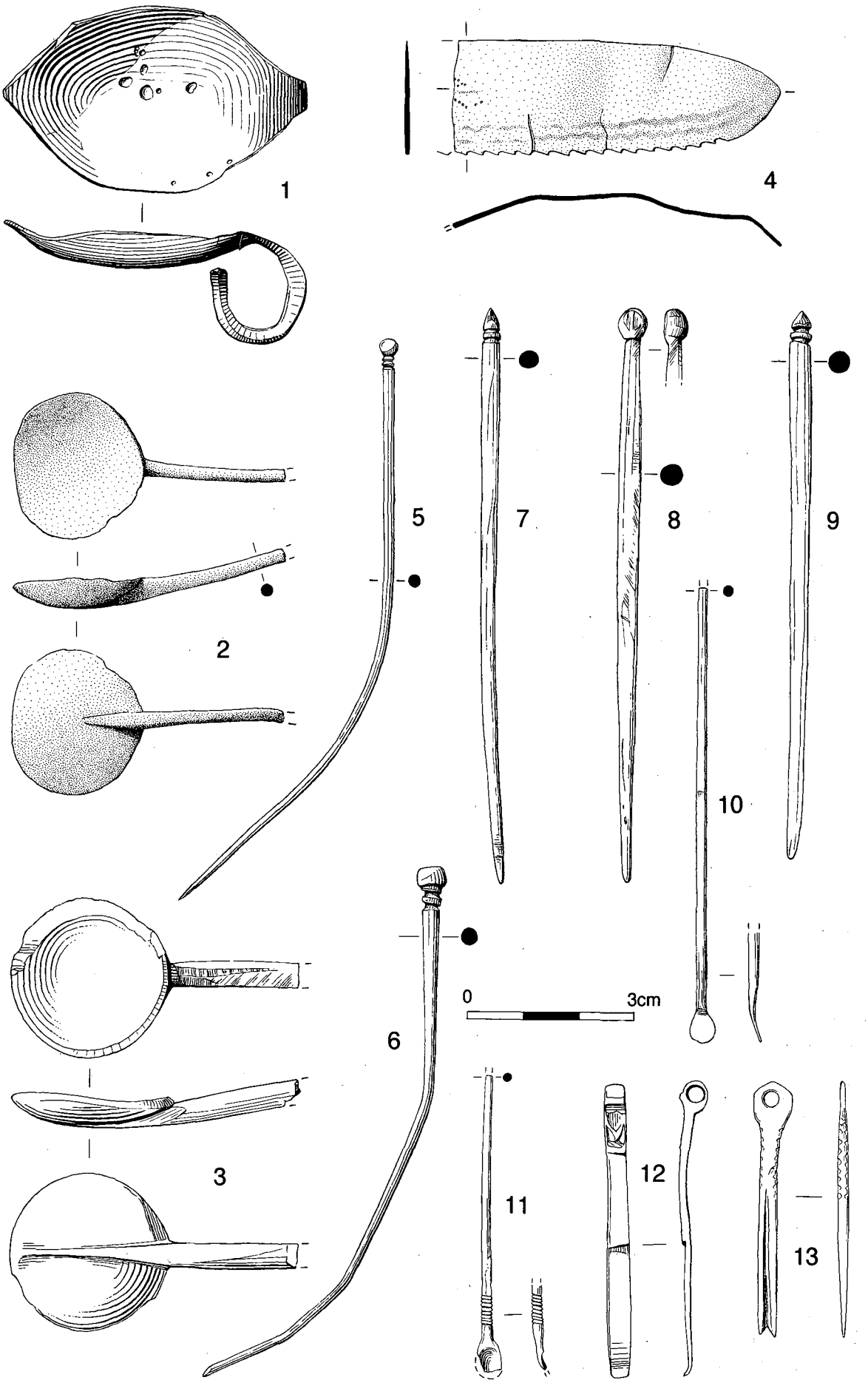


FIG. 66. Small objects from the lower slope. Scale 1:1.

Items of personal use and adornment

The assemblage includes a large number of sewing needle and pin fragments and these are equally possible to classify as working tools. Apart from these, this group of objects includes mirror fragments and one complete, though slightly damaged, mirror from burial 9. There were three possible small mirror fragments, one from the sinkage over shaft DKM (period 4) and two from rubbish over the top of the Ceremonial Enclosure ditch (period 7). There were two possible mirror fragments from area P. More common objects were the toilet implements and ear cleaners, sixteen of these items were found from A91 and appear to be randomly distributed across the site. One of the copper alloy spoons is a round-bowled *cochlearia* common in the first and second centuries, but the spoon no. 1 is not paralleled. There is also a bone round-bowled spoon (no. 3).

Apart from the brooches (discussed separately, see below, p. 216), items of personal adornment include finger rings, hairpins, chains and buckles.

The iron strigil from the disturbed burial 27 (periods 4–7) is interesting precisely because it is made of iron: they were more commonly made or have survived in copper alloy.

Mirrors

Burial 9 (BBL 003). Late first century. FIG. 88.1 (p. 114, TABLE 3).

Not illustrated

BJD 030. A small mirror fragment from rubbish over the main ditch. Period 7.

BJD 036. A small mirror fragment from rubbish over the main ditch. Period 7.

DKK 002. One possible mirror fragment from the sinkage over shaft DKM. Period 4.

AGP 001. Many very small mirror fragments from the fill of the hollow-way, area P. Period 7.

E93 AJS 006. One possible mirror fragment from the filling of cellar AJK. Period 7.

Spoons

1. Spoon (CTC 2) (FIG. 66.1)
   Copper alloy spoon. Leaf-shaped bowl. Handle curves down from the spoon bowl into a small loop handle under the bowl. This is possibly a secondary modification to the original handle whose shaft appears to be broken off. Length of bowl 50 mm. Slump over gully CPX, Area J. Period 6. Fourth century.
   The closest, but not very exact, parallel is from the Shrine of Apollo at Nettleton, Wilts. (Wedlake 1982, 202, fig. 83.5).
2. Spoon (BEC + 1) (FIG. 66.2)
   Copper alloy spoon. Round plain bowl, diameter 22 mm. The bowl is slightly worn and damaged around its edge and part of the handle with the tip is missing. Length of surviving handle 35 mm. From upper fill in main enclosure ditch, Area B. Period 6.
   Many parallels from Roman Britain, including Verulamium and Colchester (Crummy type 1 spoon. Late first to second century: Crummy 1983). Also common in bone (FIG. 66.3).
3. Spoon (ABQ 3) (FIG. 66.3) (*note by Stephen Greep*)
   Bowl and upper part of the stem from a round-bowled bone spoon. From hollow over pit ABP. Period 5–6.
   This is an example of the common, round-bowled *cochlear* or 'rat tailed' spoon. The type is broadly datable to the earlier Roman period in Britain and beyond (e.g. Riha and Stern 1983). Sixteen have been recorded previously from Verulamium (e.g. Frere 1972, fig. 55.256) and at surrounding villas (Neal *et al.* 1990, fig. 140.964–5).
4. Toilet knife? (AJS 25) (FIG. 66.4)
   Copper alloy fragment with a serrated edge with the teeth sloping towards the point and thus sloping the wrong way for effective cutting. The blade is broken and only 60 mm of its length survives. It is decorated with a double row of wavy lines along the length of the blade and a pattern of small dots is just discernible by the broken edge. The reverse side is undecorated. It is fragile and its length is bent. Its appearance suggests a serrated knife,

but it is fragile and possibly it had some other function. Top fill of cellar ALC/AJB, Area P. Period 6–7.

Pins and needles

5. Hairpin (BJD 25) (FIG. 66.5)
Copper alloy hairpin with three grooves beneath a slightly flattened round head. Complete, point intact. The shaft is almost at right-angles. Length 110 mm, diameter of head 2 mm. From the rubbish over the main enclosure ditch. Period 7.
Paralleled at Colchester (Crummy 1, type 5). Early second century, out of production by third century.
6. Hairpin (BRV 1) (FIG. 66.6)
Copper alloy hairpin with two grooves beneath a slightly flattened round head. The pin appears complete, but the point is partially broken off. Length 100 mm, diameter of head 5 mm. From top fill of main enclosure ditch, area C. Period 5.
Paralleled at Colchester (Crummy type 5).

Also (not illustrated):

A 91 unstratified. Pin fragment with a small round head with two grooves below it.
AAB 1. Copper alloy pin with a roughly cuboid head. From sinkage over shaft AAB.
ABB 1. Copper alloy pin with flattened spherical head, with three grooves below it (Crummy type 5). From sinkage over shaft AAB.
AES 2. Copper alloy pin with a very small round head. From butchers' waste deposit in shaft AET.
E93 AMV 1. Two copper alloy pin fragments with a round head.
DCK 2. Copper alloy pin fragment with an area of hatched decoration at one end. Similar pin from Gadebridge Park (Neal 1974, find no. 225).

Fragments of a further twelve copper alloy pins or needles were also recovered from the shafts and are listed in the archive.

ABQ 002 copper alloy needle fragment; ABQ 007 copper alloy pin fragment; BCH 002 copper alloy pin fragment; BJD 035 copper alloy pin fragment; CHX 001 copper alloy needle fragment; CHX 001 copper alloy needle fragment; CHX 003 copper alloy needle fragment; CPJ 001 copper needle/pin fragment; CPP 001 copper alloy needle/pin fragment; CTP 003 copper alloy pin fragment; CXL 001 copper alloy pin fragment; CZF 001 copper alloy pin/wire fragment; DJB 001 two fragments of copper alloy pin.

Bone pins, by S. J. Greep

Hair pins are the most common form of bone and antler object recovered from sites of the Roman period. Their chronology and typology have been discussed elsewhere (Greep 1986, 197–202; 1995, 1113–21) and there are a number of local typologies in existence (e.g. Crummy 1979; Kenyon 1948, 264). The present examples form a typical selection, primarily of the earlier Roman period, with numerous parallels from Verulamium and throughout Roman Britain. They fall into two broad groups (Types A and B) based upon their typology and chronology.

Type A examples have a straight tapering stem and a head no wider than the stem. They are primarily early Roman types dating to the period *c.* A.D. 40–200/250. All the Folly Lane type A hairpins are type A2, with conical heads, sometimes plain (type A2.1) or decorated with cut grooves (type A2.2) producing collars (Greep 1995, 1116–17 and fig. 488). These are the most common of all type A hair pins from Britain. Over 162 examples have been recorded previously from St Albans, both in (e.g. Frere 1972, fig. 55.199; Frere 1984, fig. 30.271–3 and fig. 31.275 and 278–9) and outside (e.g. Stead and Rigby 1989, fig. 24.225, 229) the Roman town. Examples have also been recorded from villas excavated in the locality of Verulamium (e.g. Neal 1974, fig. 67.304–12; Neal 1976, fig. 48.56 and 66–7; Neal, Wardle and Hunn 1990, fig. 140.924-31).

Pin (BDK 9) (not illustrated). Type A2.1. Length 47 mm, broken. From sinkage over shaft BBS. Period 6.

Pin (E93 AME 1) (not illustrated). Type A2.2 with a single collar. Length 55 mm, broken.

7. Pin (E93 AMA 1) (FIG. 66.7)
Type A2.2 with a single collar. Length 99 mm, complete.
Pin (DKH 1) (not illustrated)
Type A2.2 with a single collar. Length 111 mm, broken tip.

8. Pin (CSD 1) (FIG. 66.8)
Type A2.2 with a double collar. Length 94 mm, complete. The stem has a green tint, possibly the result of staining, a technique predominantly found in the early Roman period (cf. Greep forthcoming on the use of staining to decorate hairpins and its chronology).
Pin (BET 5) (not illustrated). The lower part of a hairpin stem, probably also of type A. Length 43 mm, broken.

Type B examples have a swelling stem and a head wider than the stem. They are primarily later Roman types dating to the period *c.* A.D. 150–400+. On sites with occupation throughout the Roman period these forms usually outnumber the earlier type A hair pins.

9. Pin (BPC 3) (FIG. 66.9)
Type B1 hairpin with a round head and a swelling stem (Greep 1995, 1117 and fig. 488). Length 98 mm, complete. From the sinkage over well BPK, Period 7.
These are the most common of all type B hair pins from Britain. Over 166 examples have previously been recorded from St Albans, both in (e.g. Frere 1984, fig. 30.271–3 and fig. 31.275–7; Richardson 1944, pl. XIX.5 and 8) and outside (e.g. Stead and Rigby 1989, fig. 24.230) the Roman town. Examples have also been recorded from several villas excavated in the locality of Verulamium (e.g. Neal 1974, fig. 67.313–16; Neal 1976, fig. 48.57–64 and 12.21–2; Neal, Wardle and Hunn 1990, fig. 140.932–45; Rook 1987, fig. 69.3–6 and 10a–h).
Pin (E93 ABF 1) (not illustrated). Stem from a type B hair pin. Length 73 mm, broken both ends.

Bone needles, by Stephen Greep

Needles are a common form of bone and antler object recovered from all types of site of the Roman period, and their chronology and typology have been discussed elsewhere (Greep 1986, 198–9; 1995, 1122–5). Examples of all major types are known from Verulamium. Individual forms are difficult to date and, on present evidence, most would seem to continue throughout the period, although the majority of dated examples suggest that they were most commonly manufactured in the earlier Roman period.

Needle (DKJ 4) (not illustrated). Type 2.2 needle with a flattened, slightly pared head and a figure-of-eight eye. Length 83 mm. At least six examples of this form have been previously recorded from Verulamium (e.g. Frere 1972, fig. 55.197). From the sinkage over shaft DKM. Period 4.
Needle (AEY 5) (not illustrated). Needle with a single round or figure-of-eight eye (broken). Length 79 mm. These are common forms, with a variety of head types (published examples from Verulamium include Richardson 1944, pl. XIX.1–2; Frere 1972, fig. 55.197; 1983, fig. 31.280–1). From the butchers' waste in shaft AET. Period 5–6.

Toilet implements and nail cleaners

10. Toilet spoon (AIM 3) (FIG. 66.10)
Copper alloy toilet spoon with small round flat scoop. The top of the shaft is missing. Length 78 mm, diameter of scoop 5 mm. From the filling of shaft AIM. Period 5.

11. Toilet spoon (BER 12) (FIG. 66.11)
Incomplete copper alloy spoon. Small cupped scoop partially broken. Between the scoop and the shaft is a zone of decoration, consisting of eight grooves. The top of the shaft is missing. Surviving length 50 mm. Cobble surface, Area A. Period 4–6.
Similar scoops from Verulamium (Goodburn 1984, fig. 14.105), Baldock (Stead and Rigby 1986, 132, nos 242 and 243) and Puckeridge and Braughing (Trow 1988, fig. 24.15).

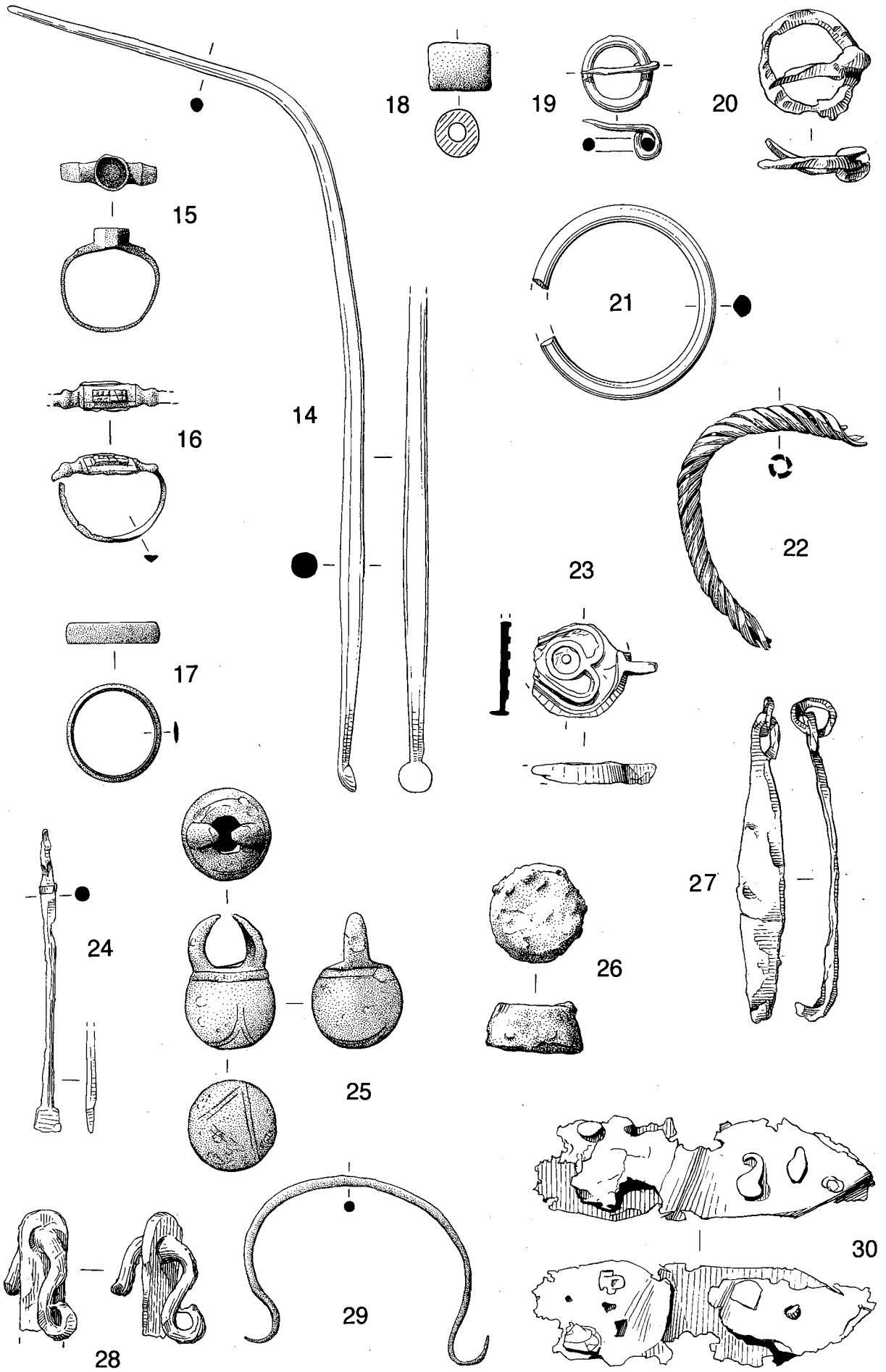


FIG. 67. Small objects from the lower slope. Scale 1:1 except no. 20, 1:2.

12. Toilet article (CRY 1) (FIG. 66.12)
Fragment of a copper alloy toilet article. It has a flat blade with a suspension loop at right-angles to it. The blade is plain and its terminal is rounded and slightly inturned. At the top of the blade below the suspension loop is an indented panel of decoration, 10 mm in length. Length of whole object 50 mm. Possibly an incomplete pair of tweezers. Fill of cess pit CNZ, Area J. Period 5.
13. Nail cleaner (CSC 2) (FIG. 66.13)
Copper alloy nail cleaner with a flat straight blade. The suspension loop is in the same plane as the blade. It is decorated with marginal nicks. The points are intact. Length 44 mm. Fill of cess pit CPB, Area J. Period 5.
This simple type with a more or less straight shaft is paralleled at Colchester (Crummy Type 1a. Mid to late first century).
14. Copper alloy toilet spoon (DKK 1) (FIG. 67.14)
Shaft six-sided in cross section, becoming rounded to the point. The point is intact and the scoop is flat with a convex underside. Length 170 mm; the shaft is bent. From the sinkage over shaft DKB. Period 4.
These articles were used for a variety of purposes, but the long shaft suggests scooping medicines or cosmetics from flasks.

Not illustrated:

ABQ 4. Fragment from a toilet set. In fill of cess pit ABR. Period 5.
AES 1. Copper alloy ligula with a small round flat scoop, butchers' waste in shaft AET. Period 5–6.
AEY 1. Copper alloy tweezers. In butchers' waste in shaft AET. Period 5–6.
BEC 38. Possible fragment of a pair of copper alloy tweezers. In top fill of main enclosure ditch. Period 6.
BJA 1. Possible fragment of a pair of copper alloy tweezers. Fill of shaft BBS. Period 5–6.
BJD 24. Copper alloy toilet spoon. From rubbish over main enclosure ditch. Period 7.
BRP 1. Complete pair of copper alloy tweezers with flared blades and an incised marginal groove. From upper fill in main enclosure ditch. Period 6.
BRP 2. Possible copper alloy toilet implement. From upper fill in main enclosure ditch. Period 6.
BPC 4. Copper alloy nail cleaner fragment. From sinkage over well BPK. Period 7.
DKJ 2. Copper alloy tweezers. Parallel at Colchester (Crummy type 1a, mid-late first to early second century). From sinkage over shaft DKM. Period 4.
DKJ 3. Copper alloy tweezers (Crummy 1983, find no. 1883). From sinkage over shaft DKM. Period 4.
E93 AFJ 1. Copper alloy leaf shaped nail cleaner.
E93 AGN 1. Copper alloy nail cleaner.
E93 AJS 11. Copper alloy fragment of a tweezer. From fill of cellar ALC. Period 7.
E93 AKZ 1. Copper alloy pair of tweezers.

Strigil

A91 DDJ 008 V10007 X-ray. Level 104.93. Iron strigil (FIG. 89.27.10). Burial 27 (see p. 118, TABLE 3).

Finger rings

15. Copper alloy finger ring (ACL 2) (FIG. 67.15)
The hoop is complete and has slightly stepped shoulders. Diameter 17 mm. The round high bezel is empty, diameter 5 mm. Sinkage over shaft ACL. Period 5–6.
16. Copper alloy finger ring (BCH 1) (FIG. 67.16)
Flattened and broken at the shoulder, the shoulders are widened and moulded with a raised central oblong bezel. Diameter approximately 17 mm. Sinkage over shaft BBS. Period 6.
17. Silver finger ring (BEC + 4) (FIG. 67.17)

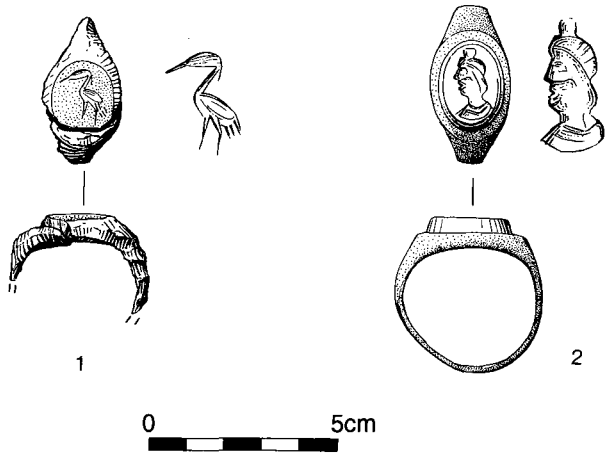


FIG. 68. The intaglios. Scale 1:1.

Simple, plain, silver finger ring. It is complete but is broken or split in one place around its circumference. Diameter 18 mm. From the top fill of the main enclosure ditch. Period 6.

Not illustrated:

ADF 3. Plain copper alloy finger ring? From fill of small pit, ADF. Period 5/6.

E93 AJB 16. Ring fragment. Two copper alloy finger ring fragments with expanded decorated shoulders. From fill of cellar ALC. Period 7.

E93 APF 3. Plain copper alloy finger ring. From fill of shaft APF. Period 6.

Intaglios, by Martin Henig

Burnt sard intaglio (A91/4 AIK 1) (FIG. 68.1). From shaft ABZ

Intaglio set in an iron ring of Henig type III (Henig 1978, fig. 1). The gem measures 10 mm by 8 mm. The hoop of the ring is broken but its surviving diameter is some 17 mm. The width across the bezel is 10 mm.

The device is a long-legged bird such as a stork or heron in profile to the left. There are three closely similar examples from the jeweller's cache from Snettisham, Norfolk (Johns 1997, 92, no. 201; Henig 1978, 24). Note there are similar representations of birds on gems in the collections at Vienna (Zwierlein-Diehl 1991, no. 1947) and Aquileia (Sena Chiesa 1966, no. 1330). Second century A.D.

Glass intaglio ring (A91/BJD 8) (FIG. 68.2). From well BPA

Intaglio ring with upper blue layer on dark ground, imitating nicolo (Shape F2) set in a copper alloy ring (Type XII). Dimensions of the gem: 10.5 mm by 9 mm, rising 2 mm above the bezel. Dimensions of the ring: external diameter 21 mm; internal diameter 19 mm. The device is a bust of Serapis in profile to the left.[15] Third century A.D.

Beads

18. Bead (AIK 2) (FIG. 67.18)

Hard, reduced ceramic cylinder with central perforation running through it. Interpreted as a ceramic bead rather than as a tuyere because it is not nozzle shaped and there is no sign of vitrification at either end. The perforation itself shows signs of wear, and the surface is shiny, as if it had been polished. Length 22 mm, diameter 15 mm. From the fill of shaft ABZ. Period 5.

Not illustrated:

Bead (CPY 1). Approximately half a melon bead of turquoise glass frit, remains of turquoise glass in grooves. Length 14 mm, diameter 18 mm. Fill of pit CNZ. Period 6.

Melon bead (E93 ABE 4). Very fragmentary melon bead of blue glass. Length 13 mm. From fill of shaft ABC. Period 5.

Bead (BQH 1). Tiny globular bead of turquoise glass. Length 2 mm, diameter 3 mm.

Buckles

19. Buckle (BJD 7) (FIG. 67.19)
One very small single loop frame iron buckle. Pin intact. The whole is in good condition. Diameter 14 mm. From the rubbish over main enclosure ditch, period 7, but possibly contaminated.
20. Buckle (BJD 40) (FIG. 67.20)
One single loop frame iron buckle. Very corroded. Pin intact. Diameter 41 mm. From the rubbish over main enclosure ditch, period 7, but possibly contaminated.

Not illustrated:

BJD + 1. A copper alloy buckle fragment. Medieval, mid-thirteenth to early fourteenth century. From contaminated layer of rubbish over the top of the main enclosure ditch.
BJD + 9. A copper alloy buckle frame. Medieval, from contaminated layer of rubbish over the top of the main enclosure ditch.

Bracelets

21. Bracelet (BDK 15) (FIG. 67.21)
Almost complete shale bracelet. Internal diameter 55 mm. Filling of shaft BBS. Period 5.
22. Bracelet (E93 AGQ 3) (FIG. 67.22)
One fragment of a copper alloy bracelet made up of four strands of wire or cable. The bracelet is circular with an external diameter of 4 mm. Similar bracelets were found at Baldock (Stead and Rigby 1986, 127 no. 183) and at Colchester (Crummy 1983, fig. 41).

Not illustrated:

E93 APF 4. A shale bracelet fragment. Undecorated. Fill of shaft APF. Period 5.

Other personal items

Not illustrated:

BJD + 4. A copper alloy thimble, quite short so possibly post-Roman, as the deposit was contaminated.
E93 AJS 21. One copper alloy fragment of a double loop in loop chain. Top fill of cellar ALC. Period 6–7.

Gaming pieces, by S. J. Greep

Alongside hair-pins and needles, gaming pieces are the commonest form of bone and antler object recovered from Roman Britain. They are divisible on the basis of shape, size and chronology (see Greep 1986, 202–7; 1995, 1125–7 for a wider discussion).

Counter (BDK 1) (not illustrated). Shaft BBS

Type 1 gaming counter with a flat obverse and reverse surface. 19 mm diameter, 4 mm thick. The form is represented as Jewry Wall Type C (Kenyon 1948, fig. 91.17 and Colchester Type, Crummy 1983, 91), although there the form is not differentiated from the later types with counter-sunk centres (Type 2; cf. Greep 1995, 1126–7). The Folly Lane example, of Type 1, represents an early Roman form datable to *c.* A.D. 40–200/250. Twenty-six examples have previously been recovered from Verulamium (all unpublished).

Objects associated with writing

Only one certain (iron) stylus was found from the Folly Lane excavations, (no. 24) but there are two other possible styli which are not illustrated. Two fragments of a seal box were found and these were from the same feature as the possible stylus (E93 AME 2). One fragment of the seal box was lost and is thus not illustrated.

23. Seal box (E93 AJS 3) (FIG. 67.23)
Part of copper alloy a seal box lid with a leaf design with raised decoration but with all traces of the enamel missing. Another fragment from the same seal box from AJS, was lost. Seal boxes are common finds on Roman sites. There are many parallels for this box

e.g. from Uley shrine (Woodward and Leach 1993, 209, fig. 156) and Verulamium (Frere 1984, fig. 13, no. 101). Top fill of cellar ALC. Period 6–7.

24. Stylus (DLK 1) (FIG. 67.24)
Iron stylus with intact rubber and point. The erasing blade is square. The stem is round-sectioned, with a diameter of 2.5 mm swelling to 5.5 mm above the tapering point. Around the widest point of the stem a simple band of copper alloy is visible. Manning Type 4 (Manning 1985). Similar stylus from Verulamium. Well fill.

Not illustrated:

E93 AME 2. Possible iron stylus.

BPK 1. Possible iron stylus. Manning Type 1. From the fill of well BPA. Period 7.

Objects used for weighing

25. Steelyard weight (E93 ACB 1) (FIG. 67.25)
A spherical hollowed out object with a suspension loop which is broken. It has incised decoration on its underside. It is made of a heavy leaded copper alloy. Weight 13 grams. Common throughout the Roman period and post-thirteenth century. Recut in sinkage over well ADN. Period 6.

26. Lead weight (BJD 55) (FIG. 67.26)
A pan weight. A simple lead weight with iron corrosion products adhering to its surface. Weight 70 grams. Disc shaped with sloping sides, diameter of the base 39 mm, diameter of the top 29 mm, height 15 mm. From the rubbish over the main enclosure ditch. Period 7.

Not illustrated:

BJD 31. Possible plumbob (weight 21 grams). Copper alloy acorn-shaped terminal with a core of iron/lead. It has a short spike or a broken off suspension loop at one end. It is very similar to a terminal from Verulamium (Frere 1972, I, 126, no. 113). Top of ditch fill, contaminated. Period 7.

BJD 57. Lead weight. Diameter 17 mm. It has a central perforation. Weight 13 grams. Top of ditch fill, contaminated, period 7

Domestic fittings

These objects are either themselves transportable or were from movable objects. Objects in this category include keys, bucket handles and a possible suspension chain fragment. The lack of domestic material from the site reinforces the sparseness of domestic occupation over the site as a whole.

Handles

27. A possible handle or fragment of a suspension chain (BDG 2) (FIG. 67.27)
A flat band of iron, tapering at both ends. One end is turned over to form a closed loop through which is a roughly circular iron ring, 17 mm in diameter. The other end is broken off but appears to be turning to the underside of the band. Length 110 mm, maximum width 15 mm. Area A. Sinkage over shaft BBS. Period 6.

28. One fragment of a decorative bucket handle? (CZF 3) (FIG. 67.28)
A piece of iron strap with a rounded end and the other end is broken off. It is perforated and through this perforation is a possibly deliberately twisted 'S' shaped iron rod, forming a hanging hook. Width of strap 15 mm. Probably from a small bucket. Area H gully cut through top fill of main enclosure ditch.

29. Copper alloy drop handle (CVW 1) (FIG. 67.29)
Circular in section. It is rather fragile and the terminals are broken. Length 45 mm. Fill of CVV. Period 7

30. Fitting (BET 2) (FIG. 67.30)
Fragments of copper alloy sheet .5 mm thick. The three largest fragments are riveted together to form a length of strip or sheet, length 62 mm, width 19 mm. The largest

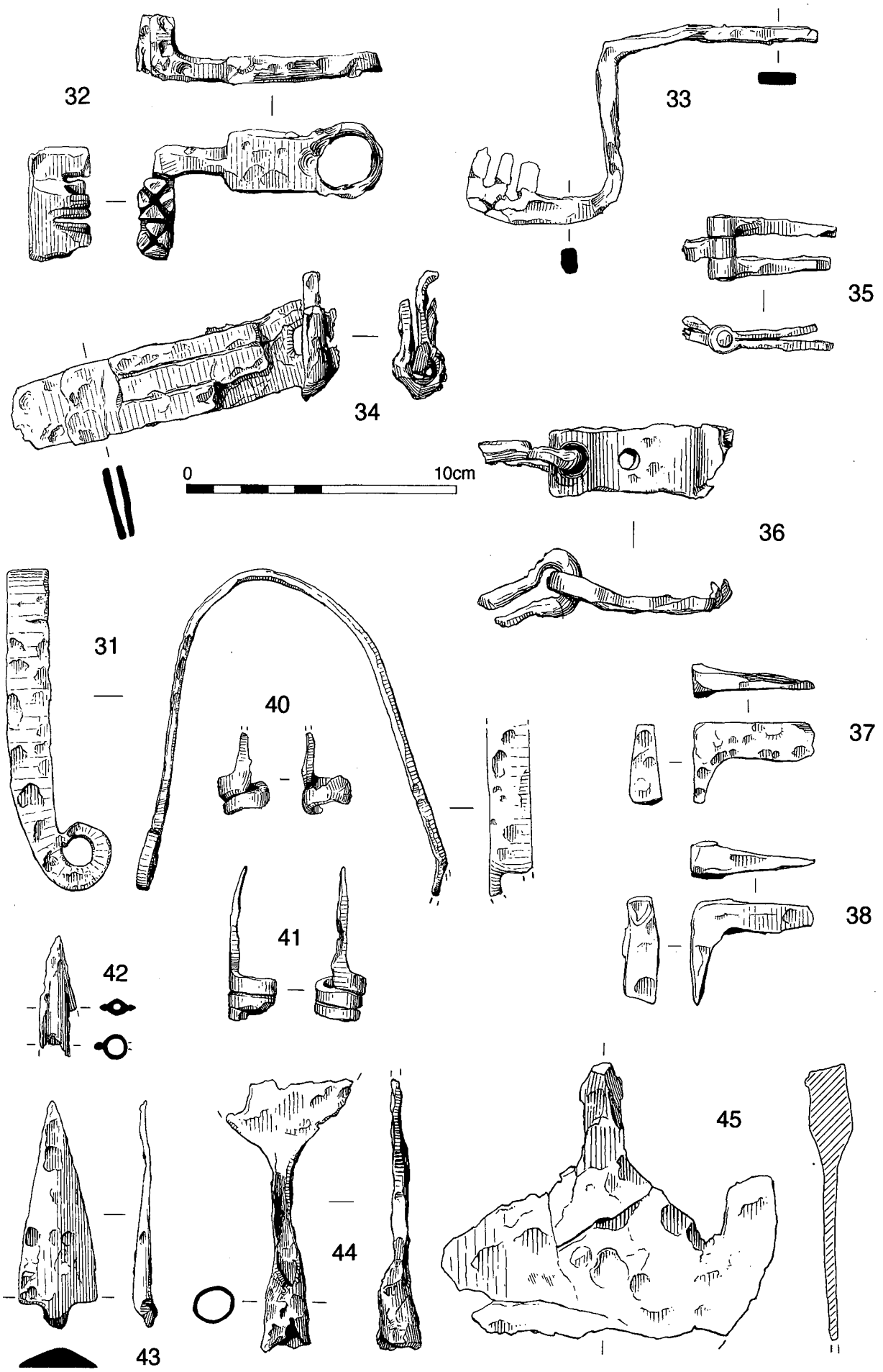


FIG. 69. Iron objects from the lower slope. Scale 1:2.

fragment has sides which converge to a point at one end. This fragment has traces of raised decoration. Upper fill of main enclosure ditch, area B. Period 6.

Keys

31. Key (AIK 5) (FIG. 69.31)
Flat band of iron, one end is complete and curved over to form a loop and the other end is broken off, yet sufficient remains to show that it had a different terminal. Length *c.* 240 mm, width 16 mm, thickness 1–2 mm. The whole has been deliberately bent into a 'U' shape. Possibly a barbed spring padlock key with a pierced bit which has broken off. Similar keys are common, for example at Baldock (Stead and Rigby 1986, fig. 68, nos 558–61). Fill of shaft ABZ. Period 5.
32. Key (BJD 47) (FIG. 69.32)
Tumbler lock slide key which is almost complete. It has a broad flat handle with a large hole for suspension at the top. The bit is set at right-angles to the handle and it has eight triangular cut teeth. Length of the bit, 40 mm. Length of the whole key, 85 mm. Comparable keys come from many sites, for example Verulamium (Manning 1984, nos 84–9). Rubbish over main enclosure ditch, area B. Period 7.
33. Key (BLQ 2) (FIG. 69.33)
Tumbler lock lift key which is in poor condition but is almost complete. It has a 'L'-shaped handle with the bit turned down at right-angles to the tang. The handle is flat but broken off. The bit has three teeth. Length 135 mm. This type of key, which is so simple was in use throughout the Roman period. Upper fill of main enclosure ditch, area B. Period 6.

Domestic objects (not illustrated):

A91 AFW 001. Copper alloy lion head stud. Burial casket fitting.
BDK 007. Copper alloy nail fragment.
BJD 27. Fragment of a copper alloy boss or stud (possibly a lion head stud). Rubbish over main enclosure ditch. Period 7.
BJD 29. Copper alloy dome headed tack. Rubbish over main enclosure ditch. Period 7.
BLQ 1. Iron strip binding from a bucket or barrel. From upper silt in main enclosure ditch. Period 5.
BLQ 3. Iron binding or strap fragments. From upper silt in main enclosure ditch. Period 5.
BET 6. Iron binding with a squat arrow shaped terminal. Similar find from Skeleton Green (Partridge 1981, fig. 60, no. 90). From top silt in main enclosure ditch. Period 6.
BJD 46. Iron decorative terminal?. From rubbish over main enclosure ditch. Period 7.
BLQ 8. Iron curved fragment possible binding or scythe fragment? From upper silt in main enclosure ditch. Period 6.
BQF 1. Copper alloy moulded sheet fragment.
BPC 2. Copper alloy strip fragment. From sinkage over well BPK. Period 7.
CPN 5. Possible iron bucket mount. From clay surface area J. Period 7.
CPP 6. Possible key handle. From clay surface area J. Period 7.
CXN 1. Fragment of a copper alloy dome headed stud.
CZS 1. One dome headed copper alloy tack.
DKH 2. Flat headed copper alloy tack.
ALV 5. Copper alloy, dolphin tailed finial. Some sort of furniture fitment. Fill of cellar. Period 6–7.

Structural fittings

The distribution of structural material across the site was not concentrated in any particular areas and the range and number of objects found was small. Two types of hinges are represented, four pieces of strap hinges and one fragment of a loop hinge. The three spring padlock bolt, no. 34, is interesting because Roman examples from Britain are not common. The other iron

structural objects include hooks, split loop pins, cleats and clamps. The excavations produced large quantities of unidentified ironwork, corroded and in a poor state of preservation. A great deal of this was miscellaneous strap and structural fragments. Nails were found across the site but were concentrated in the fills of the enclosure ditch and in the shafts. The nails are examined and listed separately from the rest of the structural material.

34. Three spring padlock bolt (BJD 45) (FIG. 69.34)
The three springs are on one face and the upper end of the bolt is perforated to hold a split pin. Length 120 mm and width 27 mm.
Bolts of this type were widely used in padlocks during the Roman period but this bolt, because of its size was more likely to be of a fixed type probably fitted to a chest. As the bolt was pushed home the springs would be depressed, opening again once in place thus preventing withdrawal.
Roman examples are not common from Britain. A similar one was found at Baldock (Stead and Rigby 1986, 157, no. 557).
From the rubbish over the main enclosure ditch, area B. Period 7.
35. Strap hinge (BRV 5) (FIG. 69.35)
Three straps (one and two) with a central pivot through them all. The straps are broken off. Surviving length 58 mm. Upper silt in main enclosure ditch, area C. Period 5.
36. Fragment of a simple strap hinge (CZF 2) (FIG. 69.36)
The strap of iron is broken across but the other end is intact. The intact end is perforated twice (diameters 6 mm) and a simple split pin is still in position through the hole nearest the end. Length of the strap 66 mm. Length of split pin 40 mm. Fill of gully, area L. Period 6–7.
37. 'L-shaped' iron object (BET 1) (FIG. 69.37)
'L'-shaped object with tapered and splayed foot and a longer tapered wedged stem. The stem is square sectioned. The foot is complete and the stem appears to be too. Length 44 mm. A binding of some sort? The wedge may be shaped to push between stones or into wood. Similar to no. 38. Comparable to objects from Uley (Woodward and Leach 1993, 181, nos. 2–5). Area A. Period 2-3. Levelling of the Iron Age ditch.
38. 'L-shaped' iron object (E93 AEY 2) (FIG. 69.38)
'L'-shaped object with a tapered and splayed foot and a longer, square sectioned and tapered, wedged stem. The foot is complete and the stem appears to be too. Length 36 mm. Height 42 mm. Similar to no. 37. Sinkage over well ADN. Period 6.

Not illustrated:

ABB 2. Iron ferrule, length 50 mm.
AIL 15. Very corroded iron collar or ferrule. From shaft ABZ. Period 5.
BJD 42. Iron conical socketed ferrule, length 90 mm. From rubbish over main enclosure ditch. Period 7.
AIL 17. Iron strap hinge fragment from shaft ABZ. Period 5.
BLQ 6. Four fragments of iron strap, one perforated. From silt in main enclosure ditch. Period 5.
BLQ 6. An iron loop hinge fragment. From silt in main enclosure ditch. Period 5.
BEC 4. Iron wall hook. Upper silt in main enclosure ditch. Period 5.
BFW 1. Iron split pin loop.
A91 BJD 041. Iron perforated 'T'-shaped clamp.
BKC 1. Very corroded iron, a cleat?
CLN 5. Iron boot cleat. Similar to cleats from Rushall Down, Wilts.
DBZ 1. Fragment of iron binding, perforated with nail still in place.
DCA 1. Iron hook.
DDN 3. Iron 'T'-shaped clamp, broken.
E93 AJZ 7. Iron 'L'-shaped wall hook or possibly a pivot. A common fitting, similar examples come from Uley (Woodward and Leach 1993, fig. 138, nos 2–5).
E93 ALR 1. Iron split loop pin.

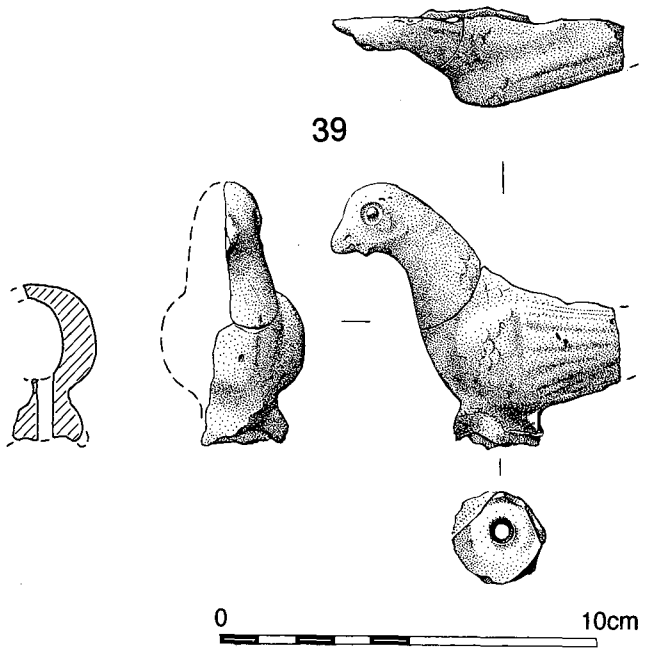


FIG. 70. Ceramic bird from cellar ALC, period 5–6. Scale 1:1.

E93 APF 2. Iron rectangular plate with central round perforation and two rivets in place in the surviving corners. Undecorated. Fitting from a wooden box or similar container.
E93 AJS 26. Iron slide latch fragment with a raised lug. From fill of cellar. Period 6-7.

Votive objects

These objects might have had a ritual function. Not included here is the small base fragment from a copper alloy figurine, CBZ 003 (p. 171), associated with the Chieftain's burial and the iron knife fragment, APR 001, which just possibly is a model axe (p. 214).

39. Two adjoining fragments of a ceramic pigeon (E93 AJB 5 and 7) (FIG. 70.39)
The fabric is oxidized, dull orange, soft and fine. Length 71 mm, surviving width 39 mm, height 66 mm. The bird was made in a mould and has broken in half along its back, its tail is broken off and stands on a broken away semi-circular base. It has a round eye and a sharply pointed beak for pecking grain. The surface is quite worn but overlapping scales on its neck and at the base of the wing denote feathers. The wing feathers are indicated by slight ridges tapering towards the broken tail.
A similar wing fragment comes from Colchester (Crummy 1983, no. 4278). It is most closely paralleled by a figurine of a pigeon from Gaul, described as a peacock, which is in the Musée Carnardet (Camuset-Le Porzou 1985, 74, no. 30). The Colchester fragment is provisionally assigned to the second century.
Fill of cellar ALC/AJB. Period 6–7.
(See also p. 246 below for a note on a copper alloy owl statuette found on the site by a metal detector user after the end of the excavation.)

Objects associated with animal husbandry

The site produced only a few objects directly associated with animal husbandry, these are the ox goads and the bell fragments which might have been worn by animals. The bell fragments were of copper alloy and are not illustrated. Small bells were used throughout the Roman period for a variety of purposes, for example sets of small bells were used as door chimes. However, the site did produce a larger number of items associated with agriculture and the industries utilizing the products of animals. The distribution of some of these tools appears to be concentrated across the centre of the site. These items are dealt with under the section on tools.

40. Ox goad (CVX 2) (FIG. 69.40)
Ox goad with a coiled socket with two turns. Length 28 mm. These are very common on Romano-British sites and are thought to have been used to control animals. Parallel from Verulamium (Manning 1984, 87, no. 17). Fill of gully CWA, area L. Period 7.
41. Ox goad (E93 ADQ 18) (FIG. 69.41)
An ox goad in very good condition. It has three spirals and a long point. Overall length 54 mm, internal diameter 12 mm. Coiled sockets are a very common type of goad. Similar goads have been found at Verulamium (Frere 1984, fig. 38, nos. 17 and 18). Sinkage over well ADN. Period 6.

Four bell fragments were found but all were from rubbish over the main enclosure ditch, or were in contaminated ditch fills. None are illustrated.

Objects used in transport

Five fragments of hipposandals were found on the site and also one horse or pony shoe fragment. Their distribution is too random to have any significance. They were all too fragmentary for classification using Aubert's types. The horseshoe is from a contaminated deposit and could be medieval. None of these objects are illustrated.

Weapons

42. Iron socketed arrowhead tip (BJD 3) (FIG. 69.42).
Arrowhead tip with a narrow blade, the socket and shoulders are broken off. Length 41 mm. A similar arrowhead was found in Milton Keynes (Maynard 1987, fig. 50, no. 263). BJD is not a securely stratified context and this arrowhead could be medieval rather than Roman (Chris Saunders, pers. comm.). Rubbish over main enclosure ditch. Period 7 or later.
43. Iron triangular arrowhead (BPC 1) (FIG. 69.43)
Iron triangular arrowhead, its stump of tang survives but the main tang has broken off. It has a slight midrib and a flat obverse surface. Surviving length 75 mm. Sinkage over well, BPK. Period 7.

Work implements

The site produced a number of different tool types. Some were associated with agriculture, the rake prongs and the already discussed ox goads. There is a chisel, a possible punch or awl (not illustrated), fragmentary files, a possible drill-bit head and a possible socket from a reaping hook. A group of implements was particularly interesting. These were the tools associated with leather working and the manufacture of wool cloth. This group as a whole had a distribution pattern concentrated across the centre of the site (FIG. 65), suggesting that here industrial processes using these tools were sited.

Other tools associated with cloth and clothing manufacture include the many needles already listed but also two spindle whorls and a clay loom weight. The spindle whorls and the clay loom weight were from Iron Age and early Roman occupation of the site.

Objects associated with leather working

44. Leather working knife (AEY 8) (FIG. 69.44)
Tool fragment with a damaged flanged socket and a wide flat blade. However, only a fragment of the blade survives. Surviving length, 95 mm. From the butchers' waste in shaft AET. Period 6.

This may be a leather working knife (rather than a turf cutter) with a similar function to no. 45. Its blade is narrower and it has a folded flanged socket, while no. 45 is broader with a tanged handle. A comparable, complete socketed specimen is known from Caerleon (Zienkiewicz 1993, 114, fig. 41, no. 2). Another is known from Verulamium (Frere 1984).

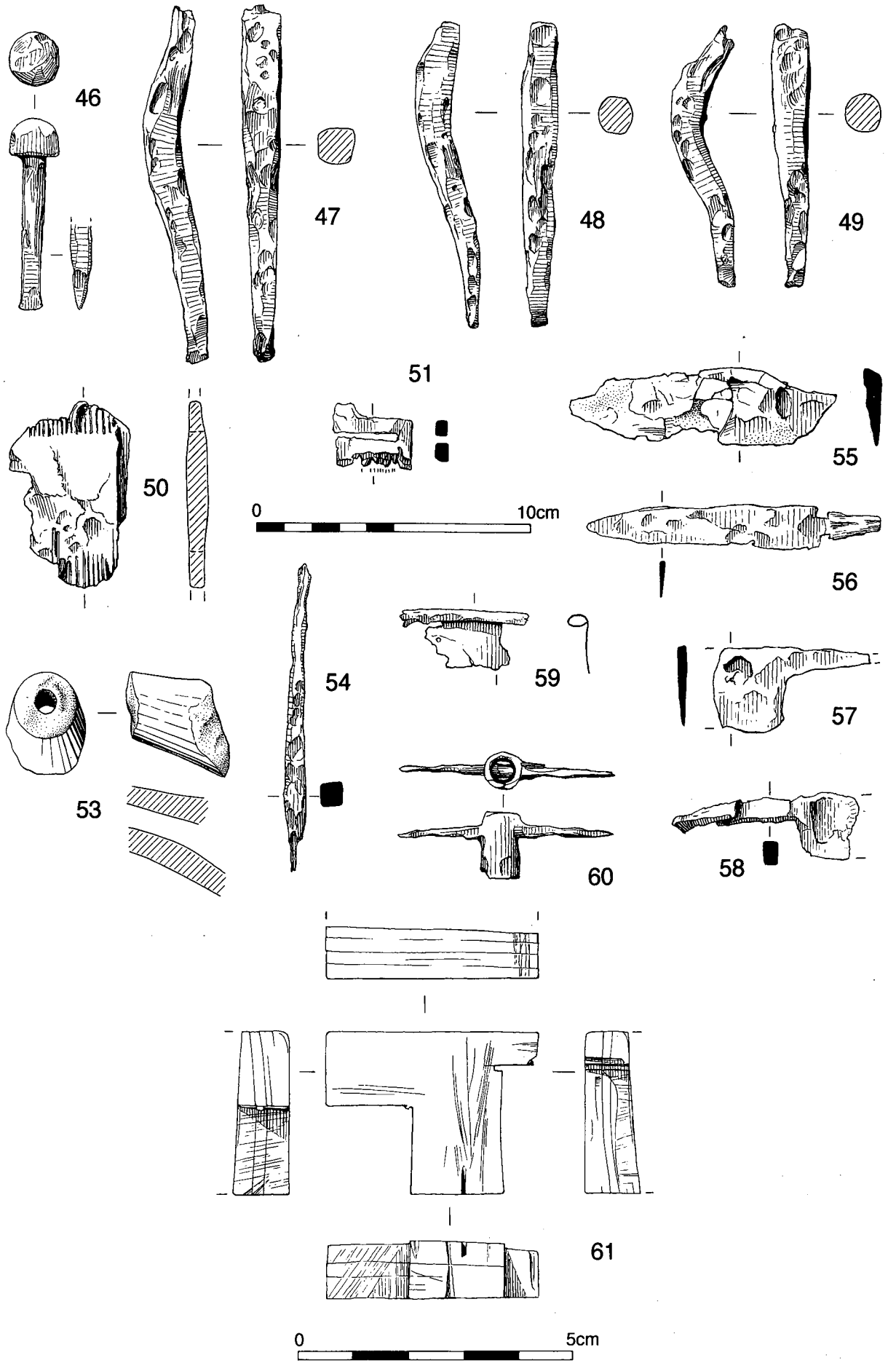


FIG. 71. Iron objects from the lower slope (nos 40–60); ivory off-cut, no. 61. Scale 1:2 except no. 61, 1:2.

45. Leather working knife (DDN 1) (FIG. 69.45)
A curved half moon iron blade with a solid tang or handle. Length 95 mm, width 125 mm. From the clay filling in shaft AET. Period 6.
The tang or handle was possibly socketed further up its length. This cutting implement is in poor condition and the blade is not complete. Turf cutting implements and leather knives are similar in many ways. On balance it is postulated that this is a lunette leather knife, rather than a turf cutter because of its small size and its association with a large amount of animal bone. Similar crescentic blades are known from Verulamium and Caerleon (Frere 1984; Zienkiewicz 1993).

Not illustrated:
BKQ 1. Possible fragment of a slicker? The blade does not appear to have an edge, it is squared off, and shows signs of wear. Sinkage over well ADN.
CDM + 1. An iron punch. Found with three nail fragments. Length 42 mm. Diameter 10 mm. Complete, although one end damaged.

Objects associated with wood working

46. Small chisel (AIL 13) (FIG. 71.46)
A small complete iron chisel with a domed head and intact blade. Length 65 mm. From filling of shaft AAB. Period 4. Parallel from Verulamium (Frere 1984, 102, no. 147).

Not illustrated:
BFS 1. Possible iron drill bit head, broken.

Objects associated with agriculture

47. Rake prong (BEC 10) (FIG. 71.47)
An iron rake prong, curving prong, tapering to a point with a roughly oval cross-sectioned stem which has flattened surfaces. Length 122 mm. Similar prongs are common finds on Roman sites, e.g. Gorhambury (Wardle in Neal, Wardle and Hunn 1990). From upper silt in the main enclosure ditch, area B. Period 6.

48. Rake prong (DGN 1) (FIG. 71.48)
An iron rake prong, tapering to a point with a roughly oval cross-section but with slightly flattened surfaces. Length 122 mm. Upper silt in main enclosure ditch, area B. Period 6.

49. Rake prong (DGN 3) (FIG. 71.49)
An iron rake prong, tapering to a point with a roughly oval cross-section and with a slightly flattened surface at the top. Length 90 mm. Upper silt in main enclosure ditch, area B. Period 6.

Not illustrated:
BEC 5. Rake prong, similar to nos 47–9. From the upper silt in the main enclosure ditch. Period 6.
DHB 1. Socket from an implement, a reaping hook but the blade is missing.

Objects associated with textile production

50. Wool comb (CVX 4) (FIG. 71.50)
One fragment of a double-sided iron comb. It is very corroded but the teeth are distinct on both edges. Surviving width 65 mm (across the teeth), length 45 mm. From gully fill, area K. Period 6–7.
Fragments of a similar comb, which was shown to have been double-sided originally, were recorded at Gorhambury (Neal, Wardle and Hunn 1990, 141, no. 410). Similar combs are also known from Worth, Kent and Great Chesterford, Essex (Manning 1985, D1, D2 and D3). Manning suggests that with this type of comb the teeth were welded into short slots cut into the central plate. Similar details are not clear on the X-ray photograph of this comb fragment, which is a central segment of a comb with both the end plates missing. This sort of comb was used for carding a woollen fleece before spinning.

51. Wool comb (ABA 2 and 3) (FIG. 71.51)
Two fragments of a small iron comb. It appears to be double-sided but the teeth from the second side are too corroded to be visible on the X-ray. Width 28 mm and this appears to be the full width. The comb has one intact end plate and one end looks as if it could be an end plate too, although this is not clear from the X-ray. The intact end has five distinct but broken off teeth. These are difficult to see because of the corrosion. The X-ray shows the teeth to be distinct. Maximum length of the teeth 5 mm.
Possibly a wool comb but it is exceptionally small. No exact parallel has been found. From sinkage over pit ADY, area M. Period 6.

Not illustrated:

BQH 2. Possible spindle whorl. Weight 11 g. Made from a base sherd of grog-tempered grey ware, it has a roughly irregular shape, diameter 35–40 mm. Diameter of central hole 6 mm. The hole was drilled through in an hour glass shape. The thickness of the whole is too irregular to be much good as a spindle whorl, it is much more likely to have been a counter. Period 2 gully.

BXB 1. ?Unfinished ceramic spindle whorl (not illustrated). Post packing in palisade trench for temple precinct. Period 4.

Other tools

52. ?Bone tool (AIL 8), *by* S. J. Greep (not illustrated)
Whittled fragment of long bone, 64 mm long. One edge appears to have been serrated, and although this is possibly fortuitous the recovery of a similar shaped and serrated item from BDG may suggest an actual object rather than a simple waste product. From fill of shaft AAB. Period 5.

53. ?Tuyere (BPD 1) (FIG. 71.53)
Incomplete, ceramic object in fairly soft, fine grained, sandy, reduced grey fabric with an external partially applied white slip. This is slightly sooted, particularly at the narrow end. The object is nozzle-shaped with a central perforation down its length. Length 35 mm and broken off at both ends. Diameter of perforation at both ends, 7 mm. Possible tuyere fragment. From the sinkage over well BPA. Period 7.

54. Iron awl or punch (BEC 2) (FIG. 71.54)
Simple tapered shank of iron, square in section but rounded towards the pointed working end which is broken off. The other end has a short tang for the attachment of a handle. Length 105 mm. Possible awl and punch. Main ditch, top silt. Period 6.

Not illustrated:

AEY 3. Possible iron implement fragment. From butchers' waste in shaft AET. Period 5–6.

BER 9. Iron blade. It is possibly a file with traces of teeth on one side, six per centimetre. From the top silt in the main enclosure ditch, area B. Period 6.

BGN 1. Possible fragment of a file.

CTC 3. Fragment of a socket.

Household utensils

Knives

There were nine knives or fragments of knives from the site, all were of iron except for one fragment in copper alloy (no. 4 above). Two knives were found in burials and are listed separately. Where possible Manning's classification has been used (Manning 1985).

55. Fragment of blade (BAC 20) (FIG. 71.55)
The tang is just discernible set below the back. The back appears fairly straight but slopes down to the tip. The edge of the blade is ?slightly convex and slopes up to the tip. Length 95 mm. Probably a Manning type 15. Hillwash Area A, not securely stratified.

56. Knife blade (BRN 2) (FIG. 71.56)
A small elongated, leaf-shaped, tanged knife blade. Length 83 mm. Short tang 20 mm. Manning type 5. Top silt in main enclosure ditch, area C. Period 6.

57. Knife blade (APR 1) (FIG. 71.57)
An iron knife blade with an overall length of 58 mm. It has a stout tapering tang which is broken off. It is straight backed and the blade tapers to a point. Manning type II. Small pit west of building 1 Area P. Period 6.

There is a slight possibility that this is a model axe even though it is undecorated. However, the X-ray is inconclusive.

58. Knife blade (CWE 2) (FIG. 71.58)
An iron knife fragment with a long tang and a small section of the blade. Surviving length 65 mm. Slump over shaft CPX. Period 5–6.

Not illustrated:

ADA. One fragment of a knife or cleaver blade.
DBH 1. Unconserved fragment of an iron knife blade.
BGR 2. Blade fragment?
BNS. Possible blade fragment.

Metal vessels

Metal vessels of any form are rare finds from Roman contexts. Only one small fragment of an iron vessel was found on the Folly Lane site.

59. Rim (BCH 3) (FIG. 71.59)
A possible rim fragment from a wide diameter iron bowl. It is very thin walled, .5 mm thick and the rim is simply folded over to touch the wall of the vessel. Length 46 mm. Sinkage over shaft BBS, area A. Period 6.

Querns (not illustrated)

Beehive quern (E93 AJB 9)
An almost complete topstone from a beehive quern of Hertfordshire puddingstone which has a slightly concave base. The indentation for the metal band to hold the handle is still visible. It has a well worn grinding surface. Diameter 320 mm, height 140 mm, diameter of hopper 80 mm–40 mm.

This type of quern is typically first-century and it is common in the Verulamium area. There are examples from Gadebridge Park (Neal 1974, fig. 504.697 and 698), Gorhambury (Neal *et al.* 1990, 167, no. 1057) and Puckeridge and Braughing (Potter and Trow 1988, 91, nos. 11 and 12). From cellar AJB.

A large number of quern fragments were recovered from the lower slope. The rotary querns from Folly Lane are dominated by those made from vesicular lava. Thirty-eight contexts had fragments or groups of associated fragments of these quernstones in them. The rest of the milling stones are from other lithologies, but are less common and were found in only twenty-four contexts. The other stones are also thought to be imports to the site, but no firm geological or geographical provenance has been given to them because they have not been thin-sectioned or examined petrologically. The only local stone is the complete topstone from a beehive quern in Hertfordshire puddingstone, AJB 9. The non local stones have been identified as belonging to three general categories: grit, sandstone and limestone (David Curry, St Albans Museum, and Julia Matthews, pers. comm.). Only nine out of the sixty-two quern fragments or groups of fragments were complete enough for their diameters to be ascertained. Most were in the range of 380–480 mm and only three were outside these parameters; the Puddingstone quern (AJB 9) has a diameter of 320 mm, and the early Roman example in sandstone (CMZ and CEF), diameter 320 mm. All these querns are of a size to have been hand-turned.

Miscellaneous

60. Iron object of unknown function (BAC 19) (FIG. 71.60)
Formed of a cylinder of iron, open ended and slightly splayed. Through the narrower end a spike has been pushed. Length of spike 76 mm. Length of cylinder 22 mm, diameter of cylinder 12 mm. This object appears to have been made to fit a stick. Possibly a type of ox goad? Hillwash, Area A, not securely stratified.

Not illustrated:
E93 ACB 4. Lead tag fragment. Burnt.

Objects associated with bone and ivory working, *by* S. J. Greep

61. Ivory offcut (AEY 6) (FIG. 71.61)
A 'T'-shaped section of ivory, cut and sawn. Polished on one surface, unfinished on the other. This is the first example of ivory in the process of being worked to be recovered from Roman Britain. It has always previously been assumed that ivory was only imported into Roman Britain in the form of finished objects (Greep 1983, 64) and not in the raw material (i.e. the tusks). As one surface of the object is well polished, the possibility remains, however, that this was cut from another object (although, if so, which type is uncertain) rather than being the waste from a primary workshop. In the absence of other waste from the site it is not, unfortunately, possible to be sure exactly which of the two interpretations is correct. From fill in shaft AET.

The recovery of a sawn section of elephant ivory tusk from Canterbury is implied to be of Roman date (Stowe 1995, fig. 508.1137, where it is suggested that it was used for making Roman bracelets), but the actual find is from unstratified contexts (as is the parallel from Norwich listed) and is almost certainly of post-medieval date. Maximum height 38 mm.

Waste products

Although small, the quantity of waste material demonstrates manufacture of bone and antler objects at the site. Waste material from these industries is commonly found throughout Roman Britain, at all periods, and sporadically in the Roman town of Verulamium. There is nothing in the Folly Lane assemblage to determine what type of objects were being manufactured or to suggest that the industry was particularly widespread or important here. Simple antler and bone offcuts have been recorded at a number of other Verulamium sites (all unpublished) and the industry was occasionally carried out in the surrounding villas to judge from finds from Dicket Mead (Rook 1987, 168), Gadebridge Park (Neal 1974, fig. 67.333, an unfinished haripin; fig. 68.338–42) and Gorhambury (Neal *et al.* 1990, figs. 140.968 and 141.972).

Bone working waste (not illustrated)

BDG 5. Whittled fragment of cancellous bone. Length 62 mm. Shaped and serrated as no. 52 above, and like it of uncertain function.

ABQ 6. Whittled rod of bone. Knife-cut on all sides. Both ends snapped. A waste product, possibly from the manufacture of a hair-pin, needle or spoon. Length 73 mm.

CPN 3. Sawn fragment. Cattle long bone, sawn both ends but otherwise unworked. A waste product (the use of the saw appears confined to working rather than butchery during the Roman period) although it is difficult to see what use this item may have been intended to be put. Length 190 mm.

CTG 1. Sawn rib. Cattle rib, sawn both ends and presumably a waste product (see comments above). Length 79 mm.

BDK 6. Antler. Two adjoining, small fragments of red deer antler. Length 17 mm. Knife cut waste products.

Other objects

25. Lathe-turned bone tube (A91K CST 6) (from burial urn, p. 116, FIG. 89)
    Lathe-turned bone tube with collars at either end, more pronounced at one than the other. Uncertain function, possibly a small handle. Many small fragments were recovered. Total original length in excess of 86 mm. There are two similar lathe-turned 'tubes' from Canterbury (Greep 1995, fig. 493.911–12) from late second- to third-century contexts, but there were no associations to assist with an identification of function.
26. Lathe-turned bone 'collar' (E93 P2 ARV 1)
    Bone 'collar', ferrous stained inside and on the wider edge. Diameter 24 mm, complete. Small fragment of wooden packing survives. This is probably the terminal from a handle with an iron tang. Although there are several parallels to this object (e.g. Rook 1987, fig. 69.14), its true function remains uncertain.

Nails from the lower slope

More than 4200 iron nails were recovered from the excavated areas of Folly Lane, excluding the nails from the main burial. Also a further 8900 g of nail fragments from E93 AGP, E93 AJB, E93 AJS, E93 AJZ and E93 AVA were recorded. Of these only 1243 were complete enough to be sorted according to the type series suggested by Manning (1985). The greatest part of the assemblage consisted of 985 Manning type 1b nails (79 per cent) and most of these were between 50 mm and 70 mm in length. However thirteen fragments of large nails recovered from gully DHB (phase 6) might equate with Manning type 1a. The largest of these fragments is 85 mm in length and the point of its shaft is broken off. These fragments also have larger than average heads, the largest is 30 mm across, but none are complete and it is not possible to firmly fit them into Manning type 1a. No other Manning type 1a nails were found.

Of the remainder of the nails from the excavated areas, 216 were hobnails, Manning type 10 (17 per cent); nine were Manning type 8 with domed heads; twenty-four were Manning type 7 with disc-shaped heads (2 per cent); one was Manning type 6, these are rare; one was Manning type 5, a spike wth no distinct head; four were Manning type 4, with L-shaped heads and three were Manning type 3 with T-shaped heads.

By far the commonest type of nail found was the Manning type 1b which was found in all the main rubbish deposits. These nails may well have come from building debris from earlier structures on the site. The largest concentration of type 1b nails was recovered as would be expected, from the main ditch fills. Large numbers were also found in the shaft fills. A few Manning type 1b nails were associated with buildings 1 and 2.

The hobnails occured in all the main rubbish and demolition deposits. One hundred at least were recovered from phase 7 of the main ditch. However, the total number of hobnails, Manning type 10, (a minimum of 216) is far less than were found in the Uley Shrines. At Uley a minimum of 869 hobnails were found in deposits associated with votive objects and it was postulated that boots and shoes were given as votive offerings, linked to the cult of Mercury. There is no similar link at Folly Lane where they were found in shafts and in the enclosure fills, but their small number indicates that they were probably from discarded boots and shoes.

THE BROOCHES, *by* D. F. Mackreth

Colchester derivative

1. BRV 15 (FIG. 72.1)
   From the upper silt in the main enclosure ditch. Period 5.
   The spring is held to the body of the brooch in the Harlow manner: an axis bar through the coils passes through the lower of two holes in a plate projecting behind the head of the bow, the chord passes through the upper one. The wings are plain. The plate is carried over the head to form a skeuomorph of the Colchester's hook, its front having walked scorper decoration. A group of three cross-grooves lies on the front just below the start of the catch-plate which has a single large piercing. There is a two-part foot-knob.

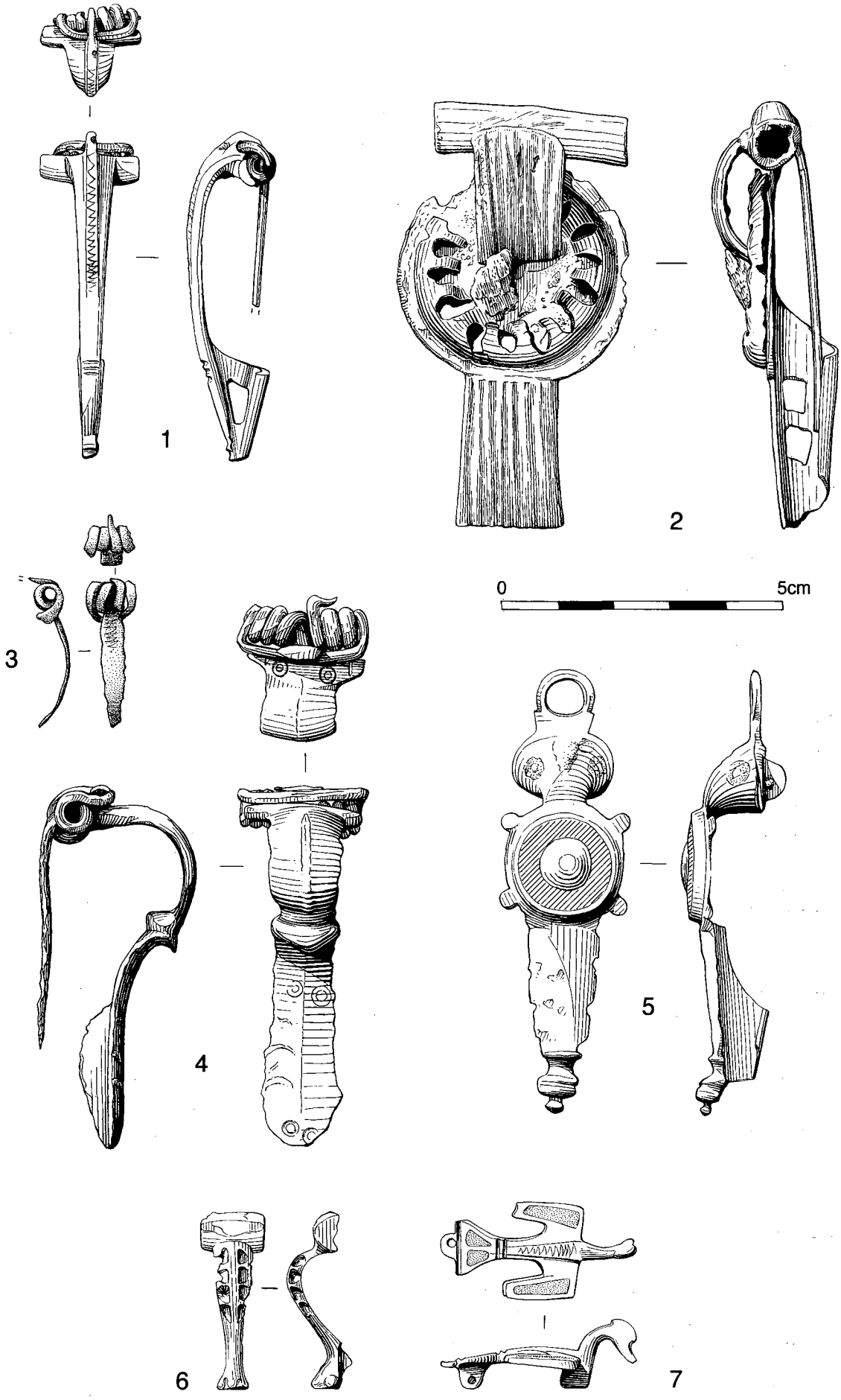


FIG. 72. The brooches. Scale 1:1.

A distinctive type whose distribution is firmly in Hertfordshire spreading into Kent and Suffolk, the farthest flung examples so far recorded by the writer are in Sussex, Cambridgeshire and Lincolnshire. There are minor variations: the grooves across the bow rarely appear, the decoration on the skeuomorph hook is not obligatory and very occasionally the catch-plate is solid, but the foot-knob is a prerequisite. The dating is weak and hardly helpful: Chichester, late first to early second century (Down 1989, 185, not illustrated); Verulamium, *c.* 100–75 (Stead and Rigby 1989, 17, fig. 11.19). Large piercings in the catch-plate should not be second century, and the developed form of foot-knob which most affect (e.g. Richardson 1944, 93, fig. 4.4) should not be significantly earlier than *c.* A.D. 55.

Late La Tène

2. BHA 1 (FIG. 72.2)

From the primary silt in the late Iron Age ditch, period 2.

The short spring is housed in an over-large case. The brooch has accretions over much of its surface obscuring much of the decoration, only what is evidenced is mentioned. The case has traces of vertical grooves at each end. The bow has a cross-moulding above and mouldings down the front have been damaged by mechanical cleaning. There were three groups of three and a bordering ridge on each side. The disc and fantail foot are a single flat plate. The disc has traces of one beaded zone round its edge and has, round the base of the bow, an applied repoussé plate with pointed cut-outs, some bordered by grooves, in its inner edge. The area at the base of the bow inside the plate is obscured by corrosion but there are at least two vertical elements. The fantail foot is decorated like the bow, only here the central ridge in each triple set is clearly beaded. The catch-plate has two roughly rectangular holes cut through it.

Only the King Harry Lane cemetery (Stead and Rigby 1989) can usefully be employed for comparative purposes. The development of the Rosette is fairly clear. The first ones had narrow bows and feet, were fitted with a Colchester spring system (see Brooch 4) and were forged into their final shape. The next stage, with the familiar proportions, had a separately-made spring housed in a case, as here, the disc being fitted after the brooch had been formed. The next stage was to make the disc and foot from a single plate. Thereafter, the bow disappeared leaving the basic Rosette form, and the last stage replaced the spring-case by a hinged-pin system. The present brooch is firmly in the middle of this scheme. The presence or absence of beading appears to be chronologically significant, being more common on those with separate discs than on those like the present example. In the following analysis of the King Harry Lane cemetery, both form and decoration are slotted into the overall phasing. The Langton Down and the *Léontomorphe* types are ignored. The brooches themselves have not been examined by the writer, therefore the presence of beading relies entirely on the published drawings indicating beading: phase 1, 109.2B, 206.2; phase 2, 53.3B, 73.2, 73.3, 73.4, 218.5, 353.4; phase 3, 9.8, 9.9B, 14.3B, 15.4B, 68.3, 86.3, 86.4, 86.5B, 118.5, 370.6, 370.7B.

The figures may not seem impressive, but they offer the best guide for the moment: phase 1, two brooches, one beaded; phase 2, six brooches, one beaded; phase 3, eleven brooches, five beaded; phase 4, no brooches. No firm conclusion emerges, and not one which immediately suggests that beading is an early feature. However, if all brooches belonging to the Rosette, *Léontomorphe* and Langton Down types are looked at, only excluding single plate Rosettes, the figures are: phase 1: sixteen brooches, ten beaded; phase 2: thirteen brooches, four beaded; phase 3: twenty-two brooches, eight beaded; phase 4: no brooches. There are unequal quantities in the four phases, and phase 4 can be ignored here, but there is a trend. Beading predominates in phase 1, is less common in phase 2, where only a third were so decorated. In phase 3, the proportion is again close to a third, but there are signs that there is a higher proportion of early brooches than can be isolated in phase 2. In other words, the overall balance is changing. The first two represent more

faithfully what was being introduced to the population, which was well supplied when most of phase 3 burials were placed. There may in this be signs that these brooch types were going out of use. This is obvious when it comes to *Léontomorphes*: they were awkward to make and the ultimate form can be hard to relate to the original one if the sequence is not known: compare late examples in grave 353.5 or grave 362.3 with the early one in grave 218.3.

The King Harry Lane report (ibid., 84) dates the phases thus: phase 1: 1–40, phase 2: 30–55, phase 3: 40-60, phase 4: 60+. The initial date could have been as early as *c.* 15 B.C. (ibid., 83), but it was felt that the cemetery lasted significantly beyond the Roman conquest. On statistical grounds, therefore, all phase 1, half of phase 2 and practically nothing of phase 3 would be pre-conquest, phase 4 can be ignored. However, there is a striking absence of well known post-conquest types which had flooded the market in the first ten to fifteen years after the conquest: only one Colchester Derivative, grave 316.4, and no standard Hod Hill. This is inconceivable for a site lasting through the same period when they were being used a few hundred metres away. There is similarly a commensurate lack of samian at a time when it was being imported in vast quantities (ibid., 113) and was, apparently, abundant in the developing town. If, however, the possible start-date of 15 B.C. is used, and the phasing adjusted, virtually all the perceived problem disappears and the following dating is suggested: phase 1: 15 B.C.–A.D. 30; phase 2: 20–40; phase 3: 35–50; phase 4: 45+. On this basis, all of phases 1 and 2, half of phase 3 and none of phase 4 would be pre-conquest. Even this is a token nod at the dating generally available from elsewhere in the country for Rosettes, for the same objection over Colchester Derivatives and Hod Hills still applies. The writer would willingly have the cemetery closed by A.D. 45.

While this argument may be useful for dealing with the brooches in a specialized environment in which ordinary residuality does not apply, such as a cemetery, it is not necessarily useful when dealing with more ordinary types of deposit. Unfortunately, most comparable Rosettes come from excavations on Roman sites which at best overlie earlier ones and are usually not from useful contexts: any later than *c.* 65 can be automatically discounted. What is revealed, however, is that the brooch spectrum of the earliest years of the Roman occupation does not include a significant proportion of Rosettes of any kind, nor of Langton Downs. The other chief brooch type in the cemetery, the Colchester, is better represented, but being British and made in enormous numbers, it might be expected to make a good showing. Those which can be shown to date to the first ten to fifteen years after A.D. 43 are clearly devolving rapidly and it is a moot point whether they are actually only survivors in use, the development having already taken place before the Romans arrived. This is of course an argument which can be applied to the Folly Lane Rosette, especially if it is held that any brooch stands an equal chance of becoming the last one to be worn, but most had been discarded before the conquest as their poor showing in the town must demonstrate. TABLE 27 shows published totals recorded by the writer.

TABLE 27. PUBLISHED TOTALS OF BROOCHES

Site Type	KHL	Town
Colchester	86	11
Langton Down	25	–
Rosette	39	1
Harlow	1	8
Aucissa/Trans	3	3
Simple Hod Hills	–	13
Complex Hod Hills	–	11
Bagendon	1	–
Total	155	47

3. BQG 1 (FIG. 72.3)
Fill in gully 1, area C; period 2.

The integral spring has four coils and an internal chord. The slight bow has a thin rectangular section with a line of walked scorper ornament down the front. The lower bow with the catch-plate is missing and the edges of the bow are eroded.

The presence of decoration on the bow is significant: without it, the brooch would be just another of a common and undistinguished class of Nauheim Derivative which can be shown to have survived the conquest both in use and manufacture. So much so, that it is hard to prove that any had been made before, unless there were exceptional circumstances. Again the King Harry Lane cemetery (Stead and Rigby 1989) is pressed into service. The copper alloy integral four-coil spring system is very poorly represented, almost certainly because other types were preferred. One, of gunmetal and plain (grave 32.2) came from a phase 3 grave and should be late in that. The only other, finely finished with walked scorper decoration inside raised borders, came from a phase 1 burial (grave 317.4). The design is found on Nauheims (Feugère 1985, fig. 10.38, 42) and points the way to solving the long-standing problem of what filled the gap between Nauheims, defined as having a triangular bow and a framed catch-plate, and the host of descendants with solid catch-plates, many having vaguely triangular bows and weak rectangular sections.

The abandonment of the open catch-plate, sometime in the second half of the first century B.C., would leave brooches with the basic form and decoration. One from Fox Holes Farm, Little Amwell, Herts. (Partridge 1989, 132, fig. 76.5) came from a context which, admittedly not sealed, contained enough other brooches and early pottery to suggest very strongly that the whole had become closed by 25 B.C. (ibid., 14–15, 129). The rest of the dating evidence is meagre, none later than A.D. 100 being included. None recorded by the writer seems to have overlapped with that: Durrington Walls had only Iron Age finds (Wainwright 1971, 324, fig. 105.2); Baldock, 25–50 (Stead and Rigby 1986, 109, fig. 40.15); Hod Hill, before 50 (Brailsford 1962, 16, fig. 8.2; Richmond 1968, 117–19); Weekley, Northants, mid to late first century (Jackson and Dix 1987, 74, fig. 22.6); Baldock, 50–90 (Stead and Rigby 1986, 109, fig. 40.17); Chichester, Flavian (Down 1978, 280, fig. 10.27.21). In other words, true residuality may have begun before *c.* 75, the period of final use having begun before the conquest. The date of the present specimen should fall somewhere into the period late first century B.C. to mid-first A.D.

4. BJF 1 (FIG. 72.4)
From the fill of a small pit (A, FIG. 9) at the entrance to the Ceremonial Enclosure. Probably period 3, but possibly period 2 or 4.

The integral spring is held in the Colchester manner: the chord of the bilateral spring is secured by a broad, forward-facing hook barely reaching the head of the bow. Each wing is short and plain and on the head is a pair of ring-and-dot motifs, or 'eyes'. The bow proper is wide with traces of a either a groove or a pair of mouldings down the middle. At the point of inflection at the top of the foot is a knop with an extra moulding above on the front. The broad foot splays out to what had probably been a rounded end. The front may have been decorated in the same way as the bow. There is repeat of the 'eyes' at the top and bottom of the foot.

This is a fully-fledged *Augenfibel*, rare in this country, deriving ultimately from brooches such as Feugère's Kragenfibel Types 10a1 and 10a2 (Feugère 1985, 181). His discussion of their date (ibid., 246) shows that there is still some doubt, but in general these forms should be concurrent with the earlier stages of the Rosette (see Brooch 2). Riha classified brooches similar to the present *Augenfibel* as her *Typ* 2.3 (Riha 1979, 68, Taf. 7, 193–211), and in her analysis of size, Brooch 4 belongs to her largest group being, in fact, bigger than any there. Her examples indicate that the knop became gradually insignificant, but her table of dates (ibid., 68) fails to reveal any chronological sequence. However, Augst is a site where most of the material was residual and, therefore, only the earliest dating gives some idea of where the true *floruit* might be. There is the same kind of break in the dating

noted in the dated parallels for Brooch 3, her table revealing that most are late first to early second century or later, three being earlier than Claudian with only one in the gap. The rest are Tiberian-Claudian. The eyes are found on earlier versions of the Aucissa, which itself has none. This should mean that this decorative trick was dying out by 30/40, but this does not necessarily cover survival in use. The British dating is sparse, like the distribution which favours, if anything, the area around Essex: Colchester has two examples, 49–61 (Hawkes and Hull 1947, 321, pl. 96.123–4). As the Sheepen site seems to have had a fair amount of residual material, these could be earlier, but probably not before the conquest.

Trumpet

5. E93 ADQ.7 (FIG. 72.5)
From the sinkage over well ADN area M, period 6.

The separate spring with its internal chord was mounted between a pair of pierced lugs behind the head which has a cast-on loop on a pedestal, the latter having a pair of cross-grooves. The trumpet has corrosion accretions down the middle and circular marks on each side, probably traces of applied white metal trim. The circular disc has round-ended projections on the diagonals. In the middle is a platform with an annular recess filled with an opaque terracotta-red enamel which has a deep red enamel setting in the middle. The lower bow is broad with a flat central face and corrosion, which may also be due to white metal trim, on each side. The foot-knob is elaborate with a cross-flute and a boss with a small projection below.

This is the larger of the two sizes of this version of Trumpet with discs, or some other flat form, where the knop is usually found. First reviewed as a specific type by Richardson (1960), the distribution was established, and the dating indicated (ibid., 206). With the largest numbers coming from Somerset, the South-East, East Anglia, and then a few in the far North, it might be that the brooches were traded around the coast, with the Severn and the Wash providing further points of entry. The distribution could suggest that the group was made somewhere in the south-east or eastern parts of England, examples thinning out to west and north.

The family is marked by the use of applied white metal trim and its dating is Newstead, 80-early third century (Curle 1911, 324, pl. 87.27; Hartley 1972, 54); Camerton, 90–190 (Wedlake 1958, 224, fig. 51.19); London, two examples, early second century (Wilmott 1991, 118, fig. 82.303, 304); Camelon, 140-65 (Christison 1901, 401, fig. 39); Wroxeter, mid-second century (Kenyon 1940, 224, fig. 15.3); South Shields, *c.* 150 (Miket 1983, 113, fig. 71.84); Canterbury, *c.* 150–400 (Blockley 1988, 110-11, fig. 14.18) Strageath, *c.* 158 (Frere and Wilkes 1989, 150–1, fig. 76.56); Scole, Norfolk, mid-Antonine to early third century (Rogerson 1977, 132, fig. 54.8); Springhead, Kent, before *c.* 175 (Penn 1957, 98, fig. 14.5); Leicester, before *c.* 180 (Kenyon 1948, 251, fig. 81.1); Verulamium, late second to early third century (Richardson 1944, 93, fig. 4.5). There are, in fact, not many examples and the message is, accordingly, more diffuse than for the main series of Trumpets. All could fit comfortably between the early second century and *c.* 175: only one need be later and this would fit the picture provided by the other Trumpets. The beginning of the family is, if the initial date of the one from Camerton is ignored, from the earlier second century, and this accords with the rest of the evidence for the use of white metal trim.

Knee

6. BSC 1 (FIG. 72.6)
In gully cut through main enclosure ditch, area C, period 7.

The spring was mounted in a cylinder with an open back. The bow is a slight cabriole with recesses on each side for enamel, now missing: triangular top and bottom with a pair of rectangular ones between. There is a thick silvery strip across the front of the spring-case

and down the bow, the latter having traces of an applied white metal strip, probably beaded. The rest of the bow has a thin silvery finish.

A good example of the British type: it is slight with a narrow head and was finished with enamel and white metal trim, the latter being a specifically British technique. The distribution is widespread over the whole of England south of the Humber–lower Severn Valley line with representatives on military or related sites in the North. The dating is: Wroxeter, before *c.* 130/50 (Bushe-Fox 1914, 13, fig. 4.6); Canterbury, 100–80 (Frere *et al.* 1982, 121, fig. 59.7); Buxton, Poole's Cavern, second century (Mackreth 1983, 55, fig. 3.3); Leicester, mid-second-early third century (Clay and Pollard 1994, 143, fig. 74.17); Caerleon, 160–230 (Brewer 1986, fig. 55.12); Chichester, later second century (Down and Rule 1971, 115, fig. 5.18, 228w); Baldock, 180–220 (Stead and Rigby 1986, 113, fig. 46.103); Bignor, 190/200–225/250 (Frere 1982, 179, fig. 26.2); Vindolanda, *c.* 223–5 Bidwell 1985, 117–19, fig. 39.4); Verulamium, 250–80 (Frere 1984, 27, fig. 8.43); Fishbourne, late third century (Cunliffe 1971, 104, fig. 39.38); Catsgore, fourth century (Leech 1982, 107, fig. 77.22). Laying these out as a bar chart in order of the start dates, it is immediately obvious that the bulk can be contained within the limits of *c.* 125–225, the general range of the use of white metal trim.

Zoomorphic

7. BRV 16 (FIG. 72.7)
From upper silt in the main enclosure ditch, period 5.

The spring was hinged. In the form of a bird with open, not spread, wings, the type is not clear. The form of the head could be that of either a hen or a duck, only the crest is not scalloped as one would expect on a hen. No eye is marked. The wings have a squared front and each has a single cell on the backward-facing part, one with red enamel. The tail has two grooves at its top and two cells for enamel, now green, and a groove across the bottom. There is a small pierced loop beyond.

The few other parallels for this particular design are also ambivalent about the type of bird, some having the crest and others not, yet all having the same body with the same layout of cells, and some have the eye marked. None recorded by the writer is usefully dated: Poundbury, early to late Roman (Green 1987, 97, fig. 67.20). There is no other indication, such as traces of applied white metal trim, or, apparently, related designs, and only a general second-century date can be proposed.

THE GLASS, *by* Denise Allen

Vessel glass

Cast and ground

1. AFA (not illustrated)
Rubbish over the main enclosure ditch, period 7. Body fragment of a pillar-moulded bowl of blue-green glass; damaged by fire. Moulded, rotary-polished within, fire-polished without. Part of one rib extant.

Blown

Bowls, beakers, cups, jars — rim and body fragments

2. E93/M3 ADP 5 (FIG. 73.2)
Sinkage over well ADY, area M. Period 6. Rim fragment of a bowl or cup of blue- green glass. Rim fire-rounded and thickened and turned slightly inward. Diameter *c.* 100 mm.
3. E93/R4 AVA 2 (FIG. 73.3)
Fill of post-pit, building 2. Period 7. Rim fragment of a bowl or cup of blue-green glass. Rim fire-rounded and thickened and turned slightly outward. Diameter *c.* 120 mm.

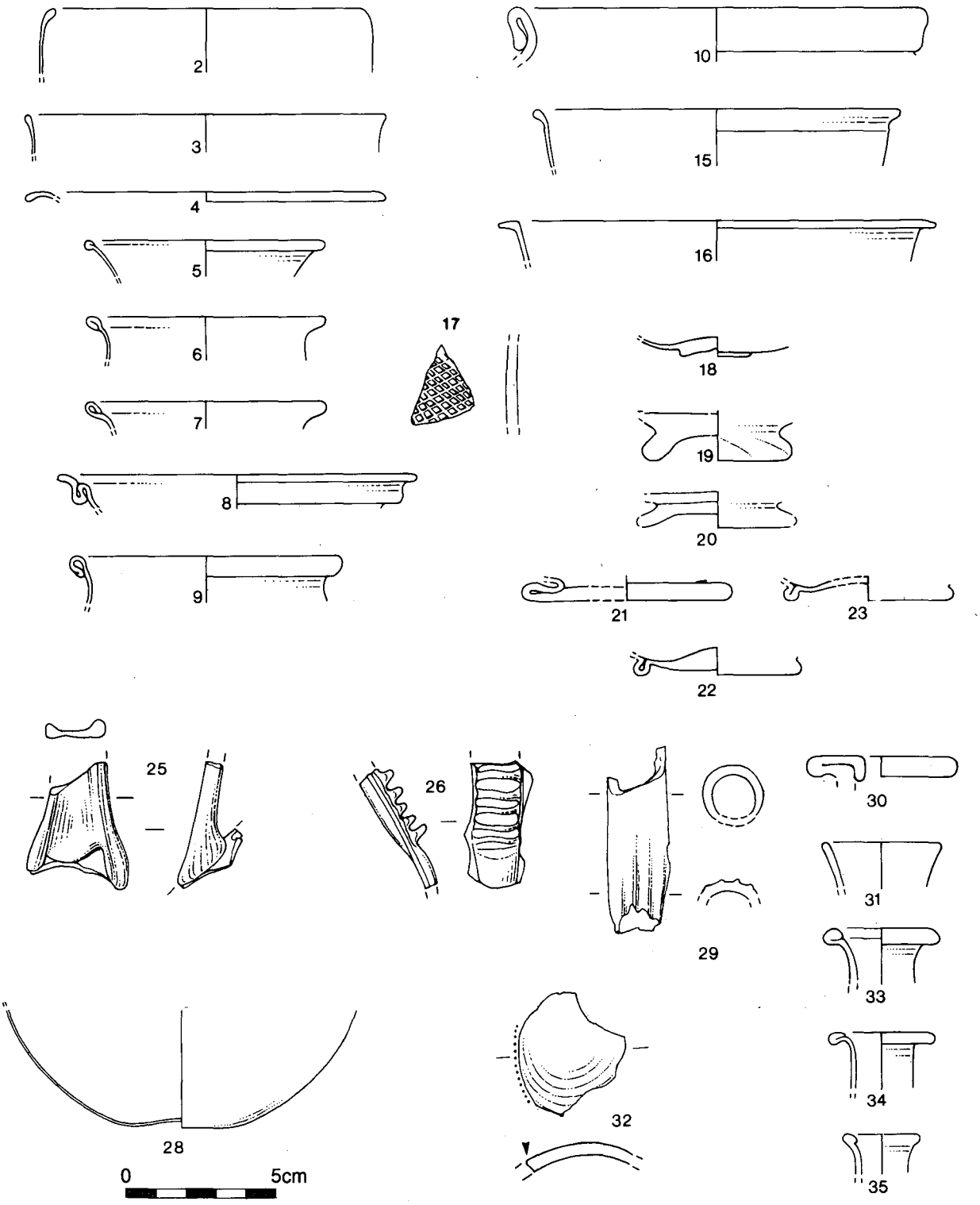


FIG. 73. The glass. Scale 1:2.

4. A91 BSC 2 (FIG. 73.4)
   Sinkage over late Iron Age ditch. Period 4–6. Rim fragment of a cup or beaker of blue-green glass. Rim fire-rounded and thickened and turned outward to form horizontal lip. Diameter *c.* 100 mm.
5. A91 DKE (FIG. 73.5)
   Fill of pit. Period 4–6. Rim fragment of a cup or beaker of blue-green glass. Rim folded inward and downward and slightly outflared. Diameter *c.* 90 mm.

6. A91/B BEC 13 (FIG. 73.6)
Top silt in main enclosure ditch. Period 6. Rim fragment of a cup or beaker of blue-green glass. Rim folded outward and downward and outflared. Diameter *c.* 80 mm.
7. A91/B BGR 1 (FIG. 73.7)
Silt in main enclosure ditch. Period 5. Rim fragment of a cup, beaker or jar of blue-green glass. Rim folded inward and downward and slightly outflared. Diameter *c.* 80 mm.
8. A91/B BEC 15 (FIG. 73.8)
Top fill in main enclosure ditch. Period 6. Rim fragment of a bowl or cup of blue-green glass. Fire-rounded rim folded upward, outward, downward, outward, upward and outward, forming a horizontal ridge beneath rim. Diameter of rim *c.* 110 mm.
9. A91/C BJD (FIG. 73.9)
Rubbish over main enclosure ditch. Period 7. Rim fragment of a beaker or jar of blue-green glass. Tubular rim, folded inward and downward, then outward and downward. Diameter *c.* 90 mm.
10. A91/L CZF (FIG. 73.10)
Fill of gully. Period 7. Rim fragment of a jar of olive green glass; slightly distorted by fire. Rim folded outward and downward twice to form tubular collar. Diameter *c.* 90 mm.

Not illustrated (nos 11a–14):

11a. E93 P2 ALV 9
Fill of cellar ALC. Period 5–6. Rim fragment of blue-green glass. Rim folded outward and downward. Diameter indeterminable.

11b. A91/B BEC
Top silt in main enclosure ditch. Period 6. Rim fragment of blue-green glass. Rim fire-rounded and thickened and turned slightly inward. Diameter indeterminable.

11c. A91/B BCC
Sinkage over shaft BBS. Period 5-6. Rim fragment of blue-green glass, rim folded inward and downward and outflared. Diameter indeterminable.

11d. E93/M3 ADQ 9
Sinkage over well ADY. Period 6. Rim fragment of a jar of blue-green glass. Rim folded outward and downward forming a concave collar. Diameter *c.* 100 mm.

12. A91/B BGR 3
Silt in main enclosure ditch. Period 5. Rim and side fragment of a cup of colourless glass. Rim outflared and ground smooth. Diameter *c.* 100 mm. Horizontal wheel-cut groove beneath rim, another further down side, with horizontal wheel-abraded lines between.
13. E93/P2 ALV 9
Fill of cellar ALC. Period 5–6. Rim fragment of a cup of colourless glass. Rim fire-rounded and thickened and turned slightly inward. Diameter *c.* 90 mm.
14. A91/C BJD
Rubbish over main enclosure ditch. Period 7. Rim fragment of a cup or bowl of colourless glass. Rim fire-rounded and thickened and flared outward. Diameter *c.* 120 mm.
15. A91/B BEC (FIG. 73.15)
Top silt in main enclosure ditch. Period 6. Rim fragment of a cup of colourless glass. Rim fire-rounded and thickened and turned outward, with rotary-polishing around and beneath rim. Diameter rim *c.* 120 mm.
16. A91/C BJD (FIG. 73.16)
Rubbish over main enclosure ditch. Period 7. Rim fragment of a bowl of colourless glass. Rim outflared and rotary-cut and ground to form a ?scalloped lip, fragment only remaining. Diameter of rim *c.* 120 mm.
17. E93/R4 AVA 12 (FIG. 73.17)
Fill of post-pit, building 2. Period 7. Body fragment of colourless glass, with part of a wheel-cut diamond grid pattern extant.

Base fragments

18. E93 M3 ADQ 2 (FIG. 73.18)
Sinkage over well ADY area M. Period 6. Base fragment of opaque black glass; surfaces streaky with yellowish iridescence. Small applied base-ring. Diameter *c.* 25 mm, central pontil mark on underside.

19. E93/P2 ATH 1 (not illustrated)
Unstratified. Base fragment of a bowl of blue-green glass. Applied true base-ring, with faint diagonal tool-marks. Diameter *c.* 50 mm.

20. A91/J CSC (FIG. 73.20)
Fill of pit, area J. Period 5. Base fragment of blue-green glass. Applied blown base-ring. Diameter *c.* 70 mm.

21. A91 DKK (FIG. 73.21)
Sinkage over shaft DKM. Period 4. Base fragment of blue-green glass. Horizontal tubular folded base-ring. Diameter *c.* 70 mm.

22. E93 M3 ADQ 6 (FIG. 73.22)
Sinkage over well ADN, area M. Period 6. Base fragment of blue-green glass. Tubular folded base-ring. Diameter *c.* 50 mm, pontil mark on underside.

23. 91/B BEC (FIG. 73.23)
Top silt in main enclosure ditch. Period 7. Base fragment of colourless glass. Tubular folded base-ring. Diameter *c.* 50 mm.

Not illustrated:

24a. E93/P2 ALV 9
Fill of cellar ALC. Period 5–6. Fragment of a tubular folded base-ring of blue-green glass. Diameter indeterminable.

24b. E93/M2 ABE 7
Top fill of shaft ABD, area M. Period 5. Fragment of a tubular folded base-ring of blue-green glass. Diameter *c.* 60 mm.

24c. A91/C BJD
Rubbish over main enclosure ditch. Period 7. Fragment of a tubular folded base-ring of blue-green glass. Diameter *c.* 40 mm.

24d. A91/C BJD
Rubbish over main enclosure ditch. Period 7. Fragment of a solid folded base-ring of blue-green glass. Diameter *c.* 70 mm.

Handle fragments — jugs, bottles or flasks

25. A91/2 AIL 12 (FIG. 73.25)
Fill of shaft AAB period 5. Handle fragment of blue-green glass. Flat-sectioned with a rib up each edge; width *c.* 20 mm.

26. A91/DKH (FIG. 73.26)
Fill of pit. Period 4–6. Fragment of a tail from beneath the handle of a jug of blue-green glass; pincered decoration extant, width 16 mm.

Not illustrated:

27a. E93/M ABA 1
Sinkage over well ADY, area M. Period 6. Lower handle attachment of bubbly blue-green glass. Flat-sectioned handle, width *c.* 25 mm.

27b. A91 5B AEA 1
Lower handle attachment of a multi-ribbed jug or bottle handle of blue-green glass, width indeterminable.

27c. E93/M3 ADQ 16
Sinkage over well ADY, area M. Period 6. Fragment of a flat-sectioned handle of colourless glass, with a greenish streak within the metal; width 21 mm.

Bottles, flasks, jugs and unguent bottles — rim and body fragments

28. E93/M2 ABE 9 (FIG. 73.28)
Sinkage over shaft ABC, area M. Period 5–6. Body fragment of a ?flask of very thin blue-green glass; many bubbles and impurities within the metal. Globular body, slightly flatter in one plane than the other. Oval indent may represent the base of the vessel, or may originally have been one of several decorative indents. Maximum body diameter *c.* 120 mm.

29. E93/M3 ADQ 22 (FIG. 73.29)
Sinkage over well ADY, area M. Period 6. Neck fragment of a jug of blue-green glass. Cylindrical neck, with vertical optic-blown ribs; diameter neck *c.* 20 mm.

30. E93/P2 AQG 1 (FIG. 73.30)
Top fill of pit ABN, area P. Period 6 but contaminated. Rim fragment of a bottle, jug or flask of dark blue-green glass. Rim folded outward, upward, inward and downward. Diameter *c.* 50 mm.

31. A91/B CYN (FIG. 73.31)
Fill of small pit, area B. Period 4–7. Two joining rim fragments of a flask of blue-green glass. Rim fire-rounded and thickened and slightly outflared. Diameter 39 mm.

32. A91/B BEC 29 (not illustrated)
Top silt in main enclosure ditch. Period 6. Fragment of a flask similar to no. 31 above. Diameter indeterminable.

33. E93/M3 ADQ 17 (FIG. 73.33)
Sinkage over well ADY, area M. Period 6. Rim fragment of a bottle, jug or flask of bubbly blue-green glass. Rim folded outward, upward and inward. Diameter *c.* 35 mm.

34. A91 ABB/ABC 9 (FIG. 73.34)
Fill of small pit, area K. Period 5–6. Rim fragment of a flask of blue-green glass. Rim folded outward, upward and inward. Diameter 35 mm.

35. A91/4 AIK (FIG. 73.35)
Fill of shaft ABZ. Period 5. Rim fragment of an unguent bottle of blue-green glass. Rim folded outward, upward and inward. Diameter 20 mm.

36. A91/A BDG 1 (not illustrated)
From rubbish over top of main enclosure ditch. Period 7. Neck fragment of an unguent bottle of streaky, bubbly pale blue-green glass. Cylindrical neck. Diameter *c.* 15 mm.

Bottle fragments — not illustrated:

BHW 1. Period 2-3. One body fragment, prismatic bottle.
BEC 14. Period 6. One rim fragment.
BEC 17. Period 6. One body fragment, prismatic bottle.
BEC 18. Period 6. One body fragment, prismatic bottle.
BET 3. Period 6. One body fragment, prismatic bottle.
BET 10. Period 6. One base fragment, prismatic bottle.
BEC. Period 6. One body fragment, prismatic bottle.
BQE 1. Period 7. One body fragment, prismatic bottle.
AIL 12. Period 5. One handle fragment.
ADQ 19. Unstratified. One body fragment, square bottle.
ADP 6. Period 6. One base fragment, square bottle.
ADF 12. Period 5–6. One body fragment, prismatic bottle.
A91 CPP. Period 6. One body fragment, prismatic bottle.
A91 DBK. Period 6. One body fragment, square bottle.
A91/C BJD. Period 7. One body fragment, hexagonal bottle.
A91/C BJD. Period 7. Two body fragments, square bottles.
A91/C BJD. Period 7. Three body fragments, prismatic bottles.

Window glass — all matt-glossy, cast

ABQ 8. Period 5–6. One blue-green fragment.

AJS 37. Period 5–6. One blue-green fragment.
AJB 23. Period 5–6. Two blue-green frags.
AJB 13. Period 5–6. One blue-green fragment.
AJB 19. Period 5–6. One blue-green fragment.
ABE 13. Period 5. One colourless fragment.
AFM 1. Unstratified. One blue-green fragment.
BDW. Unstratified. One blue-green edge fragment.

Miscellaneous glass objects

For notes on glass beads, see p. 203 above.
Not illustrated:

37. A91 ABQ 8
From sinkage over cess pit ABR. Period 5–6. Fragment of thick, curved, colourless glass, with one edge apparently utilized as a blade.
38. E93/P2 AJS 27
Fill of cellar. Period 5–6 . Layer of blue-green glass on a fragment of tile.
39. E93/P2 AJB 16
Fill of cellar. Period 5–6. Rounded lump of blue-green glass frit. Diameter 18 mm.

Glass from the cremation burials. Area A (p. 113, TABLE 3)

Not illustrated:

37. A91/A BBA 3, burial 7
Unguent bottle of blue-green glass, much damaged and distorted by fire. Fire- rounded rim, tubular body.
38. A91/A BAQ 8, burial 3
Rim and neck fragment of an unguent bottle of blue-green glass, much damaged and distorted by fire. Rim fire-rounded, neck cylindrical.
39. A91/A BBA 6, burial 7
Remains of an unguent bottle of blue glass, much damaged and distorted by fire.
40. A91/A BAP 34, 36 and 37, burial 7
Five small fragments of blue-green glass, all damaged and distorted by fire. Probably all from the same unguent bottle with rounded base.
Beads
42. A91/J CPY 1
Approximately half a melon bead of turquoise glass frit, remains of turquoise glaze in grooves. Length 14 mm. Diameter 18 mm.
43. E93/M2 ABE 4
Very fragmentary melon bead of blue glass. Length 13 mm.
44. A91/C BQH 1
Tiny globular bead of turquoise glass. Length 2 mm. Diameter 3 mm.

Discussion

A total of 106 Roman vessel fragments was found, of which eighty-nine are blue-green in colour, nine colourless, three dark blue, two amber, and one each olive green, green-brown and opaque black. In addition there are nine fragments of cast, matt-glossy window glass, three beads, and a vessel fragment apparently reused as a blade.

Most fragments came from features post-dating the primary burial, and those which can be dated belong to a range from the second half of the first century to the third century.

Only one glass fragment came from the fill of the late Iron Age ditch. This was a body fragment of a prismatic bottle, listed with the other bottle fragments above (BHW 1), common as a general group from before the middle of the first century and throughout the second century. It is most likely to represent contamination from Roman activity on the site.

The only glass from the cremations was the remains of probably four unguent bottles, all

much distorted by burning (see p. 113, TABLE 3). The evidence strongly suggests that these vessels were all originally tubular unguent bottles with sheared rims, three of blue-green glass and one of darker blue. The form has been discussed recently in some detail with reference to examples from Colchester (Cool and Price 1995, 159–60, nos 1210–41, fig. 9.11), and was commonly included in burials, very often in a burnt condition, from the early first century A.D. until the Flavian period.

Although the rest of the vessel fragments are all small, their general shapes can be identified by the survival of rims and bases. Thus seventeen catalogued fragments (nos 1–17) can be recognized as belonging to 'open' tableware shapes, such as cups, beakers, bowls and jars. There is only one small blue-green body fragment (no. 1) representing the pillar-moulded bowls common until the last years of the first century A.D. The remainder are blown, with fire-rounded, folded or rotary-polished rims, most of them insufficiently diagnostic to allow close identification. Eleven are blue-green in colour, six are colourless and one olive-green.

Nos. 10 and 11c are almost certainly rims of ovoid ribbed jars, one olive green and one blue-green, of a type very common during the later first and earlier second centuries. Closely allied to these vessels were a group of long-necked jugs, discussed in detail elsewhere (Cool and Price 1995, 106–9, nos 732–61; ibid., 120–30, nos 871–983), which are probably represented here by fragments 26 and uncatalogued blue-green base fragment AES 4, handle fragment AJS 30 and amber body fragment A91/5 ADU 1.

Colourless cups and bowls include a cylindrical vessel with horizontal wheel-cut and abraded lines (no. 12), of a type popular during the early and middle second century (ibid., 79–80), and a cylindrical cup with fire-thickened rim (no. 13) which was the most popular glass drinking vessel of the late second and early third centuries (ibid., 82–5). Neither of rim fragments 15 and 16 can be assigned with certainty to a specific vessel type, although the apparently decoratively shaped rim of the latter is unusual and intriguing.

Another fragment almost certainly originally from a large cup or bowl of colourless glass is no. 17, decorated with a wheel-cut cross-hatched design. The vessel form is most likely to have been a deep hemispherical bowl, belonging to a group circulating in the third century, with a wide variety of geometric facet-cut decorations and broad cut lines. Panels of cross-hatching can be paralleled on fragments from Lullingstone Roman Villa (Cool and Price 1987, 113, no. 335, fig. 53), a bowl from King William Street, London (Wheeler 1930, fig. 42, no. 1) and a more unusual cylindrical bowl or cup from York (Harden 1962, fig. 88, no. HG210).

Fragments 18–23 are ten bases of various types. Most are blue-green in colour, but one (no. 18) is more unusual in being opaque black, which was used most often in the first century, and one (no. 23) is colourless. None can be assigned with certainty to any vessel type, but no. 19, an applied true base-ring, is probably most likely to have come from a bowl with tubular folded rim (Cool and Price 1995, 94–9, nos 630–90). This form was most common during the later first and earlier second centuries.

Five handle fragments have been catalogued (nos 25–27c) to show that jugs or flasks were once present on the site. The latter is most likely to have come from a long-necked jug of the type discussed above with reference to jar rim no. 10. Similarly a variety of flask, unguent bottle, jug or bottle rim and neck fragments have been catalogued as nos 28–36. None is sufficiently diagnostic to identify a specific vessel form, but they give some indication as to the range present on the site. The unguent bottles from the burials have already been discussed above.

In addition, twenty bottle fragments have been listed, of which eighteen can be recognized as having come from prismatic bottles, five of them certainly square, and one hexagonal. Such vessels represent the commonest glass finds on sites occupied during the first two centuries A.D.

A body fragment of colourless glass found in a pit with butchers' waste (pit ADR) is of particular interest (no. 37). Its size and curvature ensure that it sits very comfortably in the hand, and would have enabled it to be used as a blade. One edge does appear to have been utilized for this purpose. The reuse of glass fragments for a variety of purposes was common in Roman times, and occasionally pieces have been retouched as blades or scrapers in a manner similar to worked flint (cf. Prestatyn, Clwyd; Allen 1989, 120–1, nos 15–20, fig. 55).

The beads include two of the common melon type, one of blue glass, one of turquoise glass

paste (p. 203). These were produced in large numbers during the first century, becoming less common during the second. A tiny globular bead of turquoise glass (BQH.1) is difficult to date with certainty, and may in fact be modern.

Two pieces of possible glass waste material have been catalogued for the record, but their real significance as to evidence for glass-working on the site is dubious. One (no. 38) is a layer of blue-green glass adhering to a fragment of ?tile, the other a lump of blue-green glass frit (no. 39).

Finally, nine fragments of window glass came from a variety of contexts (list pp. 226–7). All are of the cast, matt-glossy variety, in use to about the end of the third century.

THE COINS, *by* Richard Reece

TABLE 28. COIN CATALOGUE

23	BPR 1	post-Roman pit	Cunobelin		Mack 246
14	BJD 12	midden over the enclosure ditch	Tasciovanus/ Cunobelin	early first century A.D.	
31	DKJ 1	fill of pit	Nero	64–8	1 *rev.* RIC 468–72
35	AIL 11	fill of shaft	Nero	64–8	1 *rev.* RIC 60
37	AAC 1	fill of gully period 6–7	Domitian	81–96	*Sestertius, rev.* illegible
7	BEC 31	midden over the enclosure ditch	Domitian	81–96	*As, rev.* illegible
43	AEY 1 E93	pit fill	Trajan	98–103	*As*, RIC 402
26	CPR 5	fill of period 6 gully	?Trajan	98–117	*Sestertius, rev.* illegible
60	AJB 14 E93	cellar fill	Trajan	98–9	RIC 402
11	BER 13	top fill of pit	Julia Domna	211–17	*As*, RIC 585
30	CWB 1	fill of pit	Trajan	114–17	RIC 667
55	ALV 2 E93	cellar fill	Hadrian	117–21	RIC 577
10	BER 2	top fill of pit	Hadrian	117–38	*As, rev.* illegible
12	BER 14	top fill of pit	Hadrian	117–38	RIC 718–22
39	ABE 3 E93	fill of shaft	Hadrian	117–38	*Sestertius, rev.* uncertain
33	ACS 1	fill of pit	Hadrian	125–8	RIC 669
4	AAB 3	hill wash	Hadrian	134–8	RIC 786
20	BJD 17	midden over the enclosure ditch	Hadrian	134–8	RIC 325
36	CJE 1	fill of pit	Hadrian	134–8	RIC 238
25	CPR 1	fill of period 6 gully	Antoninus Pius	138–61	otherwise illegible
15	BJD 20	midden over the enclosure ditch	Antoninus Pius	150–60	*As*, RIC 920
3	AAA 2	unstratified	Antoninus Pius	155–6	RIC 932
42	AEX E93	pit fill	Lucius Verus	161–9	RIC 1461
19	BJD+	midden over the enclosure ditch	Antoninus Pius	161–70	RIC 436 (M Aurelius)
5	BAC 1	hill wash	Marcus Aurelius	161–80	*Sestertius, rev.* illegible
16	BJD 21	midden over the enclosure ditch	?Faustina II	161–80	*Sestertius rev.* uncertain
17	BJD 22	midden over the enclosure ditch	Faustina II	161–80	RIC 1648 (M Aurelius)
38	ABE 1 E93	fill of shaft	Marcus Aurelius	161–80	RIC 948

45	AAA E93	unstratified	Marcus Aurelius	161–80	as RIC 886
78	AVA 8	pit fill	Julia Domna	196–211	?RIC 553
8	BEC32	midden over the enclosure ditch		first or second century A.D.	*As*, otherwise illegible
72	AGQ E93	silt in hollow-way		?first or second century	*As*, otherwise illegible
9	BEC	midden over the enclosure ditch		second century A.D.	*As*, otherwise illegible
34	AAA+ 2	unstratified	?Julia Domna	211–17	*As*, ?RIC 377
13	BER 15	top fill of pit	Elagabalus	218–2	RIC 103
21	BJD 18	midden over the enclosure ditch	Severus Alexander	222–35	RIC 296
22	BJD 19	midden over the enclosure ditch	Severus Alexander	222–35	RIC 42
80	ASE 3 E93	pit fill	Gallienus	253–60	RIC 183
76	AVA 6 E93	pit fill	Gallienus	260–8	*rev.* uncertain
27	CPY 2	pit fill	radiate	260–75	otherwise illegible
67	AGP 4 E93	silt in hollow-way	Gallienus	260–8	RIC 236
71	AGQ 6 E93	silt in hollow-way	Gallienus	260–8	as RIC 291
32	CWE 1	fill of pit	Postumus	260–8	RIC 318
48	AJS 2 E93	cellar fill	Salonia	260–8	*rev.* uncertain
53	AJS 14 E93	cellar fill	Gallienus	260–8	as RIC 565
51	AJS 8 E93	cellar fill	radiate	265–75	*rev.* uncertain
41	ADY 2 E93	fill of shaft	Claudius II	268–70	RIC 54
50	AJS 5 E93	cellar fill	Victorinus	268–70	RIC 118
47	AJS 22 E93	cellar fill	Tetricus I	270–3	RIC 148
57	ALV 8 E93	cellar fill	Tetricus II	270–3	RIC 254
18	BJD23	midden over the enclosure ditch	radiate	270–80	*rev. Pax*
29	CTC 5	pit fill	barb. radiate	270–90	*rev. Spes*
40	ADY 1 E93	fill of shaft	barb. radiate	270–90	*rev. ?Salus*
49	AJS 4 E93	cellar fill	barb. radiate	270–90	*rev. Victus*
52	AJS 12 E93	cellar fill	barb. radiate	270–90	*rev. Spes*
56	ALV 10 E93	cellar fill	barb. radiate	270–90	*rev. Invictus*
58	AMD1 E93	pit fill	barb. radiate	270–90	*rev. Pax*
59	AQD 2 E93	gravel surface	barb. radiate	270–90	*rev.* uncertain
62	AJB 10 E93	cellar fill	barb. radiate	270–90	*rev. Hilaritas*
63	AJB 4 E93	cellar fill	barb. radiate	270–90	*rev.* eagle
66	AGP 8 E93	silt in hollow-way	barb. radiate	270–90	*rev. Pax*
69	AGQ 2 E93	silt in hollow-way	barb. radiate	270–90	*rev. ?Victus*
70	AGQ 5	silt in hollow-way	barb. radiate	270–90	*rev.* uncertain
73	AVA 2 E93	pit fill	barb. radiate	270–90	*rev. Pax*
74	AVA 3 E93	pit fill	barb. radiate	270–90	*rev.* illegible
75	AVA 5 E93	pit fill	barb. radiate	270–90	*rev. Victus*
44	ABA 4 E93	pit fill		second or third century A.D.	*As*, otherwise illegible
77	AVA 7	pit fill	Constantinopolis	330–45	as HK 59
6	BAC 2	hill wash	House of Constantine	335–41	as HK 92
64	AGP 6 E93	silt in hollow-way	House of Constantine	350–60	minim, copy
65	AGP 7 E93	silt in hollow-way	House of Valentinian	364–78	as CK 375
61	AJB 15 E93	cellar fill		third to fourth century A.D.	illegible

46	AJS E93	cellar fill		third to fourth century A.D.	otherwise illegible
68	AGQ E93	silt in hollow-way		third to fourth century A.D.	illegible
2	AAA G	unstratified	medieval counter		Barnard 101, no. 33
1	AAA 1	unstratified	Charles II	1660–70	

Discussion

Verulamium and its environs have a good selection of coin lists. The new coins from Folly Lane (FL), and the coins excavated earlier from the Bath House at Branch Road (BR) can therefore be set in a substantial context.

The most obvious site with which to compare them is King Harry Lane (KHL) (Stead and Rigby 1989), and the coins from the three sites are therefore set out in the usual chronological periods in TABLE 29a. Following the method used for 140 sites in Britain (Reece 1995) the coins can be converted to coins per thousand, TABLE 29b, and then added up cumulatively to give TABLE 29c. TABLE 29d gives the figures used for the British average in the same method. When the British mean is subtracted from the Verulamium sites already published in detail (Reece 1995, tables 1, 2 and 3) and the three sites considered here, the results can be seen in coin table 2 and are drawn out as a diagram (FIG. 74).

TABLE 29. VERULAMIUM COIN LOSS

	KHL	Br R	Fo L	KHL	BR R	FoL	KHL	Br R	Fo L	All
to 41	1	0	0	8.77	0.00	29.41	8.77	0.00	29.41	6.47
41–54	3	1	0	26.32	29.41	0.00	35.09	29.41	29.41	18.20
54–68	6	0	2	52.63	0.00	29.41	87.72	29.41	58.82	24.10
69–96	29	4	2	254.39	117.65	29.41	342.11	147.06	88.24	54.95
96–117	6	5	4	52.63	147.06	58.82	394.74	294.12	147.06	74.84
117–38	23	1	8	201.75	29.41	117.65	596.49	323.53	264.71	90.64
138–61	18	9	4	157.89	264.71	58.82	754.39	588.24	323.53	109.30
161–80	5	2	6	43.86	58.82	88.24	798.25	647.06	411.76	120.83
180–92	0	0	0	0.00	0.00	0.00	798.25	647.06	411.76	125.49
193–222	4	2	4	35.09	58.82	58.82	833.33	705.88	470.59	140.66
222–38	3	0	2	26.32	0.00	29.41	859.65	705.88	500.00	147.95
238–60	2	0	0	17.54	0.00	0.00	877.19	705.88	500.00	156.03
260–75	4	5	14	35.09	147.06	205.88	912.28	852.94	705.88	300.33
275–96	2	4	16	17.54	117.65	235.29	929.82	970.59	941.18	421.57
296–317	0	0	0	0.00	0.00	0.00	929.82	970.59	941.18	439.06
317–30	1	0	0	8.77	0.00	0.00	938.60	970.59	941.18	483.19
330–48	4	1	2	35.09	29.41	29.41	973.68	1000.00	970.59	728.73
348–64	3	0	1	26.32	0.00	14.71	1000.00	1000.00	985.29	826.95
364–78	0	0	1	0.00	0.00	14.71	1000.00	1000.00	1000.00	949.75
378–88	0	0	0	0.00	0.00	0.00	1000.00	1000.00	1000.00	949.75
388–402	0	0	0	0.00	0.00	0.00	1000.00	1000.00	1000.00	1000.00
	114	34	68							
		Table 29a			Table 29b			Table 29c		Table 29d

The base line (=0) shows the British mean, while each site line, the Frere coins, Ver F, or King Harry Lane, KHF, move above or below the mean. If the urban collections are taken first, then the Frere coins and the Wheeler coins move quickly above average and stay there until the radiate period (12 = 260–75). The Verulam general site finds have a similar pattern, but stay below the mean. All three groups move strongly above the mean after 260, reach a peak in period 14 (296–317), and then fail to develop as strongly as the mean in the fourth century. The Theatre coins, as might be expected from a fourth-century rubbish deposit only move upwards after 330.

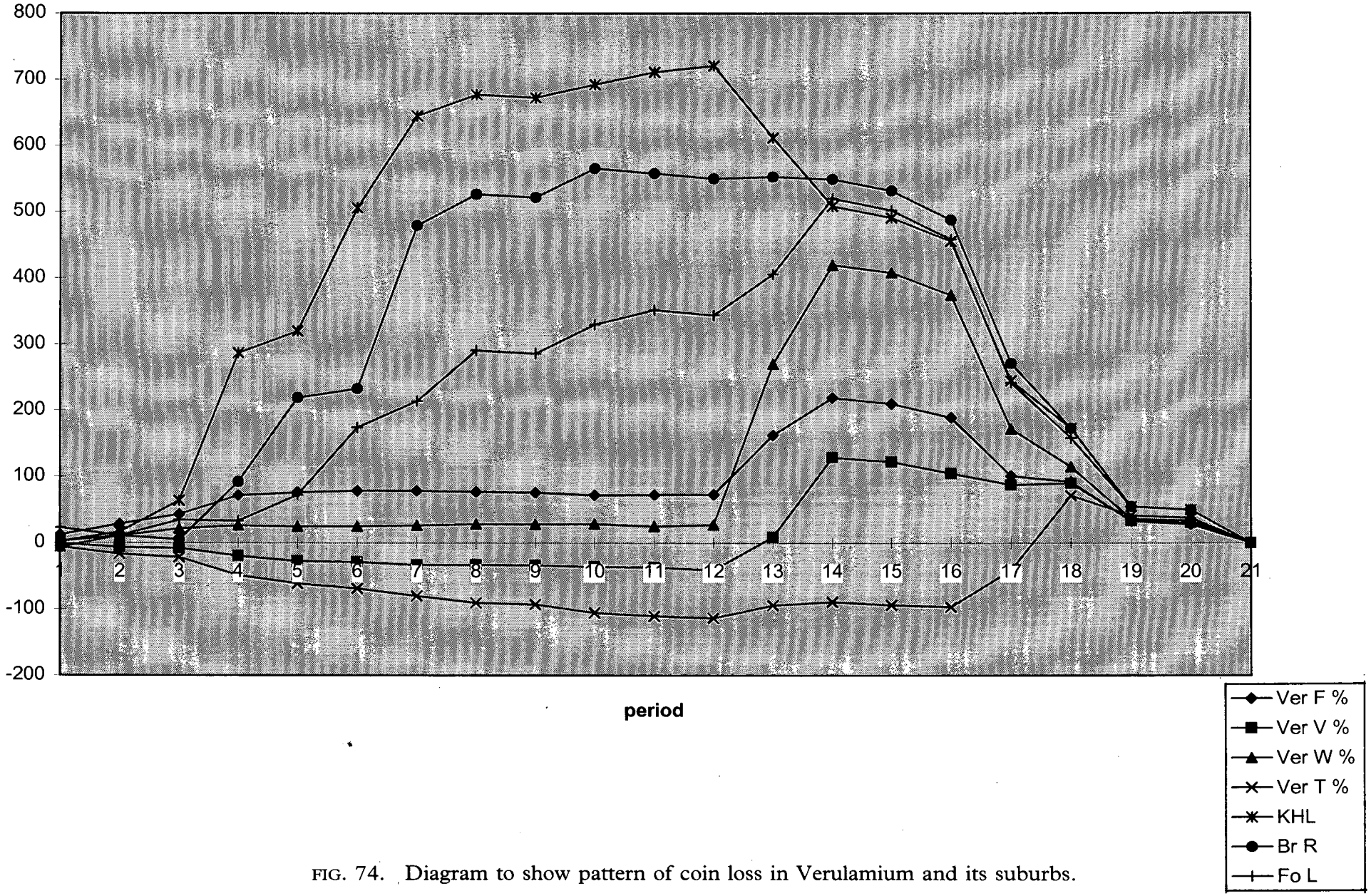


FIG. 74. Diagram to show pattern of coin loss in Verulamium and its suburbs.

The coins from outside the town show a completely different pattern because they all move strongly above the mean in the first century reaching a peak in the middle of the second century. KHL and FL then move a little above average from 180 to 260 while BR falls a little against the average. KHL falls sharply away from the average after 260, FL continues to rise, while BR continues its very gentle decline. At the period 317 to 330 all three sites fall sharply compared with the majority of other sites in Britain, but in concert with the urban Verulamium sites, and all sites in and around Verulamium end weakly compared with the general mean.

If we attempt to match the profiles of internal and external sites, then FL has similarities with the sites dug by Wheeler, BR looks at times something like the Frere sites, and KHL, after its 260 fall, is similar to Wheeler. The sudden decline of KHL after 260 has been attributed to the building of the town wall which cut the site off from the town coin-users (Stead and Rigby 1989, 12). This explanation seems somewhat undermined by the results from FL and BR because those sites would also have been cut off by the wall, yet their coin use does not decline. All three sites fail to produce the rural pattern of coin use shown by sites immediately outside other towns such as Colchester (Butt Road), and Caister by Norwich (Reece 1995, 203). Those sites show an almost exact contrast to the external Verulamium sites with below average loss of early coins and a strong loss rate in the fourth century.

Interpretation of these patterns is virtually impossible because we have far too little information from other excavated sites immediately outside towns. On the other hand it is possible to speculate. The usual picture of coin loss outside towns is one of gently below average activity; there is little happening which involves the use and loss of coins, but some activity is evident. This picture reverses in around 260 and by the fourth century the areas just outside towns seem to show high coin loss, or deposition, compared with the areas inside the towns. At Verulamium the years between about A.D. 60 and 180 show substantial coin loss outside the town, average coin loss after 260, but a clear decline in the fourth century. In relative terms the earlier coin loss is greater outside than inside the town, while in the fourth century the fall-off is greater outside than inside.

This might suggest that whatever was happening in the first and second centuries inside some other towns in Britain was happening quite strongly outside Verulamium, while the activities which caused coin loss outside other towns in the fourth century were happening inside Verulamium. This raises the question of rubbish disposal, for if anyone were to ask where, in fourth-century Verulamium, coin deposition was greatest the answer would have to be, at present, the theatre. If this is in any way relevant we should probably disassociate the earlier and later contrasts. The fourth-century contrast could be quite easily explained by saying that while towns such as Colchester and Caister dumped their rubbish outside the walls, to be uniformly spread by cultivation, the inhabitants of Verulamium, after 260, kept their rubbish inside the town.

In the earlier period rubbish is not a likely explanation for the coin loss because the sites involved are a cemetery, a bath-house, and a religious site. This strongly suggests that coin loss here is active rather than the result of the dumping of rubbish. The fact that similar examples of early widespread (external and extramural are words that do not apply) coin loss are not available in our pitifully small sample of British sites allows us at present to suggest that the coin using and losing activities which took place over a wider area of the landscape at Verulamium were more concentrated or limited in some other towns. It is for the excavator to suggest what these activities might be.

THE POTTERY FROM THE LOWER SLOPE

by Malcolm Lyne, with contributions by Joanna Bird, Brenda Dickinson, Katharine Hartley and David Williams

INTRODUCTION

The Roman pottery from Verulamium has been intensively studied for many years. The Wheelers (Wheeler and Wheeler 1936, 149–200) laid the foundations for later study by publishing the Iron Age pottery from the Prae Wood oppidum and a sequence of groups ranging

from the earliest days of the Roman city to its latest occupation. Great emphasis was placed on the pre-Boudiccan fire material, the pottery from the Triangular Temple and on a group of wasters and associated sherds from pit 6 in *insula* V. Third- and fourth-century pottery was poorly covered, although the earlier theatre excavation report (Kenyon 1934) contained a selection of late fourth- to early fifth-century pottery forms from the rubbish dumped in the cavea.

The next significant step in the study of Verulamium pottery was by Philip Corder (1941), who re-examined the pottery from Wheeler's pit in *insula* V and published a much larger selection of the forms discovered. Parallels were quoted from other sites and the question of dating discussed. The pottery waste was quantified by minimum numbers of vessels present and the existence of a local Verulamium Region industry producing oxidized wares clearly shown for the first time, by comparing the *insula* V wasters with the very similar pottery from the Radlett kilns (Page 1898). More kiln groups of similar pottery have since been published from Verulam Hills Field (Anthony 1968, 22) and Bricket Wood (Saunders and Havercroft 1977).

Further excavations at Verulamium led to more published pottery groups, in particular a large selection from *insula* XVII (Richardson 1944). The excavations on Bluehouse Hill during the 1950s eventually resulted in the publication of a huge corpus of 2697 dated pottery forms (Frere 1972; 1983; 1984). Work on the Iron Age cemetery on the King Harry Lane site during the late 1960s produced significant numbers of exotic pre-Roman pottery imports from the Continent and local imitations, greatly expanding our knowledge of ceramic supply to the oppidum at that period (Stead and Rigby 1989, 112). There were also some substantial later Roman assemblages from cellars and other features related to suburban development. The pottery from two later Roman features was published in its entirety with rough non-tabular quantification and observations as to the sources of the vessels (ibid., 69).

Despite the significant step forward represented by the King Harry Lane publication, very little attention has hitherto been paid to determining the sources of pottery and changing patterns of supply to Verulamium, other than that of wares produced by the local industry, and mortaria and finewares imported from elsewhere. The sources of the bulk of the non-Verulamium coarse pottery have remained unidentified except for comments by Corder (1941, 278) and Richardson (1944, 114) to the effect that some of the Antonine grey wares could be from the Hedgerley kilns in Buckinghamshire.

Although Folly Lane is an extra-mural site, it does have large second- to early fourth-century pottery assemblages, enabling an overview of changing pottery supply to the site during that period, in the manner of similar work carried out at London (Davies *et al.* 1994, 166), Chelmsford (Going 1987, 106) and elsewhere.

METHODOLOGY

The fabric codings used in this report are those devised by the Study Group for Roman Pottery (Tomber and Dore 1996), to cover all the major pottery fabrics found in Roman Britain. Fabrics not present on the SGRP list have been given new codings by the author and are indicated by asterisks.

All assemblages were quantified by weight, number of sherds and Estimated Vessel Equivalents (EVES) based on rims (Orton 1975). It was hoped that quantifying assemblages in this manner would enable a distinction to be made between the pottery assemblages associated with ritual activities and those associated with industrial and domestic occupation. Much of the pottery quantification and identification of Continental imports was carried out by Beth Richardson, to whom thanks are due.

Numerous parallels are drawn throughout Section 4 of this report between pottery forms published here and those listed in Frere's type series for Verulamium (Frere 1972, 1–1293; 1983, 1294–1896; 1984, 1897–2697). The dates quoted for Frere's types 1–1293 are the revised ones given in Volume III of his report (Frere 1984).

THE FABRICS

Alice Holt Farnham ware (ALHRE3) (Lyne and Jefferies 1979)

The early Alice Holt wares (ALHRE1 and 2) do not seem to be present at Folly Lane and sherds in the later ALHRE3 fabric are exceedingly rare and restricted to a few pieces from the latest occupation deposits. This rarity is due to the bulk of the Folly Lane occupation deposits belonging to the period *c.* 150–300, after Alice Holt ALHRE1 wares ceased being supplied in quantity to Staines and London and before a resurgence in the supply of the now white-slipped ALHRE3 wares to Verulamium during the last years of the fourth and early years of the fifth century.

Black Eggshell ware (BLEG) (Davies *et al.* 1994, 147 BLEG)

Small quantities of beakers in this fabric from Northern Gaul were imported into London during the period *c.* 60–80. One tiny bead-rimmed beaker rim came from the chalk-lined pit CNZ in Area J.

Brockley Hill White-slipped ware (BRHWS) (ibid., 59)

Fine-sanded orange-to-red fabric with a little mica and frequent small, black ferrous inclusions. This early second-century fabric was used mainly for flagons and is quite rare at Folly Lane.

Dorset Black-Burnished ware (BB1) (Farrar 1973)

BB1 is a distinctive black, hand-made fabric with profuse coarse white quartz, varying but generally small quantities of very coarse Kimmeridge shale and occasional ferrous and gypsum inclusions. These wares were produced at a number of sites around Poole Harbour, such as Hamworthy, Worgret and Ower and achieved the widest distribution of any Romano-British coarse ware during the second and third centuries. The success of these hand-made wares may have been due to their being manufactured on salt-boiling sites and supplied cheaply as a secondary load with consignments of far more important salt. Very small amounts of these wares were supplied to Verulamium from the mid-second century onwards, but somewhat larger quantities are present in late third- to early fourth-century assemblages at both King Harry Lane and Folly Lane. Forms are largely restricted to everted and cavetto-rimmed cooking-pots, bowls and dishes.

Other Black-Burnished wares (UNSBB)

This is a dump category for vessels in blackened fabrics, which imitate BB1 forms. They are not common at Verulamium, which in itself suggests that they either come from far away and could be from small BB1 production centres in Dorset using different clays or are the result of small-scale local manufacture. One distinctive red-cored fabric variant (BBSA) has also been encountered by the author in late third- and early fourth-century assemblages at Brentford, London and elsewhere in Hertfordshire and is clearly of local origin.

Central Gaulish White ware (CNGCC1) (Davies 1994, 129)

Fine white fabric with sparse red inclusions and colour-coat varying in colour from dark brown/black to red. Beakers in this fabric occur in London between 60 and 120, but the only example from Folly Lane, a roughcast corniced beaker, came from the Early Antonine shaft fill context AIK and may have been old at the time of its deposition.

Colchester Colour-coated ware (COLCC)

Very fine reddish-brown to buff fabric with abundant silt-sized quartz and occasional reddish-brown ferrous inclusions. The colour-coat tends to be a matt reddish-brown to grey-brown. Small amounts of roughcast corniced bag-beakers appear to have been supplied to Verulamium during the late second century, but recent chemical analyses of Colchester beakers and their

very similar counterparts from Sinzig in Germany have shown them to have been manufactured from virtually identical clays (Symonds 1990, 12). Other German imports, and in particular Cologne roughcast beakers, are present in Early Antonine assemblages at Folly Lane and it may be that some of these red-ware roughcast bag-beakers are German in origin.

Cologne ware (KOLCC) (Davies *et al.* 1994, 130)

Very fine and hard white fabric with sparse silt-sized quartz and red, ferrous inclusions. Appreciable quantities of cornice-rimmed roughcast beakers with reddish-brown to black colour-coat were supplied to Verulamium during the late second century. A few hunt-cup fragments are also present at Folly Lane. Cologne seems to have been the main supplier of colour-coated wares during the Antonine period.

Eifelkeramik (SPEOX)

Two separate fabric variants are present at Folly Lane, each represented by a single example from the fill of Antonine shaft AAB.

SPEOX1: Hard, pimply fabric with profuse 0.30 to 1.00 mm inclusions of rose-coloured quartz, red slate and red iron ore. One jar with bifid rim came from shaft AAB (Richardson 1986, fig. 1.56).

SPEOX2: Lumpy white fabric fired orange, with up to 3.00 mm white and red inclusions protruding through both the interior and exterior surfaces of the fabric. One necked jar also came from shaft AAB.

Essex and Thameside Black-Burnished wares (CLIBB2) (Davies *et al.* 1994, 111)

This wheel-turned fabric is heavily tempered with coarse and multi-coloured sub- angular quartz with some fine, black ferrous inclusions. Vessels tend to be fired black, with highly polished surfaces; sometimes patchily whitened with a mother-of-pearl texture. Small quantities of these wares, consisting almost entirely of bowls and dishes, were supplied to Verulamium during the late second century.

**Fulmer/Hedgerley Wares (LCVRE)*

This group of kilns near Gerrards Cross in Southern Buckinghamshire (Cottrill 1937; Corder 1943; Tarrant and Sandford 1967) was a significant supplier of coarse pottery to Verulamium during the second to early third centuries. The industry owes some of its inspiration to the local pre-conquest Iron Age tradition and the forms include cordoned-and-necked jars and examples with stubby everted rims. A variety of bowls and dishes were also produced, including BB2 type pie-dishes and Drag. 33 copies. There is a marked absence of straight-sided dishes amongst the excavated kiln material. The fabrics reflect the variable nature of the Tertiary clays used by the potters, but the most distinctive are:

LCVRE1: Buff-to-pale-grey cored very fine grey ware with sparse-to-moderate coarse soft white siltstone and brown-to-black ferrous inclusions. This fabric tends to be rather soft.

LCVRE2P: Hard grey ware with profuse up to 1.00 mm white quartz sand filler.

LCVRE3: Grey fabric combining the fillers of both LCVREI and LCVRE2 and with sparse surface vesicles where organic material has been burnt out.

The waster material from Hedgerley (Cottrill 1937) also includes necked-and-cordoned jars and type IVA bowls in a leaden-grey ware with external white slip, identical in both appearance and fabric to Highgate Wood C products. These are discussed below under that fabric heading.

Grog-tempered wares (GROG)

Grog-tempered wares are largely a feature of the pre-Roman and earliest Roman occupation at Folly Lane and have already been discussed by Isobel Thompson (see above p. 124). They had ceased to be produced, for the most part, by A.D. 70 but local grog-tempered store jar

manufacture continued until the early third century. The fabrics tend to be rather variable in nature, but the following distinctive variant can be distinguished:

**GROG1*

Bonfire-fired patchy black/buff/red fabric with profuse angular up to 5.00 mm red-to-black iron-rich grog inclusions. The 1967 Fulmer kiln (Tarrant and Sandford 1967) yielded an unpublished store jar rim in this fabric.

Hadham Ware (HAD)

Very fine fabric with up to 0.25 mm angular and sub-angular red-black ironstone filler and up to 0.10 mm quartz, which may be a natural constituent of the clay (Harden and Green 1978). Vessels in this fabric were the single most important product of the Much Hadham kilns near Bishops Stortford in East Hertfordshire during the third and fourth centuries (Going forthcoming) and can be fired smooth grey (HADRE) or oxidized orange (HADOX). Vessels in these two fabric variants appeared in Verulamium *c.* 180, gradually supplanting Highgate, BB2 and Hedgerley products during the early third century.

Hadham wares with red/black slip (HADBS)

Some HAD products, particularly dishes and bowls, have an iron rich slip which fires glossy black on the HADRE vessels and maroon on the HADOX examples. There are only a few examples of this fabric variant at Folly Lane, all stratified examples of which come from fourth-century deposits.

Oxidized Hadham wares with applied white slip (HADWS)

This is another rare fabric variant at Folly Lane. The white slip is often slightly buff in colour and applied in bands to a red body. The use of the fabric is largely restricted to a few fourth-century flagons, jars and mortaria.

Highgate Wood C ware (HGWREC)

Very fine grey fabric with abundant, well sorted quartz filler. A slightly coarser version of the fabric is referred to as HGWREC+ in London but is not separated out here. Large numbers of cordoned-and-necked type IIE jars, IIIE and IIIF beakers in HGWREC fabric were used in Verulamium between *c.* A.D. 70 and 180, when the industry seems to have ceased production. Many such jars are coated externally with an iron-free slip, which fires white, through slate-grey, to black. Smaller quantities of bowls and other open forms also circulated in Verulamium during the early second century.

There is a problem, however, in that the Fulmer/Hedgerley kilns near Gerrards Cross in Buckinghamshire produced identical type IIE jars in very similar fabric — even down to the burnished vertical line decoration on the shoulder and the application of white slip. It seems probable that the Highgate Wood potters moved between a number of kiln sites in the Thames Valley between London and the Chilterns and supplied wares up both Watling Street and the road from Staines. The very high percentages of HGWREC fabric recorded in second-century assemblages from Folly Lane can thus be explained by vessels arriving from both production centres. The Hedgerley kilns also carried on longer than those at Highgate, into the early third century. This would explain the large quantities of apparently residual HGWREC sherds in third-century Folly Lane assemblages.

Local Marbled ware (UNSMA) (Davies *et al.* 1994, 122, LONMA)

Fine quartz-sanded white fabric with a marbled reddish-brown colour-coat. This fabric variant was given its appellation in relation to London assemblages, to distinguish it from other similar marbled wares such as the almost identical but finer VERMA fabric. This fabric can perhaps be regarded as a coarser version of VERMA and was probably manufactured locally. There are

tiny amounts, including a disc-rimmed flagon neck, from a few Early Antonine contexts at Folly Lane.

Local Mica-dusted ware (LONMD) (ibid., 136)

This hard grey fabric with abundant quartz and bronze-coloured mica-dusted surfaces probably originated at kilns in London, such as those recorded at the time of the rebuilding of St Paul's Cathedral during the late seventeenth century. A few fragments of this late first- to early second-century fabric, including one from an imitation Dr. 27, are recorded from Folly Lane.

Verulamium Region Mica-dusted ware (VERMD) (Davies *et al.* 1994, 139, VRMI)

Coarse, reddish-brown sandy fabric, occasionally with grey coring, with thin bronze-coloured mica-dusting. This fabric is rare in London but is the predominant mica-dusted one at Folly Lane, where there are a number of Gallo-Belgic platter copies in redeposited early second-century midden material and from early Antonine contexts.

Lower Nene Valley Colour-Coat ware (LNVCC) (Howe *et al.* 1980)

Fine, hard, creamy-white to pinkish-orange fabric with small grains of red or black ironstone and a colour-coat, which varies in colour from orange, through brown to black (Cooper 1989). Hunt cups and other beaker types first appeared at Folly Lane *c.* 160 and, together with other colour-coated forms, accounted for the bulk of all fineware vessels arriving on the site during the third and early fourth centuries.

Lower Nene Valley Grey wares (LNVRE)

Fine sanded off-white fabric with grey surfaces (Howe *et al.* 1980). Bodysherds can be confused with those from vessels in Upper Nene Valley grey ware, VERRE and NOGRE fabrics, but the form range is somewhat different. This fabric is rare at Folly Lane, but a few sherds are known from third-century assemblages.

Lower Nene Valley Parchment wares (LNVPA)

Fabric similar to the colour-coat one, but with red-painted decoration. The upper part of a flask of Howe form 95 (Howe *et al.* 1980) came from over Shaft ABC.

North Buckinghamshire and Bedfordshire Shelly wares (HARSH)

Soapy, fine-textured shelly fabric with abundant fossil shell inclusions. Wares in this fabric were produced at the Harrold kilns in Bedfordshire (Brown 1994) and other production centres in neighbouring parts of Buckinghamshire, throughout the Roman occupation and into the fifth century. Small quantities of bead-rimmed, channel-rimmed and necked storage-jars and cooking-pots are present in Folly Lane assemblages throughout the Roman occupation there.

North Gaulish Grey wares (NOGRE) (Richardson and Tyers 1984)

Hard off-white to pale-grey fabric with profuse well-sorted quartz and fired medium to charcoal-grey. Very small quantities of vessels in this fabric are present in Antonine and early third-century deposits at Folly Lane. Some vessels are decorated with distinctive spaced horizontal burnished lines (bandes lustrees).

Overwey (Portchester D) ware (OVWWH) (Lyne and Jefferies 1979)

Sandy cream to buff fabric with profuse coarse quartz and ironstone sand. Horizontally-rilled jars and other forms are present in the post-400 pottery assemblages from within the theatre (Geddes 1977, 56), but the material from Folly Lane is restricted to a rilled body sherd from the fill of the hollow-way in Area P2 and a complete pot base used to pack a posthole belonging to building 2 (p. 87).

Oxfordshire Parchment ware (OXFPA) (Young 1977, 80)

The presence of sherds in this fabric at Folly Lane is uncertain. There are some sherds from closed forms with red painted horizontal bands in third- to early fourth-century assemblages, but these may in fact be from a Lower Nene Valley bottle in LNVPA fabric.

Oxfordshire Red/brown Colour Coat (OXFRS) (Young 1977, 123)

Vessels in this fabric are rare at Folly Lane and do not seem to appear until Phase 7. There are a few beaker and Drag. 38 fragments. Painted and stamped forms are conspicuously absent.

Oxfordshire Whitewares (OXFWH) (Young 1977)

Mortaria in this fabric appeared at Verulamium as early as the mid-second century. They remained rare until the mid-third century, when the cessation of Verulamium industry mortaria production led to the Oxfordshire industry capturing virtually all of that market.

Pink, Grog-tempered ware (PNKGT)

A number of large store-jars in this fabric are present in late third- to fourth-century assemblages at Folly Lane. These storage jars have a wide distribution across the Midlands and are believed to originate in the Towcester/Milton Keynes area (Booth and Green 1989). The fabric is fired pink- to-buff with smoothed, but lumpy, surfaces, with grey or black coring displaying profuse off-white and angular grog or siltstone inclusions.

Ring-and-dot Beaker ware (RDBK) (Davies *et al.* 1994, 140)

Very fine grey-cored cream fabric with silt-sized quartz inclusions and sparse mica. There are a number of vessels from second-century assemblages, including a Curle 11 copy. It has been suggested elsewhere (ibid.) that fineware forms in a variant of this fabric present in London (RDBK-1606) were manufactured at Verulamium. There are enough fragments from Folly Lane to make this a possibility.

Trier Dark Colour-Coated wares (MOSBS)

Thin-walled very fine grey ware with metallic brown-to-black colour-coat and orange margins. The filler consists of up to 0.10 mm white limestone, giving the fabric a speckled appearance (Richardson 1986). Beakers in this fabric were manufactured between 212 and 276 and are very rare at Folly Lane.

Verulamium Region Glazed ware (VERGL)

Small quantities of what is almost certainly a local product are present in Antonine contexts at Folly Lane. Considerable quantities of lead-glazed wasters came from the building excavated south-east of the Forum in 1949 (Cotton and Wheeler 1953, Site G) and were associated with early second-century coarse wares and samian.

Verulamium Region Grey ware (VERRE)

This fabric is identical to that of Verulamium Region 'White' wares but is reduced to pale-grey in colour with darker surfaces.

Verulamium Region 'White' wares (VERWH)

This fabric tends to be of a rough and granular nature and varies in colour from white, through cream, buff and orange, to brown. The inclusions are dominated by coarse-to-fine multi-coloured sub-angular quartz, with small quantities of red, ferrous inclusions. The varying colours and textures of this group of fabrics can be explained by the large numbers of kilns known to have produced the wares. These are spread over a large area of variable Tertiary clays, ranging

from Brockley Hill in the south to the suburbs of Verulamium itself in the north. The kilns started operating *c.* A.D. 55 and continued to do so until at least 350.

Quantification carried out on the pottery wasters from two of the excavated kilns indicate the changing emphases on different products. The Bricket Wood kiln (Saunders and Havercroft 1977) was one of the earliest of the industry and had flagons making up nearly half of all the waster pots, bowls 17 per cent and cooking-pots a mere 9 per cent. The Antonine wasters from a pit dug by the Wheelers in *insula* VI were re-examined and quantified by Corder (1941), who found that flagons made up less than 20 per cent, bowls 29 per cent and cooking-pots 37 per cent. It appears that the industry started off making non- native vessel forms at a time when most cooking-pots were still being produced by the grog-tempered ware suppliers, but that later on the emphasis shifted to commonplace utilitarian pottery, but in a non-native tradition.

Verulamium Region Coarse White-slipped ware (VERWS)

A coarse, red fabric with much multi-coloured quartz and occasional red, ferrous inclusions, covered with white slip. This fabric was used mainly for flagons, although smaller numbers of jars, bowls and mortaria were also produced. One source was the kiln at Verulam Hills Field (Anthony 1968).

Miscellaneous oxidized wares (UNSOX)

A dump category for unattributed coarse oxidized wares.

Miscellaneous white-slipped oxidized wares (UNSWS)

A dump category for unattributed wares of this type.

Miscellaneous grey wares (UNSRE)

A dump category for unattributed coarse reduced wares. Some of these wares may be from Hadham and Hedgerley, both of which production centres had a wide range of fabric variants.

Miscellaneous fine wares (UNSCC)

A dump category for unattributed colour-coated wares.

THE ASSEMBLAGES

The pottery assemblages for the period *c.* A.D. 55–300 (the life-span of the Ceremonial Enclosure in its various forms) are divided into six groups, from the Ceremonial Enclosure, temple, roads, shafts, wells and industrial contexts; the pottery associated with the fourth-century agrarian occupation forms a seventh group and is dealt with separately. The forty-two pottery assemblages selected for this report supply us with a great deal of information as to changing patterns of pottery supply to the Folly Lane complex (p. 293) and their varied make-ups indicate the presence off specialized activities (both ritual and industrial) within the area (p. 301). It is hoped to compare these second- and third-century assemblages with contemporary ones excavated in 1996 within the town[16] in the forthcoming report on pottery from that site, in order to determine whether there were any differences between town and extra-mural pottery supply.

The Ceremonial Enclosure

Period 4: c. *A.D. 55–155/60*

The primary and secondary silts in the bottom of the main enclosure ditch produced only a few sherds of pottery (96 g), including a tiny flake of samian and a nondescript sherd from a VERWH fabric mortarium. The ditch seems to have been kept very free of rubbish before the second quarter of the second century.

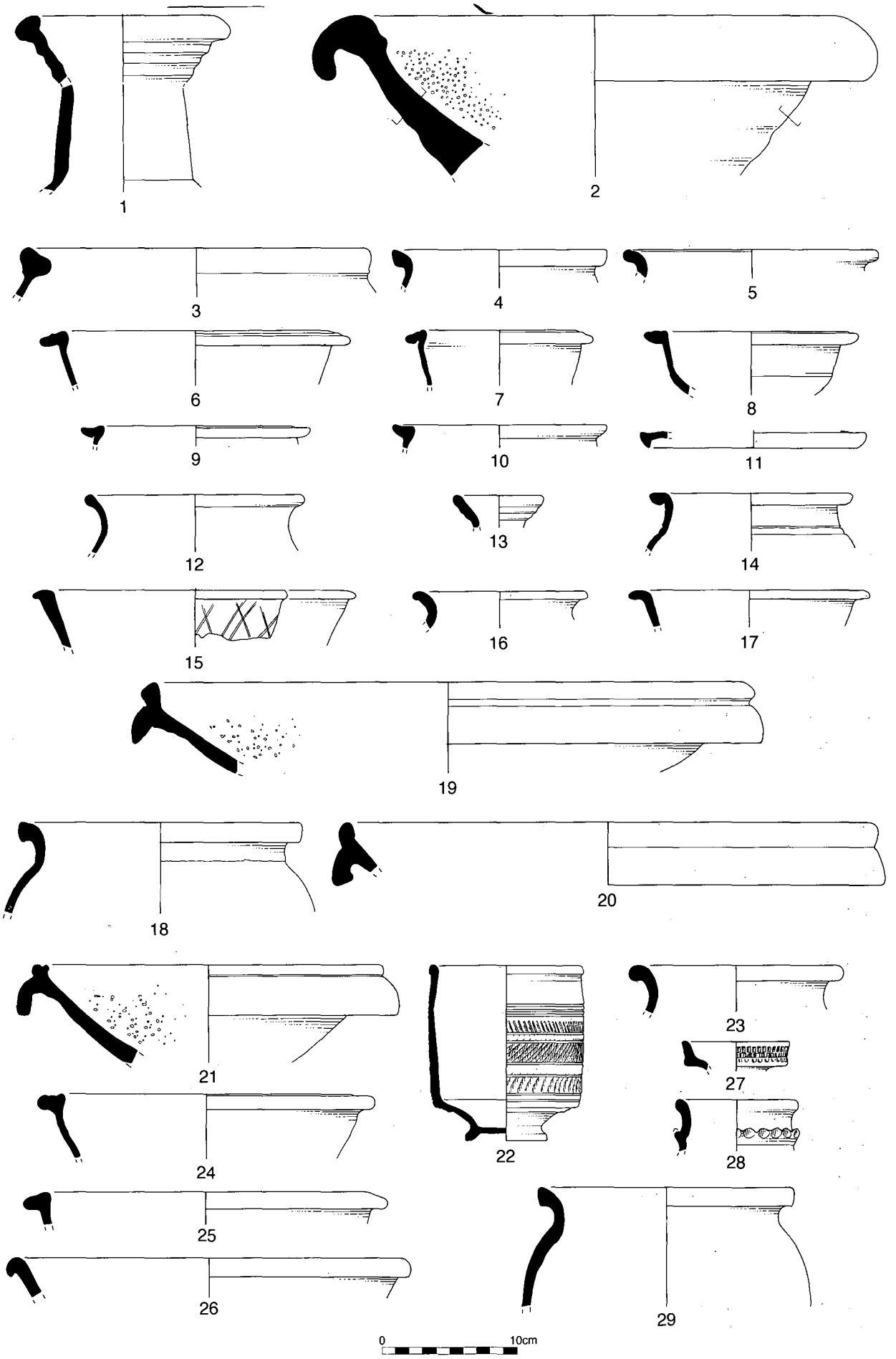


FIG. 75. Coarse pottery from the Ceremonial Enclosure ditch: nos 1–3, assemblage 1, period 4; nos 4–6, assemblage 2, period 5; nos 7–13, assemblage 3, period 5; nos 14–22, assemblage 4, period 6; nos 23–29, assemblage 5 (part), period 6.

Assemblage 1. Pit BJC in Area C (FIG. 75)

This feature was cut through the primary silting of the ditch before the bank was pushed in on top of it and contained a small pottery assemblage (1561 g, twenty-nine sherds). These sherds include the following pieces:

1. Large ring-neck flagon of form IB5 in VERWH fabric (early second-century).
2. Three joining pieces from a mortarium in fine-textured, cream fabric. K. Hartley writes: Inclusions: few visible, opaque black, red-brown and white, possibly calcareous; probably some sand-sized quartz. Trituration grit: abundant, well-sorted, mostly white and transparent and probably some blackish quartz; some flint. The grit is combined with very fine concentric scoring and both were probably continued over the entire upper surface of the flange, although only the grit is clearly visible. The vessel has had very little wear and was burnt after fracture. This is typical of the products of a pottery likely to be in Gallia Belgica, which was functioning in the period A.D. 50–85. Many of their mortaria were stamped. External rim diameter 390 mm.
3. Channel-rimmed jar of form IIA, in HARSH fabric (Frere type 2303, dated *c.* 130–80).

Period 5: c. *A.D. 155/60–250*

The construction of the temple within the Ceremonial Enclosure may have taken place at the time of the laying of the chalk within the enclosure ditch, but destruction of the occupation deposits by agricultural activities means that we have no reliable associated assemblages of stratified pottery.

There is considerably more ceramic evidence for the date of the alterations to the enclosure ditch:

Assemblage 2. Pushed in bank deposits BGS and BGR (FIG. 75)

The pushed in bank deposits within the enclosure ditch were largely sterile, but contexts BGS and BGR at the south-west corner contained 1622 g of pottery between them. Most of the sherds are of Early Antonine date (*c.* 140–60), but the pottery was susceptible to contamination where the layers extended up the sides of the ditch and includes intrusive late third-century sherds.

4. Necked-jar rim in buff VERWH fabric with rim-edge greying.
5. Lid-seated jar rim in heavily-sanded grey fabric fired black with profuse white inclusions (Frere type 2299, dated *c.* 70–100).
6. Six joining type IVA bowl sherds in black VERRE fabric (Frere type 680, dated *c.* 140–80).

Assemblage 3. The gullies narrowing the Ceremonial Enclosure entrance (FIG. 75)

Quantities of pottery from the gullies reducing the width of the enclosure entrance (contexts BSV and BPQ) are quite small (928 g), but identifiable forms are mainly of Early Antonine date and include:

7. Reeded-rim carinated bowl in brownish VERWH fabric with rim-edge greying (Frere type 2451, A.D. 135–190). BPQ.
8. Heavily-blackened vessel of similar type, in VERWH fabric (Frere type 2453, A.D. 140–160). BPQ.
9. Lid-seated neckless jar in white VERWH fabric (Frere type 663, A.D. 130–140). BPQ.
10. Similar jar in cream VERWH fabric (Frere type 907, A.D. 150–160). BPQ.
11. Lid in brownish VERWH fabric. BPQ.
12. Neck-cordoned jar in orange fabric HWC fired grey with external blue-grey wash extending over interior of rim (Frere type 2087, A.D. 120–160). One of five examples. BPQ.
13. Flagon rim in white-slipped BRHWS fabric (Frere type 1942, A.D. 140–170). BSV.

BPQ also produced three fragments from a Cologne rough-cast bag-beaker of mid-second-century date and a residual grog-tempered jar rim. A tiny rim chip from an oxidized

Hadham necked-bowl suggests the possibility that there is a little third-century pottery present as well.

Period 6: c. A.D. 250–300

Assemblage 4. The upper ditch silts in Area B (BEC) (FIG. 75)

The upper ditch silts above the pushed in bank deposits in Area B contained a large pottery assemblage (36,163 g, 32.52 EVES), consisting largely of Antonine and early third-century pottery, but with some later material. There are a number of partial vessels, including Frere's necked-jar types 2252 (*c.* 135–75), 2269 (*c.* 250–80), IIH jar type 901 (*c.* 150–55/60) and IVA bowl types 2426 (mid-first century), 2434 (*c.* 120–35), 2449 (*c.* 135- 45) and 2466 (*c.* 210-40), and flagon types 1942 (*c.* 140–70) and 1524 (?third century), all in VERWH fabric variants. The Highgate Wood Fabric C wares include IIE jar type 608 (*c.* 130–50), as well as early second-century type IVA bowls and IIIE beakers. HGWREC poppy-head beakers of Early Antonine form are also present. Hedgerley fabric LCVREI forms include a reeded-rim jar (Cottrill 1937, pl. IX.9), a beaker (ibid., pl. IX.4) and Frere's IVH dish form 2558 (*c.* 200–25). The small amounts of BB1 are of second-century character and include the beaded-rim dish type 2545 (*c.* 145–200). Antonine BB2 type IVH dishes are also present. Many of the considerable number of mortaria rims are of the hooked-flange variety and in VERWH fabric (*c.* 150–200+). One or two early second-century beaded-and-flanged mortaria in VERWH fabric are also present, but the most unusual feature of the mortaria range is the presence of *c.* 180–240 dated hooked-flange types in Oxfordshire whiteware (Young 1977, Types M10, M11). The presence of five such pre-240 OXFWH mortaria in this deposit is unusual at Verulamium and indicates a strong early to mid-third-century element in this assemblage. From the mortaria alone it is clear that the bulk of the pottery in this assemblage is of Hadrianic to mid-third-century date, with relatively little earlier or later material. The lack of third-century BB1 and the presence of only one (aberrant) late third-century OXFWH mortarium reflects the small amounts of post-250 pottery. There are some pieces, however, including late HADRE vessels and an Alice Holt slate-slipped dish of type 6A-12 (Lyne and Jefferies 1979), which have worked their way down into this assemblage due to it not being sealed.

14. Necked jar in orange VERWH fabric.
15. Dish/bowl with beaded rim, in black BB1 fabric (Frere type 2545, *c.* 145–200).
16. BB1 cooking-pot rim of second-century type.
17. Flanged dish rim in similar fabric.
18. Necked-jar rim in brown-black HARSH fabric. External rim diameter 220 mm.
19. Mortarium of Young's type M10 in white OXFWH fabric, and dated *c.* 180–240.
20. Another variant of type M10 in similar fabric.
21. Mortarium in cream VERWH fabric with an orange tinge.

The silts over the pushed in bank deposit within the ditch in Area G (CND, CJE, CHX) produced the following, largely complete, vessel:

22. Drag. 30 copy in buff RDBK fabric with rouletted decoration.

The layer of laid chalk, which overlay the pushed in bank deposits on the town side of the enclosure, was totally lacking in pottery and seems to have been kept clean and free of rubbish until some time during the late third century.

Assemblage 5. The silt BRV overlying the laid chalk in the enclosure ditch in Area C (FIGS 75-6)

This layer contained a large assemblage of pottery (12,928 g, 19.85 EVES) of mainly third-century character, but with some residual material. The pottery includes the rim of a BB1 incipient-beaded-and-flanged bowl (*c.* 220–80), the lower part of an indented LNVCC beaker of Howe *et al.* 1980 type 38 (mid-third century) and funnel-necked and bag-beaker rims in similar fabric (*c.* 240–300+). The following pieces were also present:

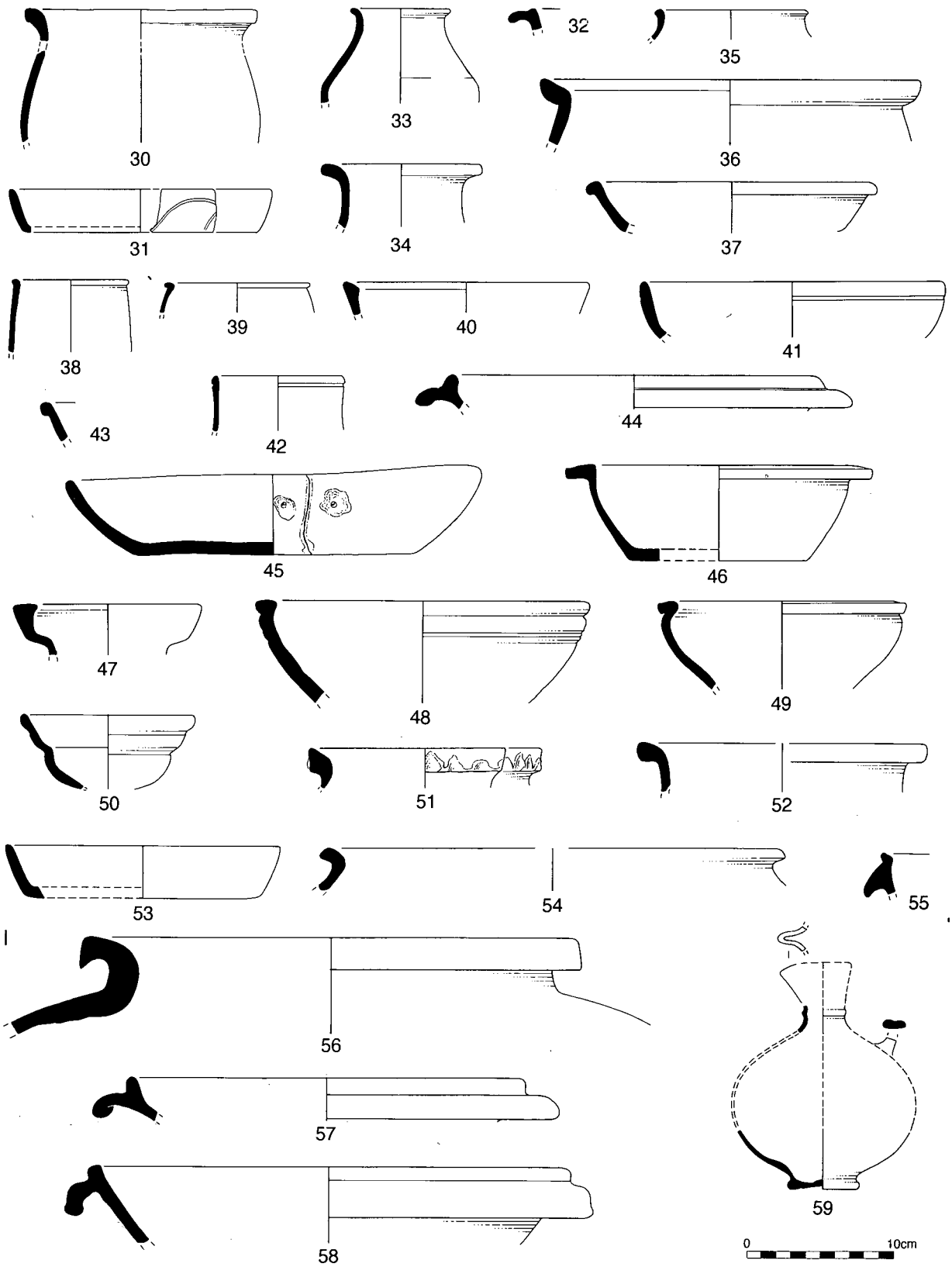


FIG. 76. Coarse pottery from the Ceremonial Enclosure ditch: nos 30–44, assemblage 5 (part), period 6; nos 45–6, assemblage 6, period 6 rubbish over top of ditch; nos 47–58, assemblage 7, period 7 midden over ditch; no. 59, assemblage 8, fill of gully DHB north of the temple.

23. Hook-rimmed jar in dirty-white VERWH fabric with external blackening (Frere type 2275, A.D. 280–360).
24. Reeded-rim bowl in grey VERWH fabric fired buff-orange with orange margins. One of two.
25. Incipient-beaded-and-flanged bowl in reddish-brown VERWH fabric with external greying.
26. Bowl/dish with undercut bead rim, in buff VERWH fabric fired black externally and over rim top.
27. Rouletted flagon neck in white VERWH fabric (Frere type 1524, A.D. 300–350).
28. Top of lamp/chimney in buff-brown VERWH fabric with rim and collar blackening (Wheeler and Wheeler 1936, fig. 32–43, early second century). External rim diameter 80 mm.
29. Hook-rimmed jar in grey-black HARSH fabric fired pink (late third century).
30. Hand-made jar rim in reddish-brown HARSH fabric with rim-edge blackening (Mid- to late third century).
31. Straight-sided dish in BB1 fabric (*c.* A.D. 220–300+). One of two examples.
32. Incipient-beaded-and-flanged bowl in similar fabric (*c.* A.D. 200–80).
33. Beaker rim in grey HADRE fabric. External rim diameter 60 mm. There is another unpublished example from the rubbish in the *insula* XXVIII basement (context E1-5 dated *c.* A.D. 275–300).
34. Rim from large beaker in similar fabric.
35. Beaker rim in similar fabric (Frere type 2065, *c.* 225–50+).
36. Jar/necked-bowl in polished blue-grey similar fabric (Frere type 1157, 300–60).
37. Bead-rimmed dish in similar fabric (one of three) (Frere type 2554, third century).
38. Beaker rim in similar fabric (Frere type 1516, dated 220–300).
39. Another beaker rim in similar fabric. (Frere type 2071, dated third century). Ext. rim diameter 80 mm.
40. Flat topped dish rim in HADWS fabric.
41. Convex-sided dish in Alice Holt grey-ware with traces of internal slate slip (Lyne and Jefferies 1979, type 6A.8 dated 270–420).
42. Bead-rimmed beaker rim in LNVCC fabric (Howe Type 51, dated *c.* 270–400+).
43. Dish rim in OXFRS fabric (Young 1977, Type C45 dated *c.* 270–400+).
    A Dr. 38 flange in the same fabric was also present.
44. Mortarium rim in white OXFWH fabric (Young 1977, Type M18 dated *c.* 240–300).

The backfilling of the Ceremonial Enclosure ditch. Period 7: c. *A.D. 300*

Assemblage 6. The top ditch silts (FIG. 76)

The upper ditch silts over BRV contained considerable quantities of pottery (7935 g), much of it being of early second-century date and clearly residual. The pottery from these silts included the following significant pieces:

45. Greater part of repaired and riveted Gallo-Belgic platter copy, in mica- dusted orange-brown VERMD fabric. BRP.
46. Reeded-rim bowl in buff-brown LONMD fabric with red margins and internal mica-dusting. BRP.

Assemblage 7. The midden dumping in the top of the Ceremonial Enclosure ditch by the entrance (BJD, BPT and BFL) (FIG. 76)

The dumped midden (contexts BJD, BPT, BFL) above the upper ditch silts on both sides of the entrance yielded a further 44,072 g (60.56 EVES) of pottery of similar character to that from BEC, in including large quantities of Antonine and early third-century pottery. Appreciable amounts of early second-century pottery are also present. As in the BEC assemblage, the majority of the mortaria fragments are from hooked-flange VERWH examples of Antonine date, but

early third-century OXFWH examples are absent and there are fragments from at least four late third-century examples of Young's type M17 instead. These, and a white- slipped oxidized Hadham ware mortarium rim, together with late third-century BB1 and Hadham pottery forms, indicate that the post-250 element within the BJD assemblage is considerably greater than that in the BEC pottery.

Much of the second-century pottery from the midden consists of very large joining pieces and is accompanied by smaller quantities of sherds of third- and early fourth-century date. This factor suggests that the ditch was deliberately obliterated by infilling with midden material, which had accumulated during the life of the temple within the enclosure and was associated with its use. Because of the residual nature of much of the pottery from both BEC and BJD, it was decided to restrict the drawn material to the more unusual second-century forms and the latest of the pottery present.

The second-century pottery

47. Lid-seated flagon rim in very fine pinkish-cream VERWH fabric.
48. Bowl in black-cored GROG1 fabric fired buff-pink (Frere type 2416, dated *c.* 130–60).
49. Necked-bowl with reeded-rim in black HARSH fabric.
50. Dr. 27 copy in grey-black LONMD fabric with internal mica-dusting (Frere type 2374 dated *c.* 100–50). BJD.

(See also mortaria nos. 9-11, below p. 272–3.)

The large quantities of samian from BJD include stamps of Severus V (130–55), Suobinus (135–55), Borillus (145–75), Iudis (160–90), Maccalis (160–200), Macrinus (150–80) and Malledo (160–90) (p. 273–8).

The late third- to early fourth-century pottery

51. Rim from face-pot in orange HADOX fabric. BJD.
52. Necked-jar rim in similar fabric. BJD.
53. ALHRE3 grey ware dish with internal slate slip extending over the rim (Lyne and Jefferies 1979, PL6A-4; dated 270–400+). BEC.
54. Cooking-pot rim in pimply, medium-grey fabric, with lid-seating groove.
55. Wall-sided mortarium in grey-cored oxidized orange HADOX fabric.
56. Large store-jar rim in PNKGT fabric. Fourth century. One of three.
57. Mortarium rim of Young's type M17 in white OXFWH fabric and dated *c.* 240–300. One of two.
58. Mortarium in off-white/cream VERWH fabric.

The late third- and early fourth-century pottery also includes a Dr. 38 copy and a bead-rimmed beaker in buff LNVCC fabric with a reddish brown colour coat.

The temple

Period 5: 155/60–250

There were very few sherds from the vicinity of the temple and most of these came from poorly stratified and potentially contaminated contexts. Most of these fragments are not closely datable but the sherds which are can nearly all be placed within the period *c.* A.D. 150–300+. Of particular significance is a sherd of LNVCC ware from context CDD, a cobbled surface in front of the temple entrance, and associated with a series of shallow scoops and stakeholes (see p. 65 above). The fragment is minute in size, but suggests that the temple continued in use at the time of the levelling of the enclosure bank and ditch, and the laying of chalk within the ditch on the west side of the enclosure.

Period 6: c. *250–300*

There was just one small assemblage which could be regarded as useful for dating purposes

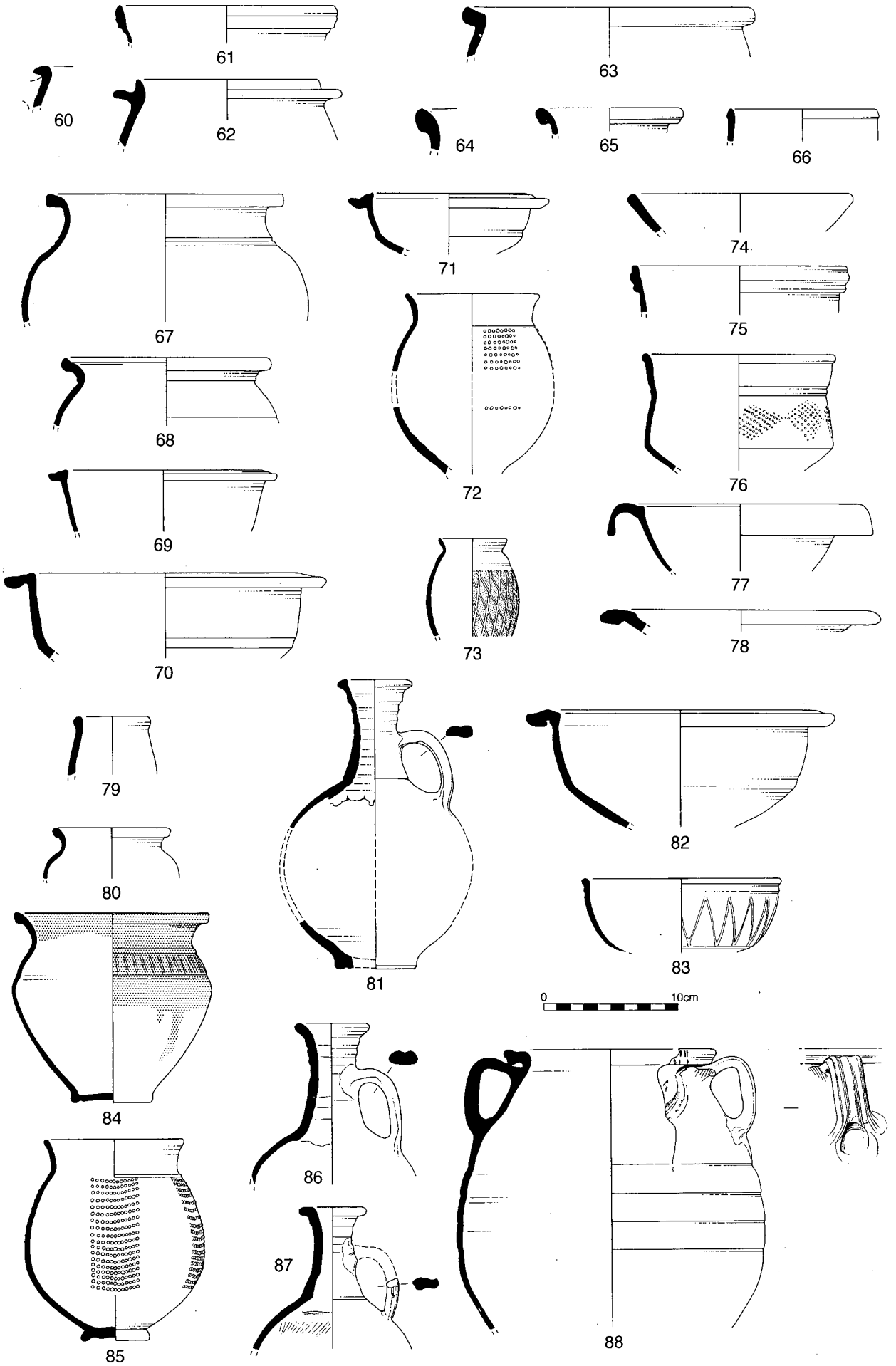


FIG. 77. Coarse pottery from roads and shafts on the lower slope: nos 60–1, assemblage 9, from causeway over later Iron Age ditch; nos 62–6, assemblage 12, from the hollow-way; nos 67–78, assemblage 13, period 4 sinkage over shaft DKM; nos 79–83, assemblage 14, period 4 sinkage over shaft ABT; nos 84–88, assemblage 15 (part) from period 5 shafts AAE/ABZ.

Assemblage 8. The fill of gully DHB, north-east of the temple (FIG. 76)

This feature yielded 626 g of pottery, including a reeded-rim bowl of Frere type 936 (150–80) and a tall beaker foot in LNVCC fabric, probably a vessel of Howe Type 43 (240–300+). There was also the greater part of the following vessel:

59. Grossly underfired pinch-neck flagon in friable buff-brown fabric with sparse up to 2.00 mm white grog and traces of red colour-coat. External rim diameter 30 mm. Very comminuted.

This assemblage probably consists of pottery thrown out from the temple during its life.

The road sequence

Roads, by their very nature, do not normally provide well dated ceramic evidence for their construction dates or periods of usage. The roads at Folly Lane were exceptional in having associated groups of pottery to help with their dating.

The road sequence directly relates to both changing patterns of urban development and changing patterns of activity in the Folly Lane area. The pottery associated with the construction and usage of these roads is, thus, of considerable importance in that it has the potential to provide additional dating evidence for the various town and Ceremonial Enclosure occupation phases, including the construction of the town wall.

Period 4: c. *A.D. 55–155/160. Roads 1A and 1* (pp. 75–6)

The earliest road, leading direct from the town to the Ceremonial Enclosure entrance, had been largely obliterated by later agricultural activities. There was, however, one assemblage from where the upper fill of the Iron Age ditch had sunk at the point where the line of the road crossed it. Rubbish had accumulated in this sinkage but was not sealed by road metalling.

Assemblage 9. The fill of sinkage (BEB) over the fill of the Iron Age ditch (FIG. 77)

There were 8213 g (6.60 EVES) of rather broken-up pottery from this context, including a high percentage of native grog-tempered wares. These early grog-tempered wares have already been discussed by Isobel Thompson (see above, p. 129) and are a mixture of Iron Age and post-conquest material, much of it heavily broken up and probably derived from the ditch fill beneath. The honey- pot in VERWH fabric may also be late first-century, but the high percentage of HGWREC fabric type IIE jars coupled with the presence of Frere's VERWH necked-jar types 2251 (135–65), 645 (130–50), 655 (130–50), IIH jar type 658 (130–50), IVA bowl types 1746 (130–50), 1673 (145–65) and Gallo-Belgic platter imitation type 1345 (110–50) indicates that the bulk of the pottery is Hadrianic in date, with just a little Early Antonine material. An absence of developed poppy-head beaker rims and BB2 sherds does, however, suggest that post-160 material is absent.

The following sherds are of interest:

60. Rim from honey-pot, in cream VERWH fabric with handle scar and heavy blackening. Examples of this type of vessel, in VERWH fabric, are known from London, where they are dated late first century to Trajanic.
61. Rim from Dr. 29 bowl copy, in white VERWH fabric.

Period 5: c. *A.D. 155/160–250. The main Colchester Road*

This road, which passes along the south-east side of the Ceremonial Enclosure, can be fairly closely dated from the ceramic evidence. The pottery from the pit in Area M3 (ABZ and ACY) sealed by its metalling suggests that the stretch of road between the town and the southern corner of the Ceremonial Enclosure was laid out at around the time of the Antonine fire. Beyond this point, the road took up the alignment of road 1.

A surviving patch of road-metalling in Area P2 (context APJ) had 736 g of rather broken up pottery associated. This included mainly Antonine forms, but also a fragment from a BB1

developed beaded-and-flanged bowl of post-240 date. This is heavily ground up and suggests that the road was still functioning during the late third century.

Period 6: c. *A.D. 250–300*

The braiding and general widening of the Colchester road 3, which took place during the third and early fourth centuries, can be partly dated from the pottery groups which are associated. The abandonment of the original alignment of this road is dated by the digging of pits BNN and BNS through it near the southern corner of the Ceremonial Enclosure in Area C.

Assemblage 10. Pit BNN

Pit BNN contained 1318 g (152 sherds) of pottery, including an Oxfordshire whiteware mortarium rim of Young type M17 (*c.* 240–300), an LNVCC beaker rim of Howe type 52 (*c.* 270–400), a BB1 straight-sided dish of Frere's type 2531 (*c.* 290–310) and some VERWH necked-jar and IVA bowl rims of late third- to early fourth-century types.

Assemblage 11. Pit BNS

Pit BNS contained 1015 g (seventy-eight sherds) of pottery, including a fragment from a Moselkeramik beaker (*c.* 212–76), a BB1 developed beaded-and-flanged bowl rim (*c.* 240–300+), a Hadham grey ware straight-sided dish, two VERWH necked-jar rims (*c.* 250–350) and a fragment from what may be the same daisy-stamped mortarium as occurred in the midden backfilling of the Ceremonial Enclosure ditch (FIG. 83.247).

The fills of these two pits are of broadly similar *c.* 270–300 date and the presence of fragments of the same daisy-stamped mortarium in both pit BNS and the midden in the top of the enclosure ditch suggests that on the brow of the hill (Areas C and D) the road started to drift off its original straight alignment at the same time as the Ceremonial Enclosure was abandoned; the late road, indicated by side-ditches meandering over the ditch fills on the eastern edge of the abandoned Ceremonial Enclosure, had very little pottery associated, all of which was residual and derived from underlying layers. Lower down the slope (Areas M and P) there is some ceramic dating evidence for slightly earlier 'drift' in the road line. Pottery from oven AFA, east of the Colchester road, dated from *c.* A.D. 270, and was sealed by a layer of road metalling (see below, p. 263).

The hollow-way

Assemblage 12. Hollow-way contexts AGP, ASE and AJK (FIG. 77)

Only small amounts of pottery (538 g) came from the actual surface of the hollow-way in Area P2. The presence of a green-glazed medieval sherd amongst all the Roman material indicates that the layers of fill above had been heavily churned up by traffic passing along the route from the late Roman period, through Saxon into medieval times. This long usage is borne out by the comminuted nature of the Roman pottery within the fill of the hollow-way and the presence of a number of early to middle Saxon potsherds (p. 288).

The pottery from the surface of the road in Area P2 (AJK) includes the following unusual piece:

62. Three joining sherds from the rim of a BB1 flange-necked storage jar (Lyne 1992, figs 3–4). This rare vessel type mainly circulated in the south-west of Britain, close to the production centres around Poole Harbour. A few examples are, however, known from late third-century contexts in London and Colchester.

Considerably more pottery (5478 g; 6.06 EVES) came from the fill of the hollow-way (AGP) above AJK. As described earlier, it was heavily comminuted, with an average sherd weight of 4 g.

Assuming that no residual material was dumped in the hollow-way, we can work out when the route came into existence. A trackway of this nature probably developed gradually, caused by the braiding of the straight and planned Antonine road in the manner of a cattle drift. The

small numbers of Highgate Wood and BB2 sherds must have been deposited at a time when such wares were no longer current and just a few old vessels remained in use. The pottery includes an abraded pink- grogged store-jar rim similar to that from the droveway gully fill ADA (no. 236 below), a number of necked-jar rims similar to Frere's types 2269 (250–80), 2270 (270–320) and 2276 (310–40) and a BB1 developed beaded-and-flanged bowl rim sherd. These and the presence of late third-century Hadham greyware forms indicate that the route probably came into being at some time during the last quarter of that century.

The broken up nature of the sherds means that very few are suitable for illustration, but the following are of interest:

63. Neckless jar in HADRE fabric (Frere type 1505/1506 dated 275–300).
64. Necked-jar rim in slightly vesicular, pale-grey fabric with shell and coarse white grog filler, fired buff-grey (Frere type 2200, dated 360–70).
65. Necked-jar rim with 'swan's-neck' moulding, in coarse black fabric with rough surfaces. An Essex product?
66. One of two beaker rims in OXFRS fabric.

THE LOWER SLOPE

The ritual shafts

A number of the shafts that were fully excavated (CPX, CXX, DLD and DBY) had sterile fills and cannot be dated closely. Others could not be excavated in the time available. The pottery from the shafts which contained it can be subdivided into assemblages from the shaft fills proper and assemblages from the sinkages over them.

Period 4: c. *A.D. 55–155/160.*

Two of the unexcavated ritual shafts had deposits of fresh early second-century sherds from recently broken vessels, mainly fineware bowls and dishes, in the sinkages over them, indicating that the shafts themselves were probably of similar or earlier date.

Assemblage 13. The sinkage fills of shaft DKM (DKL, DKK, DKJ and DKH) (FIG. 77)

This pit was not fully excavated but the part of the shaft fill proper (DKL) that was removed was totally lacking in pottery. The sinkage layers above did, however, contain a large, fresh pottery assemblage (8367 g., 14.84 EVES), much of which was found in batches within the lowest such layer (DKK). The bulk of this assemblage consists of Hadrianic and earlier pottery, including some superior finewares. There is, however, a little pottery which could be of early Antonine date and may push the date of deposition just into the third quarter of the second century. Many of the sherds are large and there are a number of joining pieces. This indicates that the pottery is unlikely to have been redeposited at a later date and may have been placed ritually after the shaft had been largely backfilled. There is a predominance of bowls and dishes;[17] this is unusual and may reflect a specific activity, such as a ritual meal.

67. A large part of a necked-jar in orange VERWH fabric fired cream with rim-edge blackening (Frere type 646, dated *c.* 130–50).
68. Necked jar rim with lid-seating, in buff VERWH fabric with a blackened exterior extending over the rim (Frere type 2310, dated *c.* 145–200).
69. Type IVA bowl rim in grey VERRE fabric (Frere type 212, dated *c.* 60–75).
70. Type IVA bowl in orange VERWH fabric fired pinkish-cream (Frere type 508, dated *c.* 110–50).
71. Type IVA bowl in very-fine cream VERWH fabric fired black externally (Frere type 936, dated *c.* 140–80).
72. Poppy-head beaker in grey HGWREC fabric with glossy-black slip and rectangular dot-barbotine panels (Frere type 2052, dated 135–90).
73. Type IIIE beaker in grey HGWREC fabric with burnished latticing on the body and

silky-burnished shoulder (Frere type 381, dated *c.* 85–110, but present in Hadrianic assemblages from London).

74. Straight-sided dish rim in black CLIBB2 fabric with overall burnish (Frere type 2541, dated *c.* 145–75).
75. Dr. 29 bowl copy rim in cream/brown VERWH fabric with black patches (this type is dated Hadrianic in London). See no. 61 for another example from BEB.
76. Greater part of Dr. 29 copy in very fine sanded grey ware with diamond- shaped barbotine dot panels and silky burnish (Frere type 697, dated *c.* 75–150).
77. Much of Curle 11 bowl copy in very-fine cream RDBK type fabric with black coring (Marsh 1979, type 34–14, dated to the early second century).
78. Platter in very fine black fabric with highly-polished surfaces.

This assemblage also includes a rough-cast bag-beaker with corniced rim in cream KOLCC fabric with reddish-brown colour coat, decorated samian vessels 6–9 and the greater part of a Martre-de-Veyre samian Dr. 30 bowl with rouletted decoration (decorated samian vessel 10) (p. 280). The latest dated forms tend to be coarseware vessels, which may reflect their shorter life in use.

Assemblage 14. The sinkage over the unexcavated shaft ABT in Area 4 (ABS) (FIG. 77)

This context produced 4392 g of pottery (10.66 EVES), of mainly early second-century character. The greater part of a pre-Flavian type 1A flagon is present, however, and may be derived from a disturbed burial. The character of this assemblage is somewhat different from that found in the sinkage over shaft DKM. Apart from the type 1A flagon and the greater part of a Dr. 37 samian bowl of Hadrianic date, there are no partially complete vessels. The assemblage is dominated by jars, although VERWH cooking-pots are very poorly represented.[18] Type IIE necked-and-cordoned jars in Highgate C fabric totally dominate the assemblage.

79. Unguent jar rim in off-white VERWH fabric (Frere type 637, dated 125–50).
80. Small necked beaker in very-fine cream-buff VERWH fabric with rim edge blackening.
81. Type IA flagon in polished orange-brown VERWH fabric (pre-Flavian).
82. Large part of type IVA bowl in cream VERWH fabric (Frere type 683 dated 135–85).
83. Small cup in sand free blue-grey VERGL fabric fired orange with pale green glaze over white-painted chevron decoration (late Flavian to early Hadrianic).

This assemblage also includes decorated samian vessel 11 (p. 280).

Period 5: A.D. 155/160–250. The primary shaft fills

Assemblage 15. The primary fills of the twin shafts AAE and ABZ (AIJ and AIK) (FIGS 77 and 78)

The combined fills of these two features included 7405 g (9.33 EVES) of pottery. Due to an error early on in the pottery processing phase, some of the pottery from AIJ and AIK became mixed together. The discovery that sherds from AIK joined others from AIJ does, however, mean that the two pottery assemblages are contemporary and can be quantified as one unit.

This assemblage includes a number of nearly complete vessels and is similar to that from the sinkage over shaft ABT in having very few VERWH cooking-pots. The reliability of the quantification figures is, however, affected by the presence of nearly complete pots. These consist entirely of closed forms, including beakers, flagons, jars, a face-pot and a dry storage jar.[19] The absence of complete bowls and dishes clearly minimizes their significance in the overall assemblage. The following nearly complete pots were found:

84. Greater part of type IIE jar in brown HGWREC fabric fired grey with slate/white coloured slip over the upper part of its exterior. The shoulder band is decorated with closely spaced burnished vertical lines (Frere type 2086 dated *c.* 120–60). Joining sherds from both AIJ and AIK. Two other identical and largely complete examples were present in the assemblage.
85. Virtually complete poppy-head bag-beaker in very fine sanded grey fabric fired polished

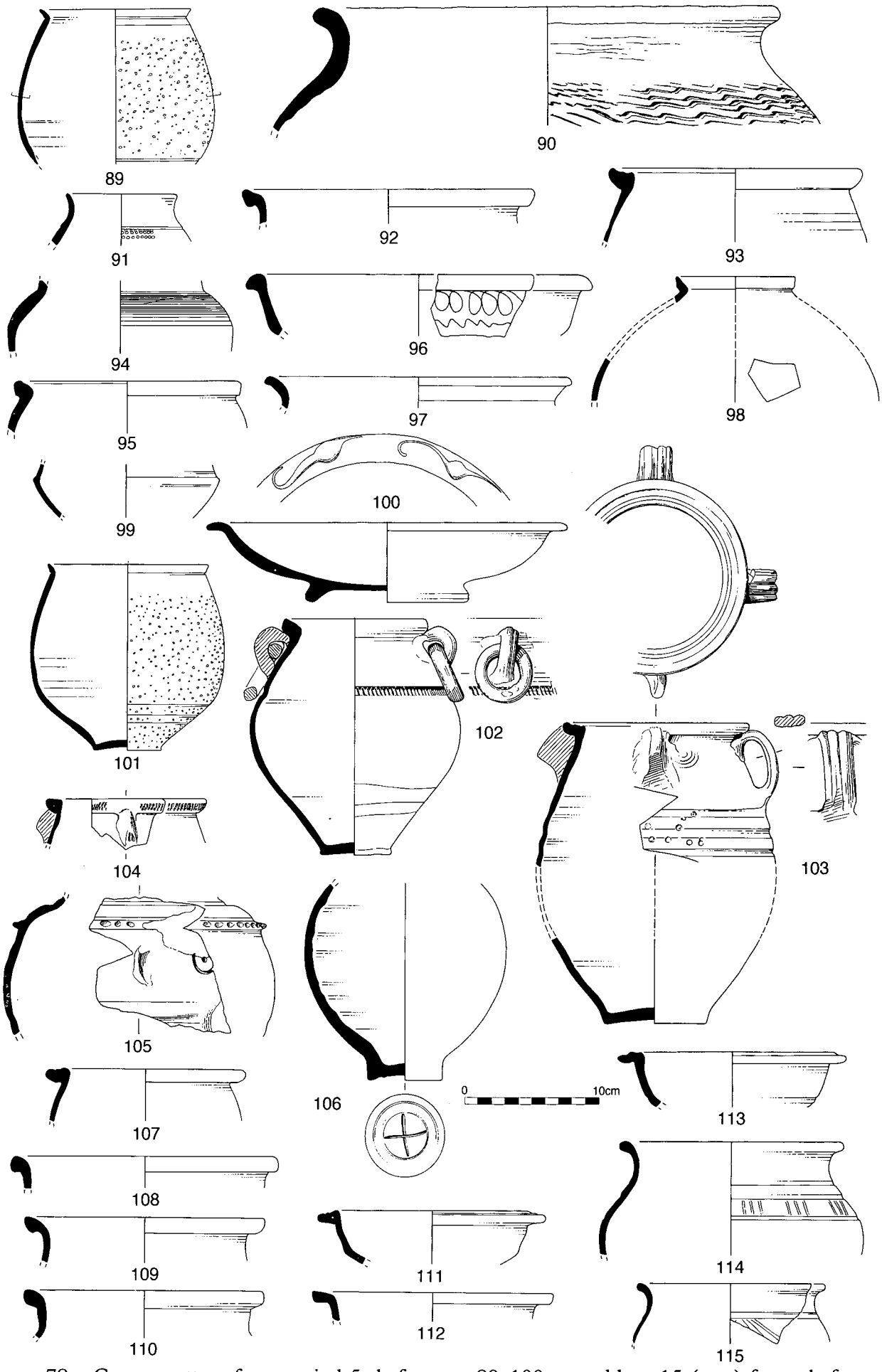


FIG. 78. Coarse pottery from period 5 shafts: nos. 89–100 assemblage 15 (part) from shaft AAE/ABZ; no. 101, assemblage 15 (fill of gully ACA); nos 102–15, assemblage 16 (part) from shaft AAB.

black with five rectangular panels of barbotine dots. Joining sherds from both AIJ and AIK.

86. Complete upper half of screw-neck type 1B5 flagon in buff-cream VERWH fabric with its surface fired reddish-brown. This kiln 'second' has a firing crack above the base of the handle (Frere type 1932, dated 120–80).
87. Top half of another such flagon in over-fired, patchy brown-black VERWH fabric with surface scumming (Frere type 1939, dated 150–200). A kiln waster. AIK.
88. Large part of face-pot in cream VERWH fabric with at least two triple- reeded handles. Joining sherds from both AIK and AIJ.
89. Roughcast bag-beaker with corniced rim, in white KOLCC fabric with brown-black colour coat (Frere type 2019, dated 130–200+). AIJ.
90. Joining sherds from large everted-rim storage jar, in buff-grey GROG fabric with variable flint, chalk and grog filler, and combed shoulder decoration. The rim edge is heavily blackened. AIK

The use of pottery wasters and seconds as grave-goods was common in Roman Britain and it may be that the nearly complete flagons, jars, beakers and face-pot are either from cremations disturbed when the pits were dug, or reflect similarities between the shaft usage rites and burial custom. It is unlikely, however, that the storage jar came from a burial, so these nearly complete vessels may be a pit-sealing group of the type noted in the ritual shafts at Baldock (Stead and Rigby 1986, 258) and at King Harry Lane in pit 18 (Stead and Rigby 1989, 69). This subject is discussed below (p. 303).

The following smaller sherds of interest are also present in the assemblage:

91. Rim from type IIIF poppy-head beaker in HGWREC+ fabric with black slip over rectangular dot-barbotine panels. There was part of a second, white-slipped, example from the shafts.
92. Rim sherd from necked-jar in cream VERWH fabric (Frere type 2246 dated 140–80). AIK.
93. Type IIH jar rim in cream-buff VERWH fabric with heavy rim blackening. AIJ.
94. Horizontally combed shoulder sherd from Braughing jar, in reddish-brown grog-tempered fabric fired black. AIJ.
95. Rim from lid-seated bead-rim jar, in patchy brown-black HARSH fabric.
96. Type IVH1-4 dish rim in grey CLIBB2 fabric fired matt black with burnished decoration on the exterior. AIK.
97. Hand-made copy of BB1 everted rim jar in black UNSBB fabric with white margins. AIK.
98. Type IIIB/C jar rim in white LONMA fabric with patchy orange-brown marbling. AIK.
99. Sherd from carinated bowl in internally mica-dusted brown LONMD fabric with polished exterior. AIK.

The shaft also produced decorated samian vessels 12–15 (p. 280) and mortarium 3 (p. 271).

The sinkage over the top of the filled in shaft ABZ (ACU) contained the following almost complete dish (FIG. 78):

100. Copy of Dr. 36 dish in extra-fine buff-orange fabric with deeper orange colour-coat. Seven large joining sherds.

The fill of a gully (ACA) linking the two shafts contained the greater part of the following vessel (FIG. 78):

101. Roughcast and cornice-rimmed beaker in white KOLCC fabric with brown colour-coat.

Assemblage 16. The fill of shaft AAB in Area 2 (AIL) (FIGS 78–9)

The shaft filling, AIL, consisted of clay-with-flints interleaved with batches of pottery, which amounted to a considerable 10,829 g (13.50 EVES) in total. This pottery, like that from the twin shafts AAE and ABZ, included a number of partly complete pots, as well as other smaller

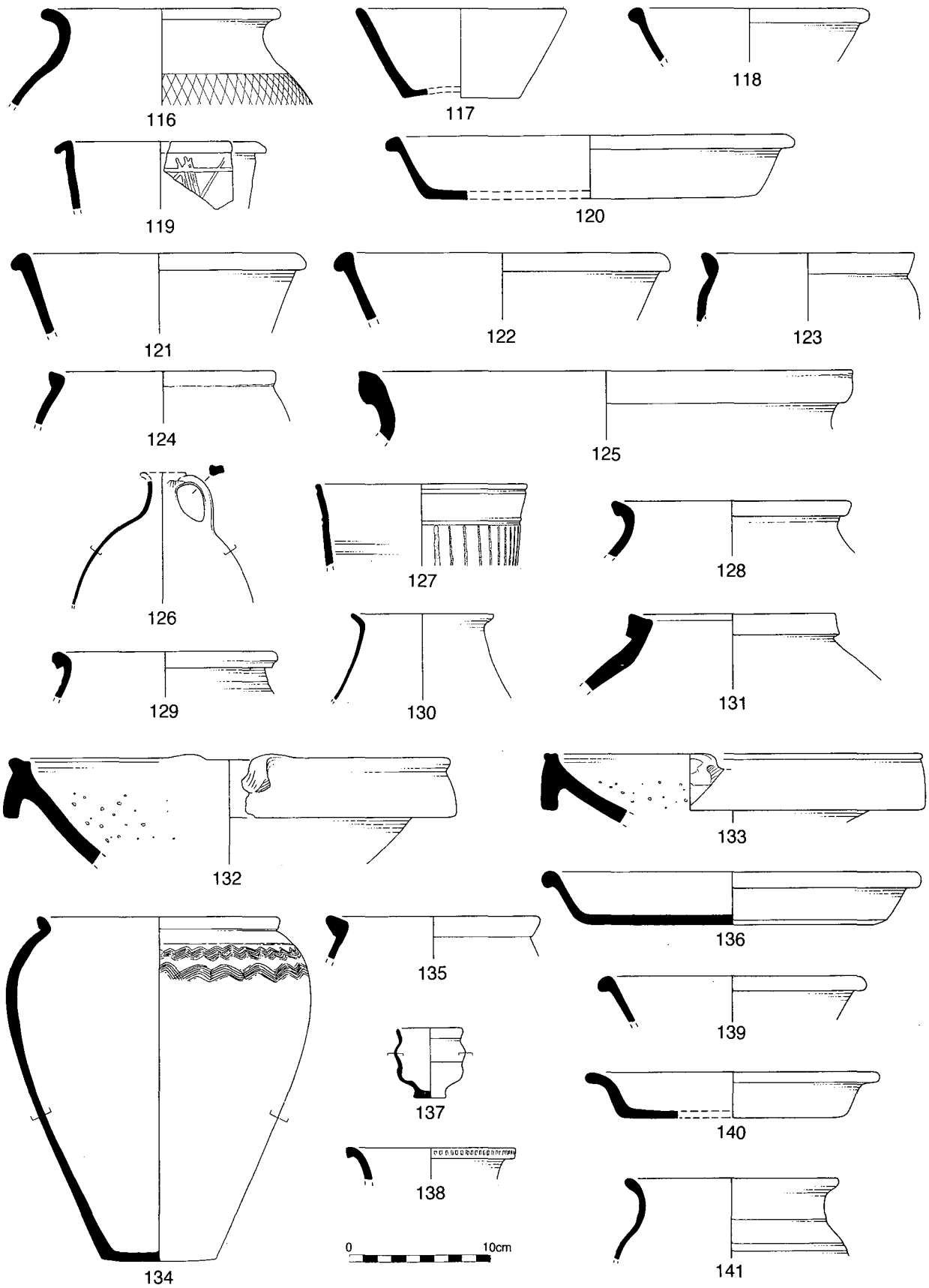


FIG. 79. Coarse pottery from period 5 shafts: nos 116–33, assemblabe 16 (part) from shaft AAB; no. 134, assemblage 17 from shaft CTY; no. 135, assemblage 18 from shaft AET; nos 136–41, assemblage 19 from sinkage over shaft ABC.

fragments.[20] There were fragments from at least three face-pots, a probable ritual vessel with a ring in its handle and large portions of two Antonine mortaria. As with shafts AAE and ABZ, wasters or seconds are present; in this case, one of the mortaria, one of the face-pots and two type IVA bowls. The assemblage is further distinguished by the presence of three unusual, Continental, imports; two Eifelkeramik necked jars and a North Gaulish pentice beaker. Plain samian from the shaft includes early second-century Dr. 18/31s and a Dr. 27, as well as an Antonine Dr. 31 and a stamp of Paullus IV dated *c.* 140–70 (p. 276, no. 30).

The assemblage appears to be of Early Antonine date: the third-century fragments are probably intrusive from the sinkage over the pit, as the feature was largely machine dug.

102. Greater part of neckless beaker in orange VERWH fabric, fired cream-buff and with a clay ring in its handle.
103. Much of face-pot in orange VERWH fabric fired cream (Frere dates VERWH face-pots to the Antonine period).
104. Face-pot fragment in orange VERWH fabric fired cream-buff with square-toothed rouletting along the rim edge.
105. Part of spalled second or waster face-pot of unusual design, in white VERWH fabric.
106. Lower half of a ?flagon with a cross incised on its underside before firing. In buff VERWH fabric and of unusual design.
107. Rim of neckless type IIH jar with reeded rim, in heavily blackened brown VERWH fabric (Frere type 901, dated 130–70).
108. Necked jar rim, in orange VERWH fabric (Frere type 648, dated 130–50).
109. Necked jar rim in fine-white VERWH fabric with rim edge blackening (Frere type 653, dated 135–60).
110. Necked jar rim in cream VERWH fabric fired buff (Frere type 1593 dated, 140–220).
111. Type IVA reeded-rimmed and carinated bowl, in orange VERWH fabric fired cream with black patches.
112. High-fired type IVA bowl in fine, buff-grey VERWH fabric. Slightly warped second or waster.
113. Bloated and cracked second or waster type IVA bowl in white VERWH fabric with grey-black patches and external greying (Frere type 2453, dated 140–60).
114. Type IIE necked-and-cordoned jar in grey HGWREC fabric fired polished black with groups of three vertical lines burnished on the shoulder.
115. Type IIE jar in grey LCVREI fabric with burnished shoulder chevrons and external grey-white slip extending over the rim.
116. Necked and cordoned store-jar in grey LCVRE2 fabric with burnished acute lattice on the shoulder.
117. Dr. 33 copy in similar fabric to the above and with the rim dipped into black slip (Frere type 1630, dated 200–310).
118. Bead-rimmed dish in very fine brown LCVRE fabric with overall slate-to-white slip (Frere type 2549, dated 140–55).
119. Lid-seated type IVA bowl in grey-black LCVRE2 fabric with external burnished multiple latticing.
120. Black type IVH5-7 dish in CLIBB2 fabric with chamfered base and overall polish (Frere type 2562, dated 210–40).
121. Bowl with beaded rim, in grey-black CLIBB2 fabric (Frere type 2565, dated 240–300).
122. Bead-rimmed bowl in fine grey HADRE fabric (Frere type 2565, dated 250–80).
123. Bead-rimmed jar in buff HARSH fabric with external blackening (Frere type 1801, dated 140–80).
124. Lid-seated bead-rimmed jar in buff-brown HARSH fabric with external blackening.
125. Rim from necked store-jar, in buff-grey HARSH fabric (Frere type 917, dated 155–60).
126. Neck of small flagon in white LONMA fabric with orange surface marbling (vessels in this fabric are primarily Hadrianic in London).
127. Imitation Dr. 30 bowl in grey VERGL fabric glazed dark green all over with white underslip decoration (Trajanic to early Antonine).

128. Necked-jar rim in white SPEOX2 fabric with very-coarse white and red inclusions, and orange lumpy surfaces with rim-edge blackening.
129. Necked-jar in pink SPEOX1 fabric with profuse red and brown inclusions and rim-edge blackening.
130. Amiens region pentice-beaker rim in extra fine grey-black NOGRE fabric with all over external burnish.
131. ?Amphora rim in fine, buff Baetican fabric with external polish.
132. Large part of mortarium in black underfired VERWH fabric with buff surface patches (*c.* 150–200+). A second or waster.
133. Wall-sided mortarium in fine grey VERWH fabric fired smooth orange-buff. Nearly half of the vessel is present.

Assemblage 17. The primary fills in the upper part of shaft CTY in Area K (CVD and CXN) (FIG. 79)

Only the upper part of the shaft was excavated, but produced 1175 g of pottery. This is rather small for reliable quantification, but includes three necked-jar rim fragments of Frere's type 2258 (*c.* 150–200) and a type IVA bowl of Frere's type 2464 (*c.* 140–80) in VERWH fabric, a triple-reeded flagon handle in LONMA fabric and an Antonine BB2 dish fragment. The greater part of the following pot is also present:

134. Jar with stubby everted rim and wavy combed shoulder, in dark-grey fabric with sparse coarse quartz sand and organic inclusions. CVD and CXN.

This context also contained decorated samian vessel 16 (p. 280).

Assemblage 18. The primary silt in shaft AET in Area K (DHR) (FIG. 79)

The lowest silt in the bottom of this shaft above the puppy and defleshed human head deposit produced only two pottery sherds (35 g). These include:

135. Type IVH jar rim in orange VERWH fabric with smoothed slightly lighter coloured surfaces (Frere type 2317, dated *c.* 190–210). It is possible that this rather atypical rim form comes from a face-pot.

The other c. *150–250 dated shaft fills*

The fill of shaft DLN in Area A

This shaft, which was not fully dug, produced only 338 g of Antonine pottery, including fragments from a KOLCC rough-cast beaker.

The fill of shaft CLM in Area A (CLN)

This fully dug shaft contained a similarly small amount of pottery in its primary fills over the horse's head burial in the sinkage (372 g). This includes a necked-jar rim in VERWH fabric.

The assemblages from the sinkages over the shafts

Assemblage 19. The lowest sinkage within the top of shaft ABC in Area M2 (ABE) (FIG. 79)

Context ABE produced 11,573 g (12.40 EVES) of pottery of Antonine and early third-century character. This assemblage includes a number of largely complete and, in some cases, exotic vessels and is characterized by a high percentage of bowls and dishes. There are a number of type IVA bowls of Frere's type 2466 (*c.* 210–40), 1596 (*c.* 135–90), 1683 (*c.* 190–210) and 1746 (*c.* 130–50), as well as necked-jars of types 2263 (*c.* 160–220) and 1822 (*c.* 145–200). The samian includes a Hadrianic–Early Antonine stamp (p. 274, no. 5). Largely complete vessels and exotica include the following:

136. Type IVH dish in very fine HADRE fabric with polished interior and smoothed exterior (Frere type 2562, dated *c.* 210–40). External rim diameter 260 mm.
137. Small beaker or unguentarium with corrugated body, in buff-brown VERWH fabric. External rim diameter 50 mm.
138. Rim of tazza in cream-buff VERWH fabric with toothed rouletting along the edge. External rim diameter 100 mm.
139. Bead-rimmed dish or bowl fragment, in buff-brown VERWH fabric with rim edge blackening. External rim diameter 200 mm.
140. Dish with out-turned rim in sand-free deep reddish-brown fabric with all-over internal polish. External rim diameter 200 mm.
141. Jar in very fine LNVPA fabric with external horizontal grooves outlined with red paint.

This assemblage included decorated samian vessels 17–19 (p. 280).

Period 6: c. A.D. 250–300. The primary shaft fills

Assemblage 20. The primary fills of shaft ACG in Area J (ACE and AIM) (FIG. 80)

Context AIM produced 5566 g (5.08 EVES) of pot, much of it broken up into small fragments and with very few joining pieces. The bulk of the pottery is of Antonine date, but includes a little late third-century material, such as the UNSBB fabric dish (FIG. 80.143) and a BB1 developed-beaded-and-flanged bowl fragment. This indicates that the bulk of pottery is residual in its context.

The forms include rims from two necked-jars of Frere's type 2253 (*c.* 135–80), a lid-seated jar of Frere's type 901 (*c.* 155/60) and IVA bowls of types 932 (*c.* 145–70) and 936 (*c.* 140–80), all in VERWH fabric. The samian includes an Early Antonine potter's stamp (p. 275, no. 20). Other pieces are:

142. Rim sherd from ?face-pot, in orange VERWH fabric fired cream (Frere type 1677, dated 125–80). External rim diameter 140 mm.
143. Straight-sided dish fragment in black UNSBB fabric fired polished orange- brown (Frere type 2530, dated 280–360).
144. Lid fragment in off-white very fine-sanded LNVRE fabric fired blue-grey. External rim diameter 200 mm.
145. Hook rim from necked jar in black HARSH fabric fired patchy black-brown (Frere type 2185, ated 200–25). External rim diameter 220 mm.
146. Large joining sherds from a mortarium in ochreous-buff-grey VERWH fabric with patch of vitrification on the flange (Frere type 1359, dated 150–200+). External diameter 340 mm. This may be a kiln second.

The shaft also contained the rims of two other Antonine mortaria as well as a small section of rim from a BB1 developed-beaded-and-flanged bowl (*c.* 240–400).

Assemblage 21. The primary fills of the first cut of shaft BBS in Area A (BDH, BDF and BDK) (FIG. 80)

These fills fielded 1870 g of pottery. The assemblage is not large enough for meaningful quantification, but appears to be of third-century date. The following pieces are of particular interest:

147. Screw-top beaker in very fine-sanded pink fabric with a streaky-brown colour-coat. A product of the Wetterau kilns in Germany (Symonds 1992, Group 31 dated to the third century). External rim diameter 100 mm.
148. Beaker rim in grey HADRE fabric. External rim diameter 80 mm.
149. Beaker rim in oxidized orange HADOX fabric. External rim diameter 140 mm.

The shaft also produced mortarium 6 (p. 272).

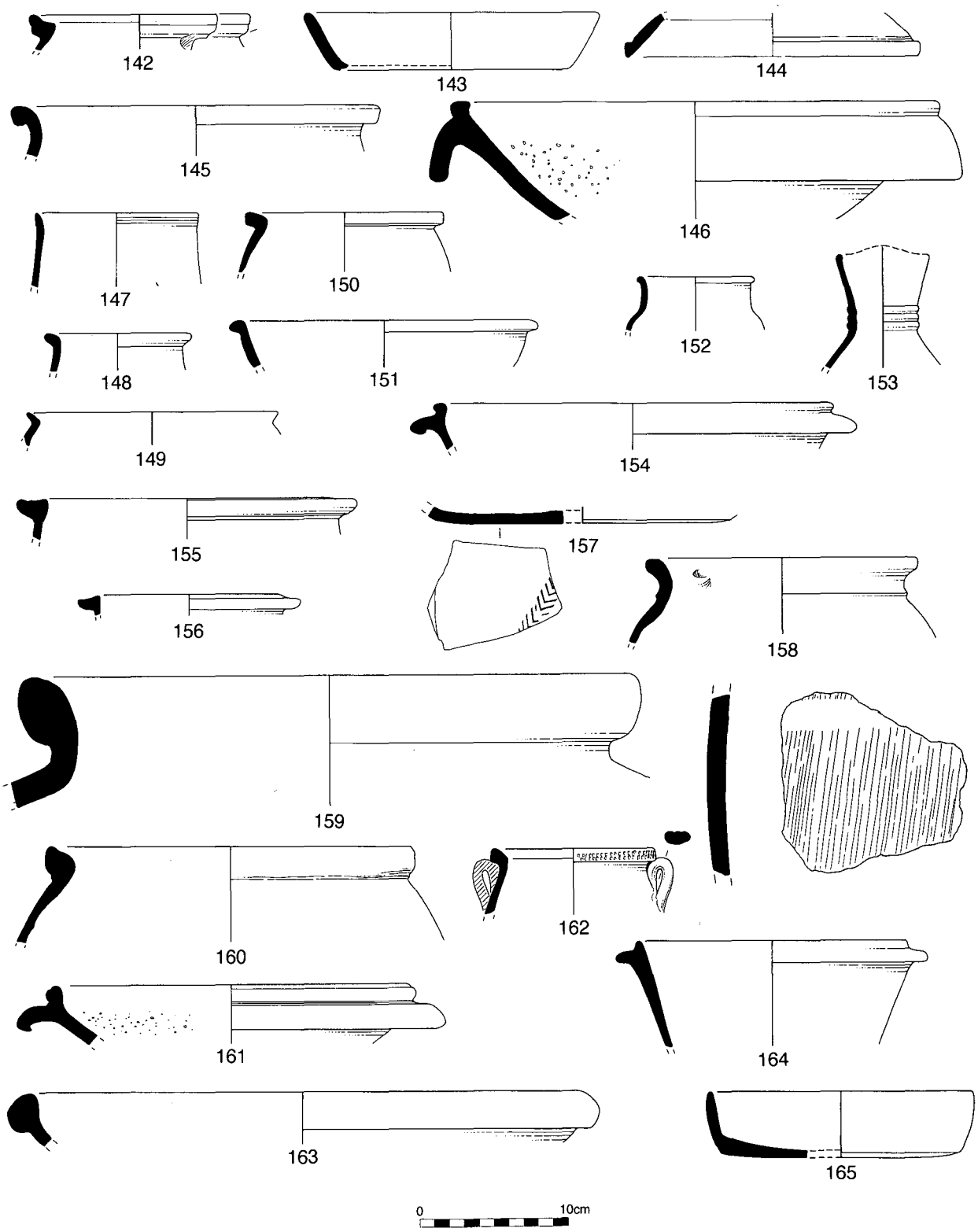


FIG. 80. Coarse pottery from period 6 shafts: nos 142–6, assemblage 20 from shaft ACG; nos 147–9, assemblage 21 from shaft BBS, nos 150–4, assemblage 22 from sinkage over shaft BBS; nos 155–61, assemblage 23 from shaft ASK; nos 162–3, assemblage 24 from shaft CML; nos 164–5, assemblage 25 from shaft ADH.

Assemblage 22. The fills in the sinkage over shaft BBS (BBR, BCF, BHZ and BCH+) (FIG. 80)

The recut shaft cut the sinkage layer BCH over the top of the backfilled first shaft and is therefore later than the mid-third century. Its fills contained 4822 g (5.83 EVES) of pottery).

This assemblage is characterized by an abnormally high percentage of open forms and includes a Hadham grey ware dish of Frere's type 1082 (*c.* A.D. 175–275), a grey ware dish of Frere's type 2555 (*c.* A.D. 180–220), a BRHWS flagon of type 1936 (*c.* 140–200), a grey ware jar of type 1506 (*c.* 275–300), a dish of type 1177 (*c.* 300–15), two BB1 incipient-beaded-and-flanged bowls (*c.* 220–80) and the following:

150. Jar rim in black-slipped HADBS fabric (Frere's type 1514, dated *c.* 275–360).
151. Type IVH dish rim in orange HADOX fabric (Frere's type 1281, dated to the fourth century). External rim diameter 160 mm.
152. Indented beaker rim in similar fabric (Frere's type 106, dated *c.* 180–270). External rim diameter 100 mm. One of two examples.
153. Pinch-neck flagon rim in white LNVCC fabric with brown colour-coat (Howe type 65 dated to the fourth century/Frere dates the type, 1514, to *c.* 250–350 at St Albans).
154. Mortarium rim in OXFWH fabric (Frere's type 2689, dated *c.* 240–300). One of two examples.

There were also fragments from a 'Castor' box lid and a MOSBS beaker. The dates of these various sherds indicates that the assemblage is largely of late third- century date with a little early fourth-century material. The assemblage also includes decorated samian vessels 23–26 (p. 281). Also a late Antonine samian stamp (p. 277, no. 38).

Assemblage 23. The primary fill of shaft ASK in Area P2 (APF) (FIG. 80)

The fill of this 3.5 m deep shaft included 6550 g (3.43 EVES) of pottery.

155. Type IVA bowl in off-white VERWH fabric with external blackening. External rim diameter 180 mm.
156. Type IVH bowl in black CLIBB2 fabric with external latticing over burnished silvery slip. External rim diameter 140 mm.
157. Fragment from the base of another BB2 bowl or dish with roller-stamped << on its underside.
158. Rim from necked-jar in buff HARSH fabric with horizontal body-rilling (Brown 1994, phases 4–5, dated 250–350). External rim diameter 180 mm.
159. Part of large store-jar with upright beaded rim and in buff-brown HARSH fabric (Brown 1994, fig. 34 dated 300–50).
160. Rim from necked-jar in orange HARSH fabric with external blackening (Brown 1994, fig. 29.169 dated 250–300).
161. OXFWH mortarium of Young type M17, dated *c.* 240–300. External rim diameter uncertain.

The assemblage also includes a BB1 incipient-beaded-and-flanged bowl rim (220–80), a Severan flanged dish from the same source, a LNVCC funnel-necked beaker of Howe type 38–39 (240–300) and another LNVCC beaker rim of type 54–57 (270–400). These pieces and the range of shell-tempered ware forms suggest that the shaft was backfilled at the beginning of the fourth century at about the same time as the cellars nearby. Much of the pottery is residual Antonine and early third-century material.

The assemblage also includes decorated samian vessel 20, which joins with a sherd from the fill of the nearby cellar, AJS (p. 264).

Assemblage 24. The basal fill of shaft CML in Area A (DHV) (FIG. 80)

This deposit contained 2283 g (221 sherds) of pottery, including a number of necked jar rims in VERWH fabric of Frere types 2272 (*c.* 250–80) and 1483 (*c.* 170–250), a fragment of a tazza in buff-brown VERWH fabric, a fragment from a BB1 developed-beaded-and-flanged bowl of post-240 date, a rim sherd from an OXFWH mortarium (*c.* 240–300+), seven Dressel 20 amphorae sherds and the following pieces:

162. Rim fragment in rough, cream VERWH fabric, with toothed rouletting decoration along its edge and attached handle. Probably from a face-pot. External rim diameter 120 mm.
163. Bead rim from large bowl, in cream VERWH fabric. External rim diameter 260 mm.

This assemblage also includes decorated samian vessels 21 and 22 (p. 281).

Assemblage 25. The stone and clay loam filling of shaft ADH in Area 6 (ADJ) (FIG. 80)

This shaft fill included 332 g of pottery, largely derived from two vessels:

164. Developed-beaded-and-flanged bowl in black BB1 fabric (*c.* 240–300+). External rim diameter 160 mm.
165. Straight-sided dish in HADRE fabric.

The pottery assemblage also included a very thick walled fragment from a BB1 straight-sided dish, which may be part of an oval dish with handles. Chips from a late Oxfordshire parchment-ware closed form, a rouletted Oxfordshire beaker and a late Trier colour-coat beaker were also present. Although this group is small, it is unusual in its total lack of residual pottery.

The other late-third century shaft fills

The fill of shaft ABA/DDK (DKR)

Only 651 g of pottery came from that part of DKR which was excavated. It includes two rims from small second-century jars in HARSH fabric, a bowl rim of Frere's type 2565 (*c.* 250–80), an Alice Holt dish rim of Lyne and Jefferies type 6A.4 (*c.* 270–400), some oxidized and reduced Hadham ware body sherds and two Nene Valley beaker sherds with white-painted decoration over brown colour-coat (270–400+). This small assemblage indicates that the shaft was backfilled after 270.

The fill of shaft DLC

Only 201 g of pottery game from this totally excavated shaft. There were only two rim fragments, a nondescript fragment from a VERWH necked-jar and a grey Hadham necked-jar rim of Frere's type 2236 (late third/fourth-century).

The basal fill of shaft ABR in K (DLL)

This totally excavated 3.2 m deep shaft had 1320 g (forty-three sherds) of pottery in its basal fill. The sherds included a necked jar in VERWH fabric of Frere type 2270 (*c.* 270–320), a heavily-beaded jecked-jar rim in grey Hadham fabric of type 1542 (mid-fourth century), the base of a LNVCC pinch-necked flagon of fourth-century date and part of a Moselkeramik beaker (212–76). On this basis, the rather small assemblage would appear to be of late third- or early fourth-century date.

The assemblages from the sinkages over the shafts

The upper layer in the sinkage over the primary fills of pit BBS (BCH)

Context BCH contained 1678 g of pottery, including a rim from a BB1 incipient-beaded-and-flanged bowl (*c.* 220–80), fifteen sherds from an indented HADOX beaker (third-century), a rim sherd from a MOSBS beaker (*c.* 212–70) and a corniced beaker rim in white LNVCC fabric with brown colour-coat and rouletted shoulder decoration (Howe type 33, dated *c.* A.D. 150–250).

These sherds indicate a mid-third-century date for the assemblage.

The assemblage also includes decorated samian vessels 23–6 (p. 281).

The wells

Assemblage 26. The fill in the top of well ADN in Area M3 (ADQ, AER, AEY and AEX) (FIG. 81)

A large quantity of late second- to early third-century pottery (11,616 g, 14.78 EVES) came from these contexts. As with the assemblage from ABE, the pottery includes a small number of

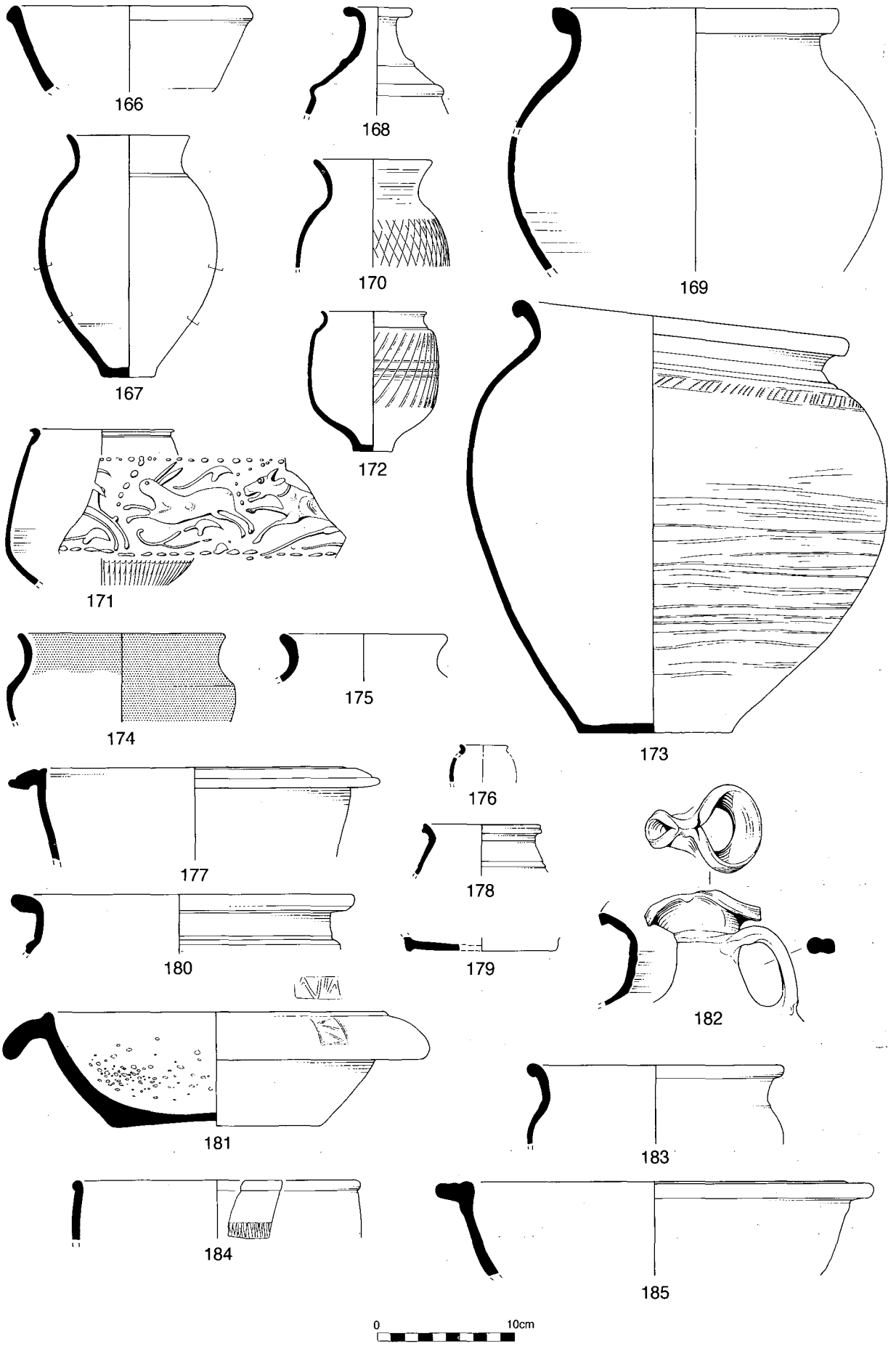


FIG. 81. Coarse pottery from wells and pits: nos 166–72, assemblage 26 from sinkage over well ADN, period 6; nos 173–6, assemblage 27 from cess pit CNZ; nos 177–9, assemblage 28 from cess pit ABR; nos 180–2, assemblage 29 from iron-working pit CPR; nos 183–5, assemblage 37 from late Roman pit AAG.

almost complete dishes, beakers and cooking-pots. Like ABE, it also has a very high percentage of open forms and, in this case, beakers as well (no. 167). The plain samian includes both early second-century and Antonine forms with stamps of Birrantus (135–50), Paullus (140–200), Cracina (130–60) and Dovecus (165–200). Decorated samian vessels 28 and 29 also come from this assemblage (p. 281). The following largely complete vessels were present:

166. Type IVG dish in polished grey LCVREI fabric (Frere type 72, dated 130–50). External rim diameter 220 mm.
167. Poppy-head beaker in fine sanded brown fabric fired polished black with no barbotine decoration (Frere type 2056, dated second century). External rim diameter 90 mm.
168. Bottle in grey LCVREI fabric (Frere type 1996, dated *c.* 135–55). External rim diameter 50 mm.
169. Necked-jar in cream-buff VERWH fabric with rim edge blackening (Frere type 1061, dated *c.* 200–225/250). External rim diameter 200 mm.
170. Black fired poppy-head beaker in buff fabric with black inclusions and lattice decoration on the body. External rim diameter 80 mm.
171. Hunt cup in white KOLCC fabric with black colour-coat (Frere type 792, dated *c.* 145–220).
172. Barbotined bag-beaker in LNVCC fabric with orange colour-coat (Frere type 1614, dated *c.* 200–80).

Cess pits

Assemblage 27. The basal fill of the chalk-lined pit CNZ (CRY) (FIG. 81)

This context produced 2926 g (108 sherds) of pottery including:

173. Greater part of large store-jar with slashed shoulder decoration, in coarse grey LCVREI fabric (Frere type 308, dated 70–115). External rim diameter 260 mm.
174. Necked and carinated jar or bowl in grey HGWREC fabric with thick white slip (Frere type 446, dated 105–15). External rim diameter 140 mm.
175. Everted jar rim in very fine blue-grey fabric. External rim diameter 120 mm.
176. Small bead-rimmed beaker in black BLEG fabric (early second-century). External rim diameter 30 mm.

This assemblage also includes decorated samian vessel 30 (p. 281).

Assemblage 28. The dumped butchery waste in the top of pit ABR (ABQ, ACS, ADU, ADV and ADW) (FIG. 81)

As we have already seen, the base of this shaft contained late third-century pottery (p. 260).

Above this was a series of dumped deposits with butchers' waste and a considerable sherd assemblage (9.81 EVES). The small amounts of fine pottery and the predominance of cooking-pots are what might be expected from an industrial assemblage. The pottery includes examples of VERWH necked-jars of Frere's types 2247 (*c.* 120–35), 458 (*c.* 105), 2250 (*c.* 125–50), 2267 (*c.* 200–25), 2262 (*c.* 140–80), type IVA bowls of type 676 (*c.* 140–90), 2458 (*c.* 150) and a tettina rim of type 641 (*c.* 130–50). Beakers in HGWREC fabric include Frere's types 585 (*c.* 130–40) and 381 (*c.* 105). Other forms are:

177. Necked-bowl or strainer in cream VERWH fabric with external greying. External rim diameter 120 mm.
178. Small jar or beaker with neck and body cordoning in buff-brown VERWH fabric. External rim diameter 90 mm.
179. Basal sherd from strainer in creamy-white VERMA fabric with marbled orange colour-coat.

The iron-working in Area J

Area J lies half way between Road 1 and the main Colchester road at the south-western end of the site and does not obviously relate to either. Two of the pits within the area produced late first- and mid-second-century pottery associated with industrial activities, including iron-working, and may be peripheral to suburban development outside the town.

Assemblage 29. The fill of the iron slag pit CPB (CPC, CSB, CSC, CSD) (FIG. 81)

This feature contained 3841 g of pottery including the following:

180. Necked-jar rim in coarse patchy cream-black VERWH fabric (Frere type 2241, dated *c.* 70–100). External rim diameter 240 mm.
181. Mortarium no. 7 (p. 272 below).
182. Complete pinch-necked flagon rim with handle, in white VERWH fabric (Frere type 1976/7, dated *c.* 130–200). This came from layer CSC above the iron slag and may have been used as a tuyere in ironworking.

Butchery and bone working in Area K

The deposits of butchered bones in the sinkages over the primary fills of shafts ABR and AET in Area K were accompanied by large assemblages of Antonine and early third-century pottery. This material overlay later pottery in the primary fills of shaft ABR and was clearly tipped in from an old midden at the end of the third century in order to level up the ground surface. In contrast, the bones and pottery in pit AET appear to have been dumped contemporary with the butchering activities and consisted almost entirely of leg bones.

Assemblage 30. The bone tips in the top of pit AET (AES and AEY)

There were two separate bone-tips within this shaft, which appear, from the extreme depth of the sinkage, to have been dumped while the shaft was still largely open. The bones consisted almost entirely of cattle legs, probably dumped with hide and soft tissues still adhering (p. 330) and may indicate that their deposition was of a sacrificial nature. The lower pot and bone tip (AEY) had 4045 g of pottery and the upper one (AES) had 7238 g (8.90 EVES in total).

This pottery assemblage differs considerably from that in pit ABR in having considerably larger percentages of both open forms and mortaria. The high percentage of open forms is similar to those in the shafts ABC, ADN and DKM sinkage assemblages and may indicate that this pottery deposit, like them, was of a ritual nature.

The pottery includes necked-jars of Frere's types 2243 (*c.* 105–45) and 2245 (*c.* 140–80), and a triple vase rim sherd of type 887 (*c.* 150–60) in VERWH fabric. A further fragment from the support ring of another grossly underfired VERWH triple vase was also present. Other forms include the rim from a BB1 flanged dish of Frere's type 1989 (*c.* 150–60), a store- jar rim in HARSH fabric, of type 2303 (*c.* 130–80) and a deep BB2 bead-rimmed bowl of type 974 (*c.* 150–155/160). The last vessel was virtually complete and together with the fragments from two triple vases suggests some sort of ritual activity.

Assemblage 30 includes decorated samian vessels 32–5 (p. 281), and a stamp of Birrantus (p. 274, no. 6).

The ovens

Pit ACY (the lower fill of a pit — possibly a robbed oven) contained a mere 8 g (two sherds) of pottery, including a sherd from a Cologne rough-cast beaker. Context ABZ (a layer of road metalling over pit ACY) had 266 g (eight sherds) of pottery, which includes a fragment from a Cologne rough-cast beaker (*c.* 130–200+), the rim from a reeded-rim bowl in VERWH fabric, of Frere's type 2451 (*c.* 135–90), a VERWH mortarium rim fragment of Frere's type 2656 (*c.* 105–50) and another VERWH mortarium fragment of type 2683 (*c.* 140–200). The common overlap of all these date ranges is *c.* 140–50 and indicates that pit ACY/ABZ was probably levelled very soon after 150 to make way for the road.

Oven AFA in Area M4, beneath the road metalling associated with this eastwards road-width expansion, contained 3092 g of pottery, including VERWH necked jars of Frere types 2269 (*c.* 250–80), 2272 (*c.* 250–80) and 2266 (*c.* 200–25). There was also a BB1 incipient-beaded-and-flanged bowl (*c.* 220–80) and a straight-sided dish in UNSBB fabric, as well as three LNVCC funnel-necked-beakers (*c.* 240–300+), a flagon-neck fragment of Howe type 67 in similar fabric (*c.* 270–400) and a type 51 beaker (*c.* 270–400). Moselkeramik beaker sherds (*c.* 212–76) and

an Oxfordshire whiteware mortarium rim of Young type M17 (*c.* 240–300+) are also present. The assemblage can probably be dated to *c.* A.D. 270–300.

The cellars on the east side of the Colchester road in Area P2

The two cellars beside the road were probably beneath roadside buildings, of which all other traces have vanished. Both contained pottery of largely Antonine date, but also had pottery and coins as late in date as the end of the third century. The cellars appear to have been backfilled with rubbish at the end of the third century. This rubbish probably came from middens that had accumulated during the lives of the buildings. This would imply that the cellars were dug at the same time as the Colchester road was constructed and went out of use at the same time as the Ceremonial Enclosure ditch and other features were backfilled, in order to turn the area over to agriculture.

Assemblage 31. The fills in cellar AJB within Area P2 (AJZ and AJB)

The lower fill of this feature (AJZ) included a large amount of commituted and mainly residual pottery of Antonine date (10,425 g). There were, however, a few pieces of third-century character, indicating that the material had been dumped as part of the land reclamation which took place on the Folly Lane site at the end of the third century.

The upper cellar fills (AJB) were of similar character (19,473 g), but included considerably more late third- to early fourth-century sherds. Some of these pieces may have been derived from the occupation within the neighbouring building 1 and worked their way down into the sinkage in the top of the feature.

The assemblage from AJZ had rim sherds equalling 19.87 EVES and is similar to that from the butchery waste in the top of shaft ABR in having very little fineware. It does, however, have an abnormally high percentage of type IIE jars in HGWREC fabric; enough to suggest the possibility that some type of specialized activity was taking place. Necked-jars in VERWH fabric include Frere's types 2245 (*c.* 125–45), 2246 (*c.* 140–80) and 645 (*c.* 130–40). Type IVA bowls include at least ten examples of form 2451 (*c.* 135–90) and an example of 2457 (*c.* 155/60). There is also a Gallo-Belgic platter copy and examples of flagon types 1932 (*c.* 140–60) and 1941 (*c.* 155–60) in VERWH fabric. Vessels in other fabrics include BB1 dish type 2545 (*c.* 145–200) and shelly jar type 2303 (*c.* 130–80). None of the pottery was sufficiently unusual to warrant illustration.

This assemblage includes mortarium 12 and decorated samian vessel 36.

Assemblage 32. The main fill of cellar AJS (AJC, AJS)

The fill of this second cellar contained a considerable 21,745 g of pottery (36.78 EVES), of broadly similar date to that from AJZ in cellar AKH, but with more third-century material. The percentages of different vessel forms (RIG 87) are very similar to those in the assemblage from AJZ, although the presence of samian here means that the overall percentage of finewares is greater. There are far more VERWH jars and considerably fewer HGWREC ones in this assemblage. All in all, the AJS pottery conforms more closely to a normal Antonine occupation assemblage than does that from cellar AKH. We may perhaps infer that the assemblage from cellar AJB was the result of specialized activities associated with the putative building over it whereas cellar AJS was beneath a dwelling house.

This assemblage includes decorated samian vessels 37–9, and a sherd that joins with decorated samian no. 20 from shaft ASK. Also samian stamps 3 and 17 (p. 273).

The pottery from the fourth-century occupation

There are considerably fewer pottery assemblages from this final Roman occupation phase. What few that there are, include large amounts of residual pottery accompanied by only small numbers of fourth-century sherds. The reason for the paucity of sherds of this period must be due to the change in nature of activities from those associated with an important religious centre to ones of an agricultural nature. Most of the fourth-century pottery came from features close

to the hollow-way running along the south-east edge of the site, although other, smaller, groups came from the droveway side-ditches and those of the paddock to the north. Well BPA, cut through the Ceremonial Enclosure ditch fills, also produced an assemblage of this date.

Assemblage 33. Building 1

The postholes for this building yielded a quantity of broken-up sherds of Roman pottery (1186 g). These included a necked-jar rim in VERWH fabric and of third- to early fourth-century type and a number of grey and oxidized Hadham ware sherds of similar date. The recut postholes AGX were packed with sherds from a Dressel 20 amphora, more of which came from the fill of the hollow-way immediately to the south. None of the sherds from the postholes are closely datable or drawable, but it may be that much, if not all, of the pottery from the hollow-way originated from the occupation in building 1. The sherds from the postholes would be compatible with a late third-century construction of the building. The poor showing of shell-tempered ware sherds and late fourth-century forms in the hollow-way material would further suggest that the occupation of the building did not continue after 370.

Assemblage 34. Pit AQZ south of building 1

This small pit contained 235 g of pottery, most of which was residual. There was, however, the bed-rim from a grey ware storage jar of late fourth-century type and probably from an Essex source. A handmade body sherd in black sandy fabric may be early Saxon in date.

Assemblage 35. Building 2

Most of the postholes of this building were lacking in pottery; only four sherds were present.

These included a complete Overwey/Portchester D jar base and two chips of Oxfordshire brown colour-coated ware. Overwey rilled jars and other forms did not appear in Verulamium until the late fourth century. The presence of this piece, therefore, indicates that the building can be dated to after 350 and was perhaps a replacement for building 1. A small pit within this building contained fourteen joining bodysherds from an indented beaker in very fine orange VERWH fabric fired matt yellow-brown and two, probably residual, necked-jar rims in similar fabric.

Assemblage 36. The fill of pit in Area P2 (AVA)

The fill of this feature is independently dated by coinage to the mid-fourth century. There were 3832 g (5.12 EVES) of pottery in the fill, much of which is of a residual nature. This assemblage has a high percentage of finewares, dominated by vessels in oxidized Hadham fabric. These include a beaker of Frere's type 2064 (*c.* 290–310) and a bottle of type 1617 (*c.* 270–310). Their presence in this mid-fourth-century pit suggests that their date range should be considerably extended. Hadham grey ware forms include a straight-sided dish of type 2529 (275–340) and a developed-beaded-and-flanged bowl of type 2472 (280–380). The two BB1 developed-beaded-and-flanged bowl rims could be of any date between 270 and 350, but the incipient variant is almost certainly Severan in date, although dated by Frere, as his type 1641, to *c.* 330–60.

Assemblage 37. The top fill of pit ADY in Area M1 close to the Colchester road (AAH and AAJ) (FIG. 81)

The fills in the slump over this unexcavated pit contained 1420 g of pottery. This includes rim sherds from necked-jars in VERWH fabric of Frere types 1476 (*c.* 240–70) and 1567 (*c.* 350–60) as well as the following fourth-century sherds:

183. Greater part of necked-and-cordoned jar in high-fired blue-grey fabric with smooth brown-grey surfaces and orange margins. External rim diameter 180 mm.
184. Bowl in fairly sand-free grey ware fired orange-brown with maroon colour-coat over its

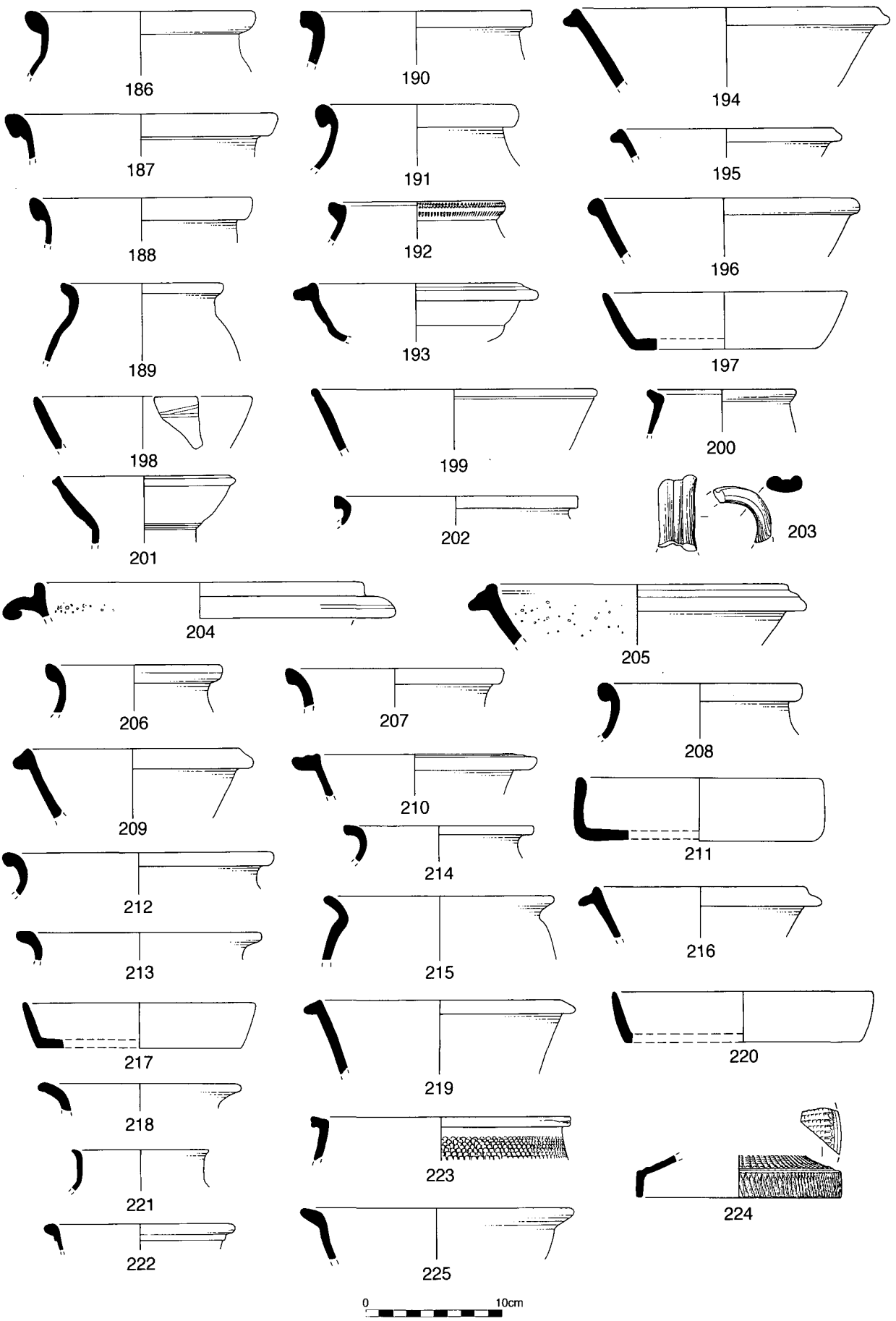


FIG. 82. Coarse pottery from period 7 well BPA. Nos 186–205, assemblage 38 from the lower fill; nos 206–25, assemblage 39 from the upper fill.

exterior and rim. The square-toothed rouletting around the exterior of the bowl suggests that it may be a late VERWH product. External diameter 180 mm.

185. Reeded-rim bowl in orange VERWH fabric. The absence of a carination and the generally poor finish to the rim suggests that the bowl is late in date.

Assemblage 37 also includes decorated samian vessel 40.

Assemblage 38. The lower fill in well BPA (BPD) (FIG. 82)

Well BPA was cut through the edge of layer BJD on the south side of the enclosure ditch and contained two successive rubbish deposits in its excavated upper portion. The lowest of these deposits, BPD, contained 7170 g (10.50 EVES) pottery assemblage of similar character to that from BJD, but with some late third- to early fourth-century pottery as well.

This assemblage included appreciable amounts of residual second-century pottery. HGWREC beaker, jar and bowl fragments, not thought to have arrived at Verulamium after *c.* 180, make up nearly one-fifth of all the pottery and there were smaller numbers of sherds from Antonine BB2 pie-dishes. The following pieces may be contemporary with the well:

186. Necked-jar in buff VERWH fabric with external greying (Frere type 2278 dated to the early fourth century). External rim diameter 180 mm.
187. Necked-jar in orange VERWH fabric fired cream with external rim greying. External rim diameter 200 mm.
188. Similar form in brown VERWH fabric with rim-edge blackening.
189. Another example in orange VERWH fabric. External rim diameter 120 mm.
190. Another example in orange VERWH fabric, fired cream with rim edge blackening. External rim diameter 160 mm.
191. Another example in buff VERWH fabric fired black externally (Frere type 2280 in deposit dated 380–420 and considered residual). External rim diameter 140 mm.
192. ?Face-pot rim with square-toothed rouletting on rim edge, in buff-brown VERWH fabric with handle scar.
193. Reeded-rim carinated bowl in smooth orange VERWH fabric with rim top blackening. External rim diameter 180 mm.
194. Developed-beaded-and-flanged bowl in HADRE fabric, with burnished wavy line on interior surface (Frere type 1552, dated *c.* 345–80+).
195. Incipient-beaded-and-flanged bowl in similar fabric (late third- to early fourth-century). External rim diameter 160 mm.
196. Bead-rimmed bowl in similar fabric. External rim diameter 140 mm.
197. Straight-sided dish in similar fabric. External rim diameter 180 mm.
198. Convex-sided dish in similar fabric, with external groove (Frere type 1266, dated to the late fourth century). External rim diameter 140 mm.
199. Dish with beaded rim, in similar fabric (Frere type 2528, dated to the fourth century). External rim diameter 180 mm.
200. Lid-seated beaker rim in very fine grey ware, with burnished horizontal lines on the exterior. Amiens bandes-lustrées ware. External rim diameter 110 mm.
201. Jug rim in cream LONMA fabric with orange-brown colour-coat. External rim diameter 130 mm.
202. Jar in orange-buff LNVCC fabric with external chocolate-brown colour-coat (Howe type 75 dated to the fourth century).
203. Triple-reeded flagon handle in white LNVCC fabric with brown-black colour-coat (Howe type 87, dated to the fourth century).

This assemblage also included fragments from a Nene Valley box-lid, two boxes and a funnel-necked beaker.

204. Mortarium rim in white OXFWH fabric (Young type M18 dated 240–300). External rim diameter 260 mm.
205. Nene Valley reeded rim from mortarium (Frere type 2630/1 dated to the late fourth century at Verulamium). External rim diameter 200 mm.

Assemblage 39. The upper fill of well BPA (BPC) (FIG. 82)

The hollow in the top of pit BPA, formed as layer BPD settled, contained a further rubbish deposit. This rubbish (BPC) included a 6227 g (8.28 EVES) pottery assemblage with far less residual material than the layer beneath. This pottery included:

206. Necked jar in dirty-white VERWH fabric fired black externally and over the rim. External rim diameter 120 mm.
207. Another example in cream-buff VERWH fabric with rim-edge greying. External rim diameter 140 mm.
208. Another example, in orange VERWH fabric fired pinkish-buff with rim-edge blackening. External rim diamerter 140 mm.
209. Incipient-beaded-and-flanged bowl, in buff-brown VERWH fabric with rim edge blackening. External rim diameter 160 mm.
210. Reeded-rim bowl in buff VERWH fabric with external blackening. External rim diameter 180 mm.
211. Straight-sided dish in white VERWH fabric fired black externally. External rim diameter 180 mm.
212. Hook-rimmed jar, in buff-brown HARSH fabric (Frere type 2185/2197 dated to the late fourth century). External rim diameter 160 mm.
213. Necked jar in similar fabric. External rim diameter 140 mm.
214. Necked jar in similar fabric (Frere type 2195, dated *c.* 350–410). External rim diameter 140 mm.
215. Everted rim cooking-pot in black BB1. External rim diameter 140 mm.
216. Developed-beaded-and-flanged bowl in similar fabric (*c.* 240–350). External rim diameter 140 mm.
217. Straight-sided dish in similar fabric. External rim diameter 160 mm.
218. Everted rim from red cored UNSBB fabric cooking pot. Similar BB1 imitations were present in late third- to early fourth-century contexts at Brentford. External rim diameter 160 mm.
219. Incipient-beaded-and-flanged bowl in HADRE fabric. External rim diameter 180 mm.
220. Slightly convex-sided dish in similar fabric. External rim diameter 180 mm.
221. Beaker rim in orange HADOX fabric (Frere type 1106, dated 270–300+). External rim diameter 100 mm.
222. Necked-bowl rim in similar fabric. The Oxfordshire equivalent is dated *c.* 300–400+. External rim diameter 120 mm.
223. Jar with overall body rouletting, in white LNVCC fabric with orange colour-coat (Frere type 2023, dated to the fourth century). External diameter 160 mm.
224. Box lid in similar fabric, with rouletting and orange colour-coat (Howe type 89 dated to the third century).
225. Bowl with weakly-everted rim, in black fabric with profuse fine white quartz (Frere type 1505/1526, dated *c.* 275–350). External rim diameter 180 mm.

The pit also contained joining indented beaker fragments and the neck of a flagon of type 65, dated to the fourth century, in LNVCC fabric.

The presence of late fourth-century pottery forms in both BPC and BPD, coupled with the insignificant showing of shelly wares, suggests that pit BPA was backfilled furing the mid-fourth century, but before 370. Harrold shelly wares became far more significant at Verulamium after that date.

The agricultural features in Areas K and L

Asesmblage 40. The fills of the corndryer in Area 8 (AEP, AHF) (FIG. 83)

The flue of the corndryer contained a small pottery assemblage (1287 g). This included the rim from a BB1 developed beaded-and-flanged bowl or dish of late fourth-century type and the following pieces:

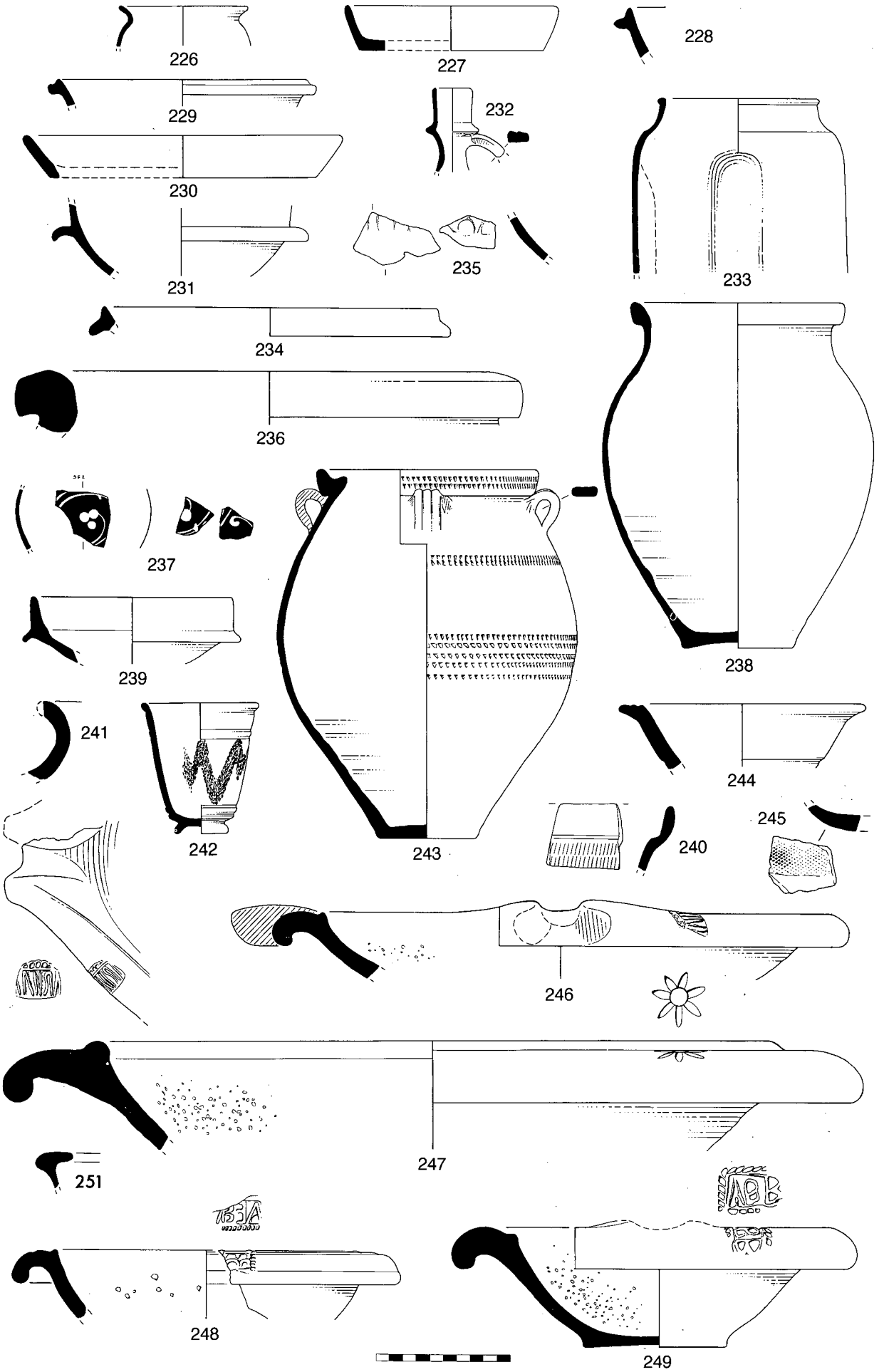


FIG. 83. Coarse pottery from late and post-Roman features. Nos 226–31, assemblage 40 from the corn-drying oven; nos 232–9, assemblage 41 from the 'droveway ditches'; nos 240–1, assemblage 42 from the 'paddock' ditches; nos 242–3, pit AFM; nos 244–5, building 5; nos 246–9 mortarium stamps; no. 251 Saxon sherd.

226. Small everted-rim beaker in HADRE fabric. External rim diameter 100 mm.
227. Straight-sided dish in similar fabric. External rim diameter 180 mm.
228. Rim from jar in HADRE fabric (Frere type 2279, dated 360–70). External rim diameter 120 mm. One of two examples.
229. Rim from developed beaded-and-flanged bowl in similar fabric (Frere type 2484, dated 350–400).
230. Black surfaced straight-sided dish in HADRE fabric (Frere type 1518, dated *c.* 300–50).
241. Copy of Dr. 38 bowl in OXFRS fabric (Frere type 2359, dated 270–400+, but more common in late fourth-century contexts at Verulamium).

Assemblage 41. The fills of the droveway ditches (FIG. 83)

These ditches contained an appreciable quantity of Roman pottery (6982 g), most of which was residual and derived from earlier features nearby and includes decorated samian vessels 2–5. There wre, however, a number of fourth-century sherds including some partly complete vessels:

232. Neck of bottle in white LNVCC fabric with black colour-coat (fourth century).
233. Greater part of indented beaker in grey Hadham fabric (Frere type 1106, dated 180–270). External rim diameter 120 mm. CZP.
234. Rim of developed-beaded-and-flanged bowl, in sandy orange-cored black UNSBB fabric. DBC.
235. Five fragments from a beaker in very fine brown fabric with discontinuous external maroon wash and white-painted scales on a girth band. DBC.
236. Rim from large pink-grogged store-jar. External rim diameter 360 mm. ADA.
237. Three fragments from fourth-century Trier beaker with white barbotine decoration over brown-black colour-coat. ADA.
238. Complete necked-jar in deep-orange VERWH fabric with blackened rim-edge (Frere type 2270, dated 270–320). External rim diameter 160 mm. ADA.
239. Nine joining sherds from Dr. 38 copy in vesicular, organic-tempered soft, black fabric fired smooth buff-brown. ?Sub-Roman. External rim diameter 120 mm. AGL.

Assemblage 42. The fills of the Paddock Enclosure ditches (FIG. 83)

These ditches cut those of the droveway and are clearly later. They contained considerably less pottery (1692 g), almost entirely residual, but including the following pieces. These may be contemporary with the ditches, but if no. 239 from the droveway ditches is sub-Roman, then the paddock must be Saxon or later:

240. Thick-walled 'Castor' box fragment of late fourth-century type, in white LNVCC fabric with brown colour-coat. External rim diameter 300 mm. ADH.
241. Store-jar rim in grey-brown fabric with occasional ironstone and black organic inclusions, fired orange-brown with rim-edge blackening. ADH.

Miscellaneous late Roman pottery (FIG. 83)

A small post-Roman pit or gully in Area P (context AFM) yielded a small derived assemblage of mid-fourth-century pottery. This material included sherds from two unusual vessels in the very coarse orange-brown VERWH fabric variant characteristic of some of the final products of the local industry.

242. Joining sherds from a very crude ?hand-made reeded-rim bowl with external smears of lighter coloured slip. Some of the sparse ironstone inclusions are up to 8.00 mm across. External rim diameter 140 mm.
243. Two joining fragments from convex-sided bowl in similar fabric with band of diamond stamped roller-stamping just below the girth. This form of decoration is otherwise unparalleled on VERWH products and may have been inspired by the roller-stamping on Argonne ware bowls.

THE STAMPED AND SELECTED UNSTAMPED MORTARIA[21]

by Kay Hartley

1. Diameter = 390 mm. Three joining pieces from a mortarium in fine-textured, cream fabric. Inclusions: few visible, opaque black, red-brown, and white, possibly calcareous; probably some sand-sized quartz. Trituration grit: abundant, well-sorted, mostly white and transparent and probably some blackish quartz; some flint. The grit is combined with very fine concentric scoring and both were probably continued over the entire upper surface of the flange, though only the grit is clearly visible on this example. The vessel has had very little wear and was burnt after fracture.

   Context BJC, pit in the west terminal of the Ceremonial Enclosure ditch, period 4. Pottery assemblage 1 (FIG. 75.2).

   This is typical of the products of a pottery likely to be in northern France, which was functioning in the period A.D. 50–85. Many of their mortaria were stamped.

2. Diameter 310 mm. Cream fabric with very thick brownish-pink core almost to the surface. Inclusions: rather more than moderate, ill-sorted, transparent white and pinkish quartz and some opaque, red-brown, natural iron compounds. Trituration grit: black iron slag. There is a buff slip, surviving rather patchily. The survival of the slip over almost all the interior means that this mortarium has been little used.

   Context DDJ; from the filling of burial 27 (FIG. 83.249).

   The incomplete stamp reads ABB [or just possibly ABR[, R upside down. Other stamps from the same die are known from Baldock, London and Saham Toney but no other example preserves more of the name. His kilns are not known but the fabric and trituration grit probably indicate a source in the East Midlands or south- east England. The rims used are second-century, probably within the period A.D. 130–80.

3. Diameter 290 mm (15 per cent) 160 g. Granular buff-cream fabric with abundant sub-rounded quartz and rare orange-brown inclusions. Two flint trituration grits survive.

   Context AIJ 2; from the filling of shaft AAE, period 5. Pottery assemblage 15 (FIG. 83.248).

   Complete examples of stamps from the same die read AEBRS retrograde, with dashed A and BR ligatured with the hint of an I(BRKI), probably for Aebris. The fabric is typical for the Verulamium region and other mortaria with stamps from the same die have been found at Brixworth, Gorhambury (2) and an uncertain provenance, possibly London.[22] His rim profiles are consistent with a date within the period A.D. 110–40 for his activity. The ribbed flange of this example is unusual.

4. Diameter *c.* 31 mm (8 per cent) 60 g. Fragment from the rim of a wall-sided mortarium of the kind most commonly found in Britain in Claudian contexts. Production had begun much earlier in Gallia Belgica; it seems to have continued throughout the Claudian period and late forms were made at Eccles in Kent (Detsicas 1977, 35, no. 119). This example is probably Claudian. The interest of this sherd lies in the granular greyish-cream fabric packed with quartz inclusions, absolutely typical of the Verulamium region. Mortaria are known to have been made in the Verulamium region in the pre-Flavian period, but no locally made example of this form has been published; the only mortarium of this type published by Frere is in hard white fabric and was probably an import (Frere 1972, 269, no. 51).

   Context DHV; basal fill of shaft CML, period 5 or 6. Pottery assemblage 24.

5. Diameter = 290 mm. Two joining sherds with fragmentary stamp. A flake with another part of the stamp has split away from the flange because the stamp has been impressed so very close to the spout that it is above the clay added to make the spout. Self-coloured, almost buff-grey fabric with very thick greyer core; at the end approaching the spout, the core is much darker. Inclusions: frequent, tiny, fairly well-sorted quartz with rare larger, and softer opaque, red-brown ?natural iron compounds; there could be some flint. Trituration grit: flint and quartz. Some wear.

   Context CMC; from the sinkage over shaft CML, period 6.

   The fragmentary stamps are from a die which gives MBXRV retrograde. The fabric is

typical of the finer kind produced at workshops in the Verulamium region. A.D. 110/120–40 (see Frere 1984, fig. 119 for a nearly complete drawing, and 290, no. 104).

6. Diameter = 225 mm. 630 g. Fragment with incomplete rim-section in fine-textured, slightly micaceous, self-coloured fabric, slightly yellowish-cream with very thick brownish-pink core. No trituration grit survives and it may never have had any. This will have come from the Colchester potteries, which made mortaria in this fabric and form from *c.* A.D. 150 into the early years of the third century. This could well be second-century, for a close example see Hull 1963, 119, no. 3.

   Context BDK; from the fill of shaft BBS, period 6. Pottery assemblage 21.

7. Diameter 300 mm (26 per cent rim). 630 g. Four joining sherds from a mortarium in orange-brown fabric merging to thin buff-brown core with grey inner core in the flange and at the side of the base where the clay is thickest. The clay has a high sand content giving an abrasive surface. Inclusions fairly frequent, tiny and small to medium-sized, mostly quartz with some opaque red-brown and black material. Trituration grit: entirely quartz, large and medium-sized, with very hackly fracture. There is no indication of any slip and the vessel may have been self-coloured, though a cream slip would be more likely. Heavily worn in the base.

   The partially impressed left-facing stamp is somewhat eroded, but it appears to be from one of several dies first attributed to the potter Anaus by Birley and Gillam (1948, fig. 1, nos. Bi–1Bii and 174–5, no. 1). Stamps from some of his dies read Anaus clearly but those from other dies are difficult to interpret; the one used here may give ANNAV or N, with the first and last two letters ligatured. Anaus worked mainly at Corbridge, probably within the period A.D. ± 136–60, but there is some evidence to suggest that he could have begun stamping mortaria further south in the Binchester/Catterick area within the period A.D. 120–40. This is a highly unusual mortarium to find at Verulamium and it may reasonably be assumed that it was carried there rather than purchased as a traded vessel (see Hartley 1994, 211–12, nos 4–7 for further details of this potter's work).

   Context CSC, fill over a small pit, area J, period 4–5. Pottery assemblage 29 (FIG. 81.181).

8. Diameter 280 mm (16 per cent). 150 g. A flange and spout fragment in granular greyish-cream fabric, perhaps with self-coloured slip. Inclusions: abundant, sub-rounded quartz (transparent and white) and very rare orange-brown material. The broken, partially impressed stamp preserves the top of]RC[in a stamp from the same die of Driccius as Frere 1984, fig. 118, no. 74 and 284, no. 74. Nineteen stamps from this die are recorded from the kiln area at Brockley Hill and twelve from a group of wasters at Radlett, indicating that he had workshops at both sites. Eleven other stamps are all from sites in the south-east, five of them from Verulamium (one extra mural). Stamps found at Verulamium from this and a second die (ibid., 75) are from deposits dated A.D. 130–45 and his rim-profiles fit a date within the period A.D. 100–40, but mortaria stamped with the die in question are all later than A.D. 110. The shallow, horned spout of this example is especially typical of certain potters active in the Verulamium region A.D. 120–30.

   Context BRV, rubbish in the top silt of the Ceremonial Enclosure ditch, area C, period 6. Pottery assemblage 5.

9. Diameter 420 mm (12 per cent). 330 g. Slightly granular fabric, mostly pale brown but fired to cream close to the surface. No slip apparent. Inclusions: abundant tiny quartz with rare opaque red-brown and black material. Trituration grit: few tiny fragments survive, mostly flint, some quartz, rare orange-brown. Well worn. The right-facing stamp survives, reading from the inside. This retrograde stamp appears to read ARIINT-X when complete, (II normally represents E). Arentus, if this is his name, worked at Brockley Hill (eight stamps in all) (Castle 1973, 82. MS 1–4; see also Frere 1972, 379, no. 41). Up to thirteen of his mortaria are known from Verulamium, six from London and fourteen from other sites in south-eastern England. His rim-profiles fit activity within the period A.D. 110–40.

   Context BJD, from the midden over the Ceremonial Enclosure ditch, period 7 onward. Pottery assemblage 7 (FIG. 83.246).

10. Diameter 700 mm (4 per cent). 770 g. Very hard, fine-textured matrix with abundant

inclusions, composed of sub-rounded smallish quartz and rare opaque black material. The trituration grit is composed of the same material. Surface or surface slip fired to brownish-buff. Worn.

Context BJD, from the midden over the Ceremonial Enclosure ditch, period 7 onward. Pottery assemblage 7 (FIG. 83.247).

On the flange is a *graffito* (*ante cocturam*) of a seven-petalled flower, with a centre made afterwards by impressing the end of a tube into the clay. Form and fabric make attribution to a pottery at Soller, Kr Düren in Lower Germany certain (Haupt 1984). This pottery sometimes used circular stamps and another example of a *graffito*, in the form of a spray or leaves, is known from Piercebridge. There is not enough rim surviving to show whether a name-stamp was also used. The only named potter known to work there was Verecundus II and this mortarium can be attributed to him (ibid., Taf. 181, nos 2 and 4 for identical mortaria. Also, see Frere 1984, 289, no. 100 for further details of this potter). Flanged mortaria continued to be produced there and to be imported into Britain after the practice of stamping was discontinued, but although similar in form to the stamped ones, they are often much lighter in weight; many of these could be third century (Dyson 1986, 111, 1.73–1.74).

Most of the stamps of Verecundus II have been recorded in Britain, but his work is also found in the Rhineland. He is not closely dated, but was certainly active during the second half of the second century and one stamp from Aardenburg was found in a pit believed to date to A.D. 220–25 (J. A. Trimpe Burger, pers. comm.). The full history of the potteries is still unknown, but they were certainly in production in the second and third centuries.

11. 20 g. Red-brown fabric with grey core; it may well have had a cream slip though none is visible. Inclusions: fairly frequent, tiny and small but ill-sorted, mostly quartz with rare opaque orange-brown and black material. Trituration grit: quartz and flint. This mortarium is attributable to the Verulamium region. All the inclusions are more finely fragmented than in the most granular greyish-cream fabric. The fabric was never in common use for mortaria in these potteries, at least not up to the mid-second century, though Driccius was one potter who used it at Radlett (unpublished) and in the late first and early second centuries Matugenus and others also occasionally produced a red to orange-brown version of the common granular fabric. This example is similar in form to Frere 1972, 1053 and 1054 a type common in Verulamium from the mid-second century probably until the end of mortarium production in the local potteries.

Context BJD, from the midden over the Ceremonial Enclosure ditch, period 7 onward. Pottery assemblage 7.

12. Diameter 430 mm (7 per cent) 160 g. Two joining sherds in very hard, buff- cream fabric with frequent, very tiny quartz, rare orange-brown and black and very sporadic, large orange-brown inclusions (one slag 12 mm). This is the finer cream fabric used for mortaria in the Verulamium region. The trituration grit was virtually all flint and quartz. Burnt. Other mortaria with this semi-literate stamp have been recorded from Ashton, near Oundle; Corbridge; Enfield; Gorhambury; London and Verulamium (3) (Stead and Rigby 1989, fig. 32, no. 16 and 63, M16). His work was clearly within the period A.D. 110–45.

Context AJB, the upper fill of cellar, *c.* A.D. 300. Pottery assemblage 31.

THE SAMIAN POTTERS' STAMPS

by Brenda Dickinson

Each entry gives: potter (i, ii, etc., where homonyms are involved), die, form, reading of stamp, published example (if any), pottery of origin, discussion, date excavation number. Stamps from the period 3 funerary shaft are marked *.

(a), (b) and (c) denote:

(a) A stamp attested at the pottery in question.

(b) Different stamps of the potter attested at the pottery in question.

(c) Assigned to the pottery on the evidence of fabric, distribution, etc.

Ligatured letters are underlined.

1. Advocisus 1b 80 ADVO[CISI· OF] (Dickinson 1995, 807, 137) Lezoux (b). This stamp, from one of Advocisus's earlier dies, occurs in a pit of *c.* A.D. 150–60 at Alcester (Hartley, Pengelly and Dickinson 1994, 109, S115), but the potter's record as a whole suggests that the die would not have been in use before A.D. 155. The piece in question will fall within the range *c.* A.D. 160–90. Area B, DDJ 3; burial 27.
2. Advocisus 2a 31 [A·D·VOC]ISI·O Lezoux (a). This was in common use on later second-century forms, such as 31R, 79, 80, Tg and Tx. Examples from Malton and Bainbridge should be after *c.* A.D. 160. *c.* A.D. 160–90. Area B, BEC 28. Period 6 silt in main enclosure ditch.
3. Albucius ii 4c 79/80 ALBV[CI · M] Lezoux (b). This seems to have been one of Albucius's later stamps, used on forms such as 31R, 79, 79/80 and Tg. It does not appear on form 27, which he also made, but which had gone out of general production in Central Gaul by A.D. 160 or so. *c.* A.D. 160–80. Area P2, AJS 28, fill of cellar AJS. Period 5–6.
4. Arncus 1a 33 [A]RNCIMA Lezoux (a). There are at least six examples of this stamp in a group of late Antonine samian recovered off Pudding Pan Rock, Kent (*Proc. Soc. Ant. Lond.*, 2nd Ser., 22 (1907–9), 405), all on form 33. Elsewhere, it occurs on forms such as 31R, 79 and 80. *c.* A.D. 160–200. Area C, BRV 17, silt in main enclosure ditch. Period 6.
5. Beliniccus i 11a 31 BELINIC[IM] retr. (Curle 1911, 232, 12) Lezoux (a). One of the latest stamps of a potter whose career began at Les Martres-de-Veyre under Trajan and ended at Lezoux in the Antonine period. It is common in Scotland. *c.* A.D. 135–65. Area C, BPA 1; fill of late Roman well, BPK. Period 7 or later.
6. Birrantus i 4a 31 [BIR]RANTIM Lezoux (b). Birrantus i's stamps appear in Hadrianic-Antonine groups at Lezoux. There are also several in the Rhineland, which received little, if any, Central Gaulish samian after *c.* A.D. 150. No other examples of this particular stamp are known to the present writer. The dish has very pale fabric and a tan glaze, rather mottled, perhaps through burning. A graffito, Λ or V, is inscribed under the base, after firing. *c.* A.D. 135–50. Area K, AEY 4, bone tip in AET. Period 5.
7. Borillus i 5c 33 [B]ORILLIOF (Durand-Lefebvre 1963, 49, 152) Lezoux (a). The potter stamped a wide range of forms, including 18/31R, 27, 31R, 42, 79R and 80, thus spanning much of the Antonine period. This particular stamp is known only on forms 31 (once) and 33, and has been noted twice from Newstead. Stamps from other dies occur on the Antonine Wall. *c.* A.D. 145–75. Area C, BJD 11, midden over main enclosure ditch. Period 7.
8. Boutius(?) Uncertain 1 27]OVTIVS Lezoux (c). No other examples of the stamp are known to the present writer. Another stamp, BOVTI·M, occurs four times on form 27 and once on form 33. Hadrianic or early Antonine. Area P2, ATH 2, unstratified.
9. Cambus i 5a 31 [C]ΛMBI · plus phallus Lezoux (b). Cambus i's stamps are probably all Antonine. They occur on such forms as 18/31R and (rarely) 27, both before *c.* A.D. 160/165, and 31R and 80, after *c.* A.D. 160. *c.* A.D. 140–70. Area B, BEC 36; silt in main enclosure ditch. Period 6.
10. Caratillus 3a 33 CARATIIIM Lezoux (a). There are at least five examples of this stamp, all on form 79, in the group of late Antonine samian dredged up off Pudding Pan Rock, Kent. Caratillus's decorated ware can be compared stylistically with the later work of Cinnamus ii. His range will be *c.* A.D. 150–80, therefore. Area M3, ADQ 3; sinkage over well ADN. Period 6.
11. Celsianus 2a 31 CELSI[ANI · MA] Lezoux (a). A stamp used on later second-century forms, including 31R, 79R and 80. It is attested at Wallsend and stamps from other dies occur elsewhere on Hadrian's Wall. *c.* A.D. 160–90. Area A, CMM 2; sinkage over shaft CML. Period 6.
12. Cracuna i 2a 33 (heavily burnt) [C]RACVNA·F (Hartley 1972, fig. 81, S69). This stamp is recorded from forts on Hadrian's Wall and in Antonine Scotland. There is also one in a pit of the 150s at Alcester. The die was used to stamp forms 18/31 and 27. *c.* A.D. 130–60. Area M3 ADQ 8; sinkage over well ADN. Period 6.

*13–14. Diorus 2a 27g (2) DIOR · F La Graufesenque (a). This stamp has been noted in groups of Claudio-Neronian samian from La Graufesenque (information from M. Alain Vernhet) and Narbonne, La Nautique (Fiches *et al.* 1978, fig. 4.33). It is always on cups, mainly form 24, less often on forms 27 and Ritt. 8. *c.* A.D. 45–65. Area G, DAG 8, DAP 29, vessel 10, lying on the floor of the funerary shaft. Period 3.

15. Divicatus 3a 80 DIVICATVS Lezoux (a). This was used on a wide range of forms, including 18/31, 27, 31R, 80 and Tg, and so is likely to have been in use from the early Antonine period to A.D. 160 or beyond. There are twenty examples from a pottery shop at Castleford destroyed by fire in the 140s, (Hartley and Dickinson forthcoming) but the Verulamium piece, because of its form, should be later than A.D. 160. *c.* A.D. 160–70. Area B, DDJ 2; burial 27.

16. Do(v)eccus i 13a 31 [DOII]CCVS (Stanfield and Simpson 1958, pl. 169) Lezoux (b). Do(v)eccus i is one of the latest Lezoux potters to have exported to Britain. His stamps are common on Hadrian's Wall, and this one is known from Benwell (2), Haltonchesters and Wallsend. *c.* A.D. 165–200. Area M3, ADQ 21; sinkage over well ADN. Period 6.

17. Fatalis 1a 31(?) FATA[LISF] (Ludowici 1927, 214) Rheinzabern (c). The origin of this stamp at Rheinzabern is not really in doubt, though the example from there comes from a grave, rather than from the kilns. The other stamped vessels from the grave all seem to be broadly contemporary, and they should belong to the late second century or the first half of the third century. Area P2, AJS 14; from cellar AJS. Period 5–6.

18. Flavius Germanus 9a 15/17 or 18 OFFLGE[R ·] La Graufesenque (a). The potter may have been at work slightly before A.D. 85, on the evidence of a few bowls of form 29, but this particular stamp was not used on the form. Stamps from several of his dies occur at Domitianic foundations, such as Butzbach, Cannstatt, Saalburg, Chesterholm and the main site at Corbridge and this evidence and his vessel types suggest a range *c.* A.D. 80–110, with 85-110 for Die 9a. Area R, AVA 11; fill of pit.

19. Gongius 2a 31 GONGI · M Lezoux (c). This was used to stamp forms 18/31R and 27, both made before *c.* A.D. 160/165. There is also one example on form 31R, which ought to be after A.D. 160. *c.* A.D. 140–70. Area J, CPL + 1; burial 17.

20. Granianus 2a 81 (collar) GR[ANANI] (*sic*) Lezoux (c). There is no site dating for the potter, but his range of forms, which includes 18/31, 18/31R, 31R and 79 suggests Antonine activity. This is the only record of his use of form 81, which seems to have gone out of production generally by *c.* A.D. 150. *c.* A.D. 140–50. Area 5, AIM; fill of shaft ACG. Period 6.

21. Illixo 8a 31 [·]ILLIXO · (Vanderhoeven 1975, 75, 349). This is one of Illixo's earlier stamps, noted on forms 18/31, 27 and 42. Although it is represented at Lezoux, and other vessels on which it appears are in Lezoux fabrics, there is some evidence to suggest that it was also used at Les Martres-de-Veyre. There is one example from there, though not from the kiln site, and the fabrics of several others strongly resemble those produced by its later group of potters. The Verulamium dish is one of these, being in dense, red fabric, with an orange-red glaze. Site evidence for the stamp includes Newstead (two examples, one apparently made at Les Martres) and Old Kilpatrick. Early to mid-Antonine. Area K, CVY 1; fill of late Roman gully. Period 7 or later.

22. Iustus ii 2c 33 IVSTIMA (Dickinson 1986, 190, 3.74) Lezoux (a). This stamp is also recorded on forms introduced in the mid- to late Antonine period, such as 31R, 79/80 and 80. His stamps (from other dies) occur on Hadrian's Wall and in the group of late Antonine samian found off Pudding Pan Rock, Kent. *c.* A.D. 160–90. Area C, BJD 13, midden over main enclosure ditch. Period 7.

*23. Licinus 41b rouletted dish LICINVS·FII (Durand-Lefebvre 1963, 127, 386) La Graufesenque (a). There is no site dating for the stamp itself, but Licinus's other stamps occur in a group of samian of *c.* A.D. 50–60 from Narbonne (La Nautique; Fiches *et al.* 1978, 192) and in the Second Pottery Shop at Colchester (Hull 1958, fig. 99.8). *c.* A.D. 45–65. Area G, DAG 4; vessel 5, on floor of funerary shaft, Period 3.

24. Maccalus 3a 33 MACCA[LIM] (Dickinson 1986, 190, 3.81) Lezoux (a). This occurs in

the group of late Antonine samian from Pudding Pan Rock and there are at least two examples from Housesteads. *c.* A.D. 160–200. Area C, BJD 50; midden over main enclosure ditch. Period 7.

25. Macrinus iii 7a 38 or 44 M[ACRIN]VS Lezoux (a). This is most common on form 33, but is also attested on forms 18/31, 27, 31 and (once) on a variant of form 79. Stamps from other dies are known on forms introduced in the later second century, such as 31R, 80 and the normal form 79. *c.* A.D. 150–80. Area, C, BJD 48 +, 10; midden over main enclosure ditch. Period 7.
26. Malledo 7a 31 MALLEDV (Hartley 1972, fig. 82, S141) Lezoux (b). Malledo's stamps occur at forts in northern Britain founded, or recommissioned, *c.* A.D. 160. His forms include some which were not introduced before that date, such as 31R, 79, 80 and Tx. *c.* A.D. 160-90. Area C, BJD 12; midden over main enclosure ditch. Period 7.
27. Maximinus i 4a 33 [·MAXMI]NI· (Dickinson 1986, 192, 3.121) Lezoux (b). One of the potter's other stamps is in a late second-century context at Sompting, Sussex (Ainsworth and Ratcliffe-Densham 1974, 312) and his record in general is consistent with this date. However, 4a may have been used on form 27 and, if so, should be from his earliest die. *c.* A.D. 160–90. Area C, BFW + 1; not securely stratified, on surface of Colchester road.

*28. Murranus 21a 15/17R or 18R [MVRA N]VS · F La Graufesenque (a). Although Murranus began work under Claudius, his stamps are by no means uncommon in Flavian contexts. This one, however, seems entirely pre-Flavian; it occurs in a group of *c.* A.D. 50–65 at La Graufesenque (information from M. Alain Vernhet) and this date should cover its range. Area G, DAG 6; vessel 1, lying on the floor of the funerary shaft, Period 3.

29. Paterclus ii 10a" 18/31 -ΛTERCLOSFE (Durand-Lefebvre 1963, 181, 561) Les Martres-de-Veyre (a). This is the third, and final, version of a stamp which first read PΛTERCLOSFE. It occurs in the London Second Fire groups and on the Stanegate, at Chesterholm and Nether Denton. *c.* A.D. 110–20. DLH 1. Period 7 or later.
30. Paullus iv 5a 33 [PAV]LIM Lezoux (a). This stamp occurs in a burial at Riempst (Belgium), with stamped vessels of early to mid-Antonine Lezoux potters and two stamped Banassac pieces (*Bull. De l'Inst. Liégois*, 67 (1949-50), 37ff.). It is also known from the fort at Housesteads. Most examples, including the Verulamium one, show a faint diagonal stroke between A and V, as if from a scratch on the die, but two from Straubing (Walke 1965, 287–8) do not show it, and may be from an earlier version of the die. *c.* A.D. 140–170. Area 2, AIL 2; shaft AAB. Period 5.
31. PAVLLIM on form 38 or 44. There is not enough evidence yet to show whether this stamp belongs to Paullus iv or v. Both potters worked at Lezoux in the Antonine period, and for the present no closer date than A.D. 140-200 can be suggested. Area M3, AER 1; sinkage over well ADN. Period 6.
32. Peculiaris i 2a 33 (burnt) ꝶECVLIARISF (Durand-Lefebvre 1963, 185, 574) Lezoux (a). This was used on later second-century forms, but occurs several times in Antonine Scotland, which should mean that the die was in use before *c.* A.D. 160. It is also in the Verulamium Second Fire material (Hartley 1972, fig. 82.150). *c.* A.D. 150–70. Area B, BEC 25, silt in main enclosure ditch. Period 6.
33. Peculiaris i 5a 31 ꝶECVLIAR · F (Curle 1911, 238, 72) Lezoux (a). A stamp normally found on forms not made after *c.* A.D. 160, such as 18/31, 18/31R and 27. It is known from Carzield and Newstead (2), and on form 27 from Wallsend. However, there are two examples on form 80, and these should be after A.D. 160. *c.* A.D. 140–65. Area B, BEC 35; silt in main enclosure ditch. Period 6.
34. Pinna 2a 33 PINNΛFE Lezoux (c). Dating evidence for this potter is sparse, but this stamp is recorded in a pit of the 140s at Castor. It occurs in roughly equal proportions on forms made before A.D. 160, such as 27, and after that date, such as 79/80. *c.* A.D. 135–65. Area M3, ACX 1; fill of small pit. Period 4–6.
35. Pugnus ii 2a 33 PVGИIM Lezoux (b) Pugnus ii's career appears to have been a long one, beginning under Hadrian and possibly ending as late as A.D. 180. 2a occurs in the Castleford *vicus* and is likely to be contemporary with another of his stamps, which is both in the

general *vicus* assemblage and in the burnt material from a shop destroyed in the 140s (Hartley and Dickinson forthcoming). These stamps should belong to the middle part of his career, *c.* A.D. 130–60. Area J, CPR 3; fill of late Roman gully. Period 7 or later.

36. Reburrus ii 4g 31 REBV[RRI ·]OF Lezoux (a). A stamp from one of the potter's less-common dies, without internal dating. His range of forms includes 27 (frequently) and 79 (less commonly), and this suggests early to mid-Antonine activity. The rather sparse site dating includes Croy Hill, Greatchesters and Bainbridge and his wares occur in mid-Antonine contexts at Lezoux. *c.* A.D. 140–70. Area J, CPL +; burial 17.
37. Sacirotus 1a 42 SAC[IR]°TI·MAS] Les Martres-de-Veyre (a) A stamp confined to forms 18/31 and (rarely) 27 and 42. All the dishes are Trajanic in form and there is one example in the London Second Fire material. *c.* A.D. 100–20. Area J, CXC 2; sinkage over shaft CPU. Period 6.
38. Sacrillus 3a 33 SACRILL · I · M (Dickinson 1986, 195, 3.180) Lezoux (a). This is one of the stamps in the late Antonine Pudding Pan Rock find. It also occurs at Carrawburgh and on the rim of a stamped, decorated bowl of Do(v)eccus i, one of the latest Lezoux potters represented in Britain. *c.* A.D. 160–200. Area A, BCH + 4; sinkage over shaft BBS. Period 6.
39. Senea/Senila 3a 18/31 or 31 SENII[A·F] Lezoux (c). There is some doubt about the potter's name. Senila sounds more convincing than Senea, but there is no evidence of a tail to the second I on any of the examples seen by the present writer. The stamp was used mainly on plain samian, including forms 18/31 and 27, but also appears as a mould-stamp on decorated bowls in the style of the Quintilianus i group of potters. *c.* A.D. 125–50. Area M3, ADQ 11; sinkage over well AND. Period 6.
40. Severus v 2a 18/31-31 SEVER[I · MI] Lezoux (a). There are six examples of this in a group of samian from a pottery shop at Castleford destroyed by fire in the 140s (Hartley and Dickinson forthcoming) and it occurs in Period IID (after A.D. 150) at Verulamium (Hartley 1972, fig. 82, S124). One of his other stamps is in the Birdoswald Alley find, which means that he began work under Hadrian. *c.* A.D. 130–55. Area C, BJD 52; midden over main enclosure ditch. Period 7.
41. Suobnus 2b 18/31–31 SVOBNI·[M] Les Martres-de-Veyre (a). Suobnus was one of the later potters at Les Martres. Stamps from several of his dies occur in Antonine Scotland, and this particular one is known from Mumrills and Newstead. *c.* A.D. 135–55. Area C, BJD 53 – ; midden over main enclosure ditch. Period 7.

*42. Vapuso 6a 24 VAPVSO (Glasbergen 1955, 145, 343) La Graufesenque (a). A stamp of a Tiberio-Claudian potter, noted on form Ritt. 5 and in a context of *c.* A.D. 50–65 at La Graufesenque (information from M. Alain Vernhet). *c.* A.D. 30–55. Area G, DAG 7; vessel 13; lying on floor of funerary shaft. Period 3.

43. XIIXII on form 33, Central Gaulish. Antonine. Area C, BJD 6; midden over main enclosure ditch. Period 7.
44. M[or N[on form 18/31-31, Central Gaulish. Hadrianic or early Antonine. Area J, CPN; late Roman surface. Period 7 or later.
45.]I · M on form 18/31 or 31, Central Gaulish. Hadrianic or early Antonine. Area M2, ABE; fill of shaft ABC. Period 5.
46. · IV[(?) on form 31, Central Gaulish. Early to mid-Antonine. Area J, CPN; on late Roman surface. Period 7 or later.
47.]IM on form 33 (burnt), Central Gaulish. Antonine. Area B, BEC 27; silt in main enclosure ditch. Period 6.
48.]VD[,]VP[,]VR[or]VO[on form 31, Central Gaulish. Antonine. Area B, DHV; fill of shaft CML. Period 5.
49.]AC? on form 18/31R, East Gaulish, probably from Chémery-Faulquemont. Hadrianic or Antonine. Area B, CYL 1; burial 27.
50. (Studied from a drawing) Butrio 1a 37 BVTRIO (Walke 1965, Taf. 39, 8) Lezoux (a). Decorated bowls with this mould-stamp are mainly Hadrianic, but the few examples from Scottish forts suggest the die was still in use in the 140s. The stamp also occurs on a burnt

bowl from the Castleford vicus which is likely to have been a casualty of the early Antonine fire in the pottery shop there (Hartley and Dickinson forthcoming). *c.* A.D. 125–45, ADW, fill of pit ADR. Post-medieval.

Discussion

The vessels from the filling of the funerary shaft (marked *) form a homogeneous group, deposited in the late Claudian or early Neronian period, *c.* A.D. 50–55.

The remainder of the stamps range from the mid-Flavian period to the late second century, with the possibility of one early third-century piece. The majority are on Antonine vessels from the Central Gaulish factory of Lezoux, many of them after A.D. 160. There is also one South Gaulish stamp from La Graufesenque and two of the Central Gaulish pieces were made at Les Martres-de-Veyre. East Gaul is represented by two stamps, one from Rheinzabern, the other probably from Chémery-Faulquemont.

The stamps from the 1974 excavation of the Branch Road bath house (submitted by the excavator, Christopher Saunders) are all second-century or later. They show a similar bias towards the second half of the second century, though they, too, include some potentially Hadrianic material. Four of the potters involved are represented at Folly Lane, but, with one exception, the stamps are from different dies.

It would not be impossible for the Antonine stamps from the two excavations to represent a single assemblage, but neither site has produced enough material for reliable comparison.

THE DECORATED SAMIAN (FIG. 84)

by Joanna Bird

Summary

Apart from the stamps from the Funerary Shaft, the stamps and the decorated samian ware show a similar distribution in date. Excluding the small fragments listed under nos. 5 and 49 (below) and the roulette decorated Dr. 30R (no. 10), there are fifty-two pieces of mould-decorated samian from Folly Lane. All but two of these (nos. 27 and 30, both Dr. 30) are bowls of form Dr. 37. The six bowls from South Gaul (La Graufesenque) are all of Flavian date and probably after *c.* A.D. 80; of these only no. 15 can be attributed, to a potter following the style of Germanus. The Central Gaulish potteries at Les Martres-de-Veyre were the source of a further six pieces; apart from a single bowl of Cettus (no. 18) these are all of early second-century date, and include an apparently new design for Igocatus (no. 11). Thirty-eight bowls (73 per cent of the total) come from the Central Gaulish workshops at Lezoux, and date from the Hadrianic to late Antonine period. They include a near complete bowl with a mould-stamp of Butrio (no. 31) and a sherd from a signed mould of Cassia (no. 8). The only potters present in any quantity are the Sacer-Attianus-Cinnamus group (up to ten bowls) who are normally the most numerous in a typical second-century assemblage; their pots include one with an unusual panel of stags, using complete and partial impressions of the figure-type (nos. 20 and 39). Later Antonine vessels include single bowls of Paternus II, Advocisus, Iullinus and Casurius. East Gaulish wares are represented by only two bowls (nos. 24 and 45), both from Rheinzabern and both probably dating from the early to mid-third century.

Abbreviations

Oswald = figure-types from Oswald 1936–7
Rogers = motif types from Rogers 1974
S and S = Stanfield and Simpson 1958

Catalogue of decorated samian sherds

1. Dr. 37, Central Gaul. There are links with the work of Sacer, who used similar leaf-tips (S and S, pl. 83, no. 9) and the left-hand bird (pl. 83, no. 11). A similar band of small

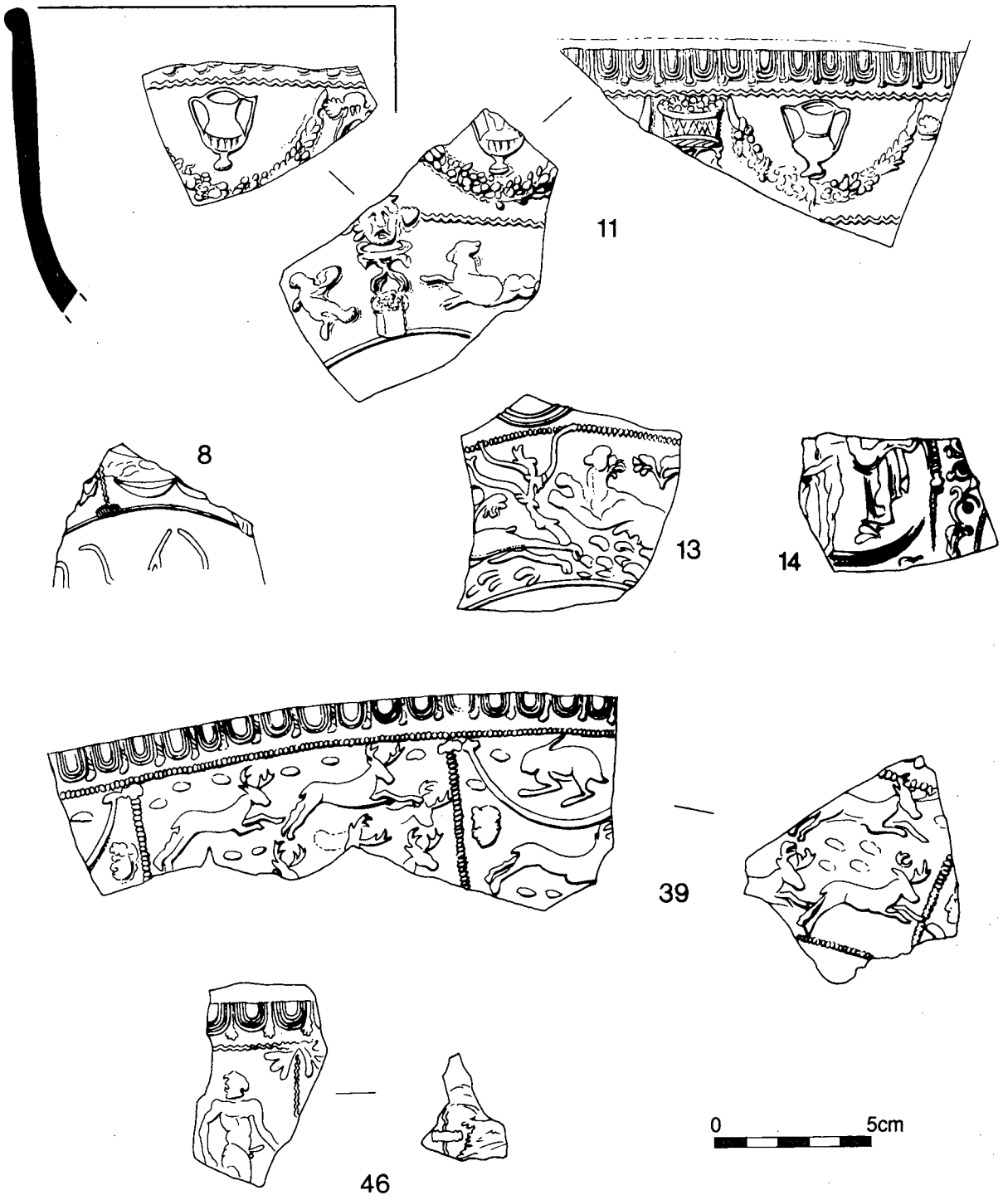


FIG. 84. The decorated samian.

festoons containing birds, but double festoons with pendants, is on pl. 82, no. 6. For the motif beneath, cf. perhaps the bear on pl. 84, no. 16. *c.* A.D. 125–50. Slightly burnt. Levelling in the Ceremonial Enclosure ditch (context BTZ, period 5/6).

2. (Three joining sherds) Dr. 37, probably in the style of X-5 of Lezoux. The wavy-line borders and small corded terminal are on S and S, pl. 67, no. 1; the incomplete leaf is not certainly identifiable from Rogers. *c.* A.D. 125–50. Fill of late Roman gully, area L (context CZF).
3. Dr. 37, Central Gaul. The fine beads were shared by several Hadrianic-early Antonine potters; the figure is Neptune, Oswald 13. Fill of late Roman gully, area L (context CZF).
4. Dr. 37, Central Gaul. Broken rosette-tongued ovolo, wavy-line borders, double festoon. Hadrianic-early Antonine. Fill of late Roman gully, area L (context CZF).

5. Three fragments of Central Gaulish Dr. 37 bowls, including one with a panel design, acanthus and astragalus. Hadrianic-Antonine. Fill of late Roman gully, area L (context CZF).
6. Dr. 37, South Gaul. Heavy wreath festoon. Flavian. Sinkage over shaft DKM (context DKK). Period 4.
7. (Two joining sherds) Dr. 37 in the style of Drusus I ('X-3') of Les Martres-de-Veyre. Similar scrolls, but with the spirals terminating in rosettes, are on S and S, pl. 13, nos. 167–8; the little motif in the field is on pl. 13, no. 166. The wreath above is probably composed of his 'anchor' motif, as pl. 13, no. 157. *c.* A.D. 100–25. Sinkage over shaft DKM (context DKK). Period 4.
8. Dr. 37, Central Gaul, signed CASS[retrograde below the decoration. Brenda Dickinson comments that the size of the letters indicate that the signature originally read CASSI, as on Stanfield and Simpson 1990, pl. 174, no. 5. This is probably the same potter who signed moulds CASSIA OFFI (pls. 146, no. 2; 171, nos 6–7). The condition of the letters indicates that they were probably incised when the mould was already dry, or even after firing. The large leaf has no exact parallel in Rogers, but cf. the one on the signed bowl, pl. 171, no. 7. The corded motif was similarly used as a terminal by X-5 (S and S, pl. 67, nos 1–7). *c.* A.D. 130–50. Sinkage over shaft DKM (context DKK). Period 4. (FIG. 84.8).
9. Dr. 37, Central Gaul. Scroll design with a leaf (too incomplete to identify) on a tendril. Hadrianic-Antonine. Sinkage over shaft DKM (context DKK). Period 4.
10. (Three joining sherds) Dr. 30R, probably made at Les Martres-de-Veyre: cf. Terrisse 1968, fig. 6, bottom right. Probably Hadrianic. Sinkage over shaft DKM (context DKK). Period 4.
11. (Six sherds, two of them joining) Dr. 37 in the style of Igocatus ('X-4') of Les Martres-de-Veyre. The ovolo, sharp wavy-line borders and little beaded cup motif are shown with the elaborate basket and mask ornament on S and S, pl. 17, no. 222. The crater is on pl. 18, nos 230 and 232, the little figure on pl. 18, no. 228, and the sea-beast on pl. 17, no. 217. It is likely that the basket ornament and the festoon alternated round the pot, but in at least one place, perhaps because of the narrower space available, the basket has been replaced by a small figure holding a mask and standing on a pedestal (pl. 17, no. 207). The floral festoon (Rogers F21) is not recorded for Igocatus but occurs on bowls of two contemporary Martres potters, Drusus I and X-2. *c.* A.D. 100–25. Rather damaged at the bottom, perhaps on removal from the mould. Sinkage over shaft ABT (context ABS). Period 4. (FIG. 84.11).
12. Dr. 37, Central Gaul. Broken ovolo. Early second century. Fill of shaft AAE (context AIJ). Period 5.
13. Dr. 37 in the style of Sacer-Attianus of Lezoux. The vine-stock, which here has added twigs, is on S and S, pl. 85, no. 9, by Attianus; this also has the leaf-tips. The added twigs are on a bowl by Sacer, pl. 83, no. 10. The female panther is on pl. 6, no. 15, by Attianus, with a different large stag; this stag may be Oswald 1805. The beads and similar small medallions are on pl. 86, no. 10; the leaf-spray in the field may be the top of Rogers N16, which is recorded for Sacer. *c.* A.D. 125–50. Fill of shaft AAE (context AIJ). Period 5. (FIG. 84.13).
14. Dr. 37, Les Martres-de-Veyre. The ovolo is probably one used by X-9 ('Medetus-Ranto'), rather unevenly impressed. *c.* A.D. 110–30. Fill of shaft ABZ (context AIK). Period 5. (FIG. 84.14).
15. Dr. 37, South Gaul. This particular trident-tongued ovolo and the lion (cf. Hermet 1934, pl. 25, no. 15) indicate a potter working after the style of Germanus. *c.* A.D. 80–100. Fill of gully linking sinkages over shafts AAB and ABZ (context ACA). Period 5.
16. Dr. 37 in the style of Cinnamus of Lezoux. Freestyle design with animals, including a bear (S and S, pl. 163, no. 66); the others are probably a stag to right (cf. pl. 163, no. 66) and a second stag to left. The leaf-tips are on pl. 163, no. 71. *c.* A.D. 145–75. Fill of shaft CTY (context CUD). Period 5–6.
17. Dr. 37, South Gaul. Animal and foliage motif. Flavian. Lower fill of sinkage over shaft ABE (ABC). Period 5.

18. (Two sherds) Dr. 37 in the style of Satus/Cettus (the 'Small S Potter') of Les Martres-de-Veyre. The S-scroll and beaded borders are on S and S pl. 144, no. 55; the figure is Vulcan, Oswald 66, the other motif is not identifiable. *c.* A.D. 135–65. Lower fill of sinkage over shaft ABE (context ABC). Period 5.
19. Dr. 37, Central Gaul. Scrollery, probably. Hadrianic-Antonine. Lower fill of sinkage over shaft ABE (context ABC). Period 5.
20. See no. 39 below. From fill of shaft ASK (context APF). Period 6.
21. Dr. 37 in the style of Criciro of Lezoux. A large beaded medallion (Rogers E2) contains two erotic figure groups, Oswald M at left and Oswald H at right, and a leaf spray. The medallion, leaf (cf. S and S, pl. 118, no. 15) and vertical scroll (Rogers M50) were all used by Criciro, who is recorded as using other erotic figure-types (S and S pl. 117, no. 4). *c.* A.D. 135–65. Fill of shaft CML (context DHV). Period 5–6.
22. Dr. 37, Central Gaul. Panel design, including a double medallion with astragalus and borders of slightly squared beads. Antonine. Fill of shaft CML (context DHV). Period 5–6.
23. Dr. 37, Central Gaul. The ovolo, Rogers B223, was used with similar beads by Cinnamus (S and S, pl. 162, no. 58). *c.* A.D. 150–80. Fill of sinkage over shaft BBS (context BCH+). Period 6.
24. Dr. 37, Rheinzabern. The ichneumon (Ricken and Fischer 1963, T172) and the crane (T213) were both used by potters of the Cerialis group and by Julius II-Julianus I and associated potters. They were used together in the same arrangement on a Julius II-Julianus I bowl (Ludowici and Ricken 1948, Taf. 212, no. 25). The fabric suggests a date in the first half of the third century. Fill of sinkage over shaft BBS (context BCH+). Period 6.
25. Dr. 37, Central Gaul. Lion, Oswald 1450, used by Sacer, Attianus and Criciro and later by Cinnamus, with an astragalus in the field. The fabric and slip suggest the earlier potters. Hadrianic-early Antonine. Fill of sinkage over shaft BBS (context BDG). Period 6.
26. Dr. 37, Central Gaul. The ovolo is Rogers B28; the ovoid beads suggest one of its later users, such as Censorinus. Antonine. Fill of sinkage over shaft BBS (context BDG). Period 6.
27. (Seven joining sherds) Dr. 30 in the style of Iullinus of Lezoux. The ovolo and corded border are shown with a similar saltire of astragalus beads and corded motifs on S and S pl. 127, no. 27. The next panel probably contains a medallion (as pl. 127, no. 29) above a second, horizontal, saltire. *c.* A.D. 160–90. Sinkage over shaft CML (context CMM). Period 5-6.
28. Dr. 37, Central Gaul. Panel design, including a double medallion. Antonine, probably. Fill of sinkage over well ADN (context AEX). Period 6.
29. Dr. 37, South Gaul. Panels, including a cupid (Hermet 1934, pl. 18, no. 42). Flavian. Sinkage over well ADN (context AEY). Period 6.
30. Dr. 30, South Gaul. Blurred ovolo, coarse scrollery. *c.* A.D. 80–100. Pit CNZ (context CRY). Period 5.
31. (Studied from a drawing) Near-complete Dr. 37 with a mould-stamp of Butrio of Lezoux (see stamps report no. 50). The panel design comprises eight panels each containing a cupid above a band of four rings, alternating with eight panels containing taller figures. The cupids, one kneeling (Oswald 440) and one seated (Oswald 444), alternate round the bowl, each one appearing four times. The other figures are: a seated Jupiter (Oswald 4), a seated Apollo (Oswald 94 or a slightly larger variant), Venus with an altar (Oswald 323), a nude man (Oswald 673), Hercules leading Cerberus (Oswald 792), and Apollo, Venus and the nude man repeated. All the figures except Oswald 440 are recorded in S and S for Butrio, and all but Oswald 444 were shared with Libertus. The masks alternating at the top of the borders are on S and S, pl. 58, no. 659, the ovolo, basal wreath and borders of wavy lines and rhomboid beads on pl. 58, no. 660. The band of rings is not shown in S and S. *c.* A.D. 125–45. Fill in pit ADR (context ADW). Post medieval.
32. Dr. 37, Central Gaul. The ovolo, Rogers B7, was used by Attianus. Hadrianic-early Antonine. Tip of bones in top of shaft AET (context AES). Period 5.

33. Dr. 37, Central Gaul. Panel design, including a narrow one with a ring at the base. Hadrianic-Antonine. Tip of bones in top of shaft AET (context AES). Period 5.
34. Dr. 37 in the style of Divixtus of Lezoux. The ovolo, beaded border, ring terminal and caryatid are on S and S, pl. 116, no. 8; a separate unidentifiable motif has been impressed above the caryatid's head. *c.* A.D. 145–75. Tip of bones in top of shaft AET (context AES). Period 5.
35. Dr. 37 in the style of Advocisus of Lezoux. The ovolo and borders are on S and S pl. 112, no. 8, the ring on pl. 112, no. 5, the scroll on pl. 112, no. 12, and for the astragalus cf. pl. 113, no. 26. *c.* A.D. 160–90. Tip of bones in top of shaft AET (context AES). Period 5.
36. Dr. 37, Central Gaul. Warrior, Oswald 161, and tripod, Rogers Q7, used by several potters. The fabric and fine beads suggest a Hadrianic-early Antonine date. Fill of cellar AKH (context AME). Period 5–6.
37. Dr. 37, probably in the style of X-5 of Lezoux. He used the 'cushion' in a similar medallion (S and S, pl. 67, no. 8); the motif next to the astragalus may be the pinnate leaf on pl. 67, no. 4. *c.* A.D. 125–50. Fill of cellar ALC (context AJS).
38. Dr. 37, Central Gaul. Broken ovolo. Hadrianic-early Antonine probably. Fill of cellar ALC (context AJS). Period 5–6.
39. (Eight sherds, including one from shaft ASK, three of them joining) Dr. 37 in the style of Cinnamus of Lezoux or an associated potter, with the ovolo shown on S and S, pl. 159, no. 23. The wide panels of repeated stags (Oswald 1723, recorded on bowls in Cinnamus' style), here both completely and partially impressed, are unusual. For the leaf-tip in the background, cf. S and S, pl. 163, no. 71, which also has the festoon in the flanking panels. One festoon contains a large hare, probably Oswald 2119, rather than Oswald 2116 which is recorded for Cinnamus. The little mask is closest to Oswald 1234. *c.* A.D. 150–70. Fill of cellar ALC (context AJS). Period 5-6 (FIG. 84.39). One sherd joins with sherd 20 from shaft APF. Period 6.
40. (Two joining sherds) Dr. 37, South Gaul. Panel design, including a saltire of wavy lines with berries and trifid motifs: for the saltire and trifids, cf. Hermet 1934, pl. 86, no. 14. *c.* A.D. 80–100. Top fill of pit AAG (context AAJ). Period 6.
41. Dr. 37 in the style of X-6 of Lezoux. The small double medallion and the mask are on S and S, pl. 75, no. 18, in a different arrangement; the basal wreath is on pl. 76, no. 23. *c.* A.D. 130–55. Fill of pit CYG (context CYL) cut through burial 27. Period 6–7.
42. (Three joining sherds) Dr. 37 in the style of Cinnamus of Lezoux. The ovolo is on S and S, pl. 160, no. 41, the scrollery on pl. 162, no. 60, and similar leaf-tips on pl. 163, no. 66. *c.* A.D. 145–75. Burnt. Fill of pit AQH (context APR). Period 6–7.
43. (Eight sherds, probably all one vessel) Dr. 37, Central Gaul. The surface is abraded but the ovolo is probably one of the ring-tongued series, suggesting links with such potters as Paternus II and Advocisus. The figure may be the cupid on S and S, pl. 114, no. 36. Mid- to late Antonine. Fill of pit AQH (context APR). Period 6–7.
44. Dr. 37, Central Gaul. The ovolo is too abraded to identify. Antonine. Fill of pit AFL (context AEL) area P. Period 6.
45. Dr. 37, Rheinzabern. The rosette is probably Ricken and Fischer 1963, O95 (recorded for Augustinus I), incompletely impressed, the double medallion is close to K23, but perhaps slightly larger. The fabric suggests a date in the first half of the third century, and probably in the second quarter. Fill of pit AFL (context AEL). Period 6.
46. (Three sherds) Dr. 37 in the style of X-6 of Lezoux. The ovolo, borders and trifid motif are on S and S, pl. 75, no. 19, the astragalus across the border on pl. 75, no. 21, and the leaf on pl. 75, no. 22. The Pan is Oswald 717, the horns on its head not impressed. *c.* A.D. 130–55. Fill of pit DDA. Period 5–7 (FIG. 84.46).
47. (Two joining sherds) Dr. 37 in the style of Cinnamus of Lezoux. For the double arcade on the caryatid, cf. S and S, pl. 161, no. 50, which also has the ovoid beads and the figure of Pan; the astragalus is on pl. 160, no. 41. *c.* A.D. 150–80. Fill of pit DDA. Period 5–7.
48. (Six sherds, probably all one vessel) Dr. 37 in the style of Casurius of Lezoux, with his

characteristic large square beads. The ovolo is on S and S, pl. 133, no. 14, the figure of Minerva on pl. 134, no. 29, that of Diana and the hind on pl. 133, no. 20, the hare on pl. 132, no. 11 and the festoon on pl. 134, no. 31; the other motifs are not identifiable. *c.* A.D. 165–200. Fill of pit DDA. Period 5–7.

49. Fourteen Central Gaulish fragments, probably all from Dr. 37 bowls. They include one with what is probably the ovolo Rogers B223, used by Cinnamus and Casurius, and one with ring and astragalus motifs. Mainly Antonine, probably. Fill of pit DDA. Period 5–7.
50. Dr. 37 in the style of Cinnamus of Lezoux. The satyr and ovoid beads are on S and S, pl. 158, no. 21. *c.* A.D. 150–80. Fill of posthole in area L (context DCP). Period 7 or later.
51. (Two sherds) Dr. 37 in the style of X-13 ('Donnaucus') of Les Martres-de-Veyre. The rings replacing an ovolo, beaded rosette, fine bead borders and small stag are on S and S, pl. 45, no. 524, the rings, borders, rosettes and festoon on pl. 45, no. 521. The tendrils at the bottom probably carry the leaf on pl. 44, no. 509; the motifs in the next panel probably include the larger double medallion on pl. 47, no. 556. *c.* A.D. 100–25. Late Roman surface in area J (context CPP). Period 7 or later.
52. Dr. 37, Central Gaul. Fine wavy-line border; the other motifs include a small ring. Hadrianic-early Antonine. Late Roman surface in area J (context CPP). Period 7 or later.
53. (Two sherds) Dr. 37 in the style of Drusus II of Lezoux. The ovolo and beads are on S and S, pl. 89, no. 9, the acanthus on pl. 89, no. 10. *c.* A.D. 125–50. From late Roman surface area J (context CPN). Period 7 or later.
54. Dr. 37, Central Gaul. Broken ovolo, beaded border. Hadrianic-Antonine. From late Roman surface area J (context CPN). Period 7 or later.
55. Dr. 37 in the style of Paternus II of Lezoux. Freestyle bowl with corded motifs in the field, as S and S, pl. 106, nos 21–2. The animals are probably a female panther, Oswald 1546 (assigned to Paternus II), and the goat on pl. 106, no. 22. *c.* A.D. 160–90. Fill of pit CXK (context CXL). Period 5–6.
56. Dr. 37, Central Gaul. Broken ovolo, probably one of the ring-tongued series such as Rogers B105. Antonine. Fill of pit CXK (context CXL).

THE PLAIN SAMIAN FROM THE LOWER SLOPE

by Malcolm Lyne

The Folly Lane excavations produced large amounts of samian which, excluding complete vessels from burials, had a cumulative rim sherd percentage equal to more than fifty pots. Of this figure, the equivalent of 1.93 vessels were from bowls and dishes of indeterminate types and is disregarded here. A few pre- Flavian sherd fragments from Area G within the enclosure are also omitted as are the similarly dated samian vessels from the primary burial. This pre-Flavian samian is dealt with elsewhere in the report (p. 192).

Amounts of samian varied from area to area: the largest assemblage comes from the enclosure ditch and is 37.3 per cent of all the samian from the site. The 1993 Areas M and P along the Colchester Roman road produced significant percentages of 12.7 per cent and 11.5 per cent respectively, whereas amounts from Areas A (5.2 per cent), G (0.6 per cent), H (0.2 per cent), J (6.2 per cent), K/5A (5.6 per cent) and L (9.9 per cent) are much smaller.

The late first-century samian from Folly Lane, excluding that from the primary burial, forms less than 6.0 per cent of the samian retrieved from the excavations and is all Flavian in date (TABLE 30). Both La Graufesenque and Montans samian are represented, with the bulk of the vessels coming from La Graufesenque.

By far the most common form is the Dr. 18 dish, which accounts for more than 50 per cent of all the samian wares arriving on site during this period. Cup forms account for more than a fifth of such pottery and are interesting in that the majority appear to be from Montans. Decorated *terra sigillata* forms make-up a very significant portion of the assemblage.

The majority of the areas at Folly Lane have considerably less South Gaulish samian than its overall 5.6 per cent share of all the samian pottery: some excavated areas, such as Areas M2, M3 and L had none at all and the Ceremonial Enclosure ditch fills in Areas B and C had a

TABLE 30. LATE FIRST-CENTURY PLAIN SAMIAN FROM FOLLY LANE (*c.* A.D. 70–100)

Form	La Graufesenque EVE	Montans EVE	Total EVE	%	
Dishes					
18	1.41	0.07	1.48	54.4	
18/31	0.07		0.07	2.6	57.0%
Bowls					
35/36	0.14		0.14	5.1	
Curle 11	0.15		0.15	5.5	
15		0.08	0.08	2.9	13.5%
Cups					
27	0.20	0.15	0.35	12.9	
33	0.02	0.22	0.24	8.8	21.7%
T/S bowls					
29		0.01	0.01	0.4	
37	0.20		0.20	7.4	7.8%
Total	2.19	0.53	2.72		
	80.5%	19.5%			

TABLE 31. EARLY SECOND-CENTURY PLAIN SAMIAN FROM FOLLY LANE (*c.* A.D. 100–65)

Form	Martes EVE	Lezoux EVE	East Gaul EVE	Total EVE	%	
Dishes						
18/31	0.35	8.34		8.69	56.6	56.6%
Bowls						
35/36		0.71	0.14	0.85	5.5	
42		0.35		0.35	2.3	
Curle 11		0.27		0.27	1.8	
46/Curle 11		0.23		0.23	1.5	11.1%
Cups						
27	0.17	2.56	0.62	3.35	21.8	
33		0.22		0.22	1.4	23.2%
T/S bowls						
30	0.73			0.73	4.8	
37	0.53	0.12		0.65	4.2	9.0%
Total	1.78	12.80	0.76			
	11.6%	83.4%	5.0%			

mere 0.6 per cent. Area A, however, had a very high 40.7 per cent South Gaulish samian, perhaps associated with the late first-century cemetery in this part of the site. Area K also had a rather high 18.5 per cent, perhaps for the same reason. The reason for the high South Gaulish samian figure of 17.3 per cent for Area J may be different, however, and due to early industrial

activity there. The South Gaulish form breakdown for Area J also differs from that elsewhere at Folly Lane in being dominated by cups. The Montans examples all came from there.

The A.D. 100–65 dated samian consists largely of Central Gaulish Lezoux products, although there are significant amounts of Trajanic and Hadrianic Martres-de-Veyre ware (TABLE 31). The first East Gaulish products made their appearance around the mid-second century.

The form percentages are remarkably similar to those for the previous period. Dishes continue to make up more than half of all the pottery and cups just under a quarter. The Martres-de-Veyre forms from the site suggest that the samian supply from that source placed special emphasis on decorated vessels. There is known to have been a sharp decline in samian supply to Britain following on the collapse of the South Gaulish industry and a resultant failure by surviving producers elsewhere to meet demand. There was a great surge in British production of colour-coated, glazed and mica-dusted finewares to compensate for this samian shortage. The increase in British fineware production did not extend in any significant way to *terra sigillata* type products, the demand for which the Martres kilns may have continued to attempt to meet.

TABLE 32. LATE SECOND-CENTURY PLAIN SAMIAN FROM FOLLY LANE (*c.* A.D. 165–200)

Form	**Lezoux EVE**	**East Gaul EVE**	**Total EVE**	**%**	
Dishes					
31	6.86	2.51	9.37	31.0	
31R	0.59	0.03	0.62	2.1	
32	0.05	0.11	0.16	0.5	
79/80	0.47	0.36	0.83	2.7	36.3%
Bowls					
35/36	1.67		1.67	5.5	
38	1.69	0.17	1.86	6.2	
44		0.23	0.23	0.8	
46	0.07		0.07	0.2	
81	0.15		0.15	0.5	
Lv. Tx		0.17	0.17	0.6	
Lv. Tx		0.05	0.05	0.2	
Lv. 13		0.59	0.59	2.0	
Curle 23	0.05		0.05	0.2	16.2%
Cups					
33	9.87	1.53	11.40	37.7	37.7%
Mortaria					
45		0.19	0.19	0.6	0.6%
T/S Bowls					
37	2.12	0.67	2.79	9.2	9.2%
Total	23.59	6.61	30.20		
	78.1%	21.9%			

The samian supply during the period 165–200 is marked by a considerably greater variety of forms arriving at Folly Lane, both from Lezoux and the Rheinzabern and Trier kilns of the East Gaulish industry (TABLE 32). The pattern of supply also changed: there was a decrease in the percentage of dishes and a corresponding increase in that of cups. As a result, very similar amounts of both vessel types are present in the Folly Lane material (36.3 per cent and 37.7 per cent respectively). *Terra sigillata* continued to form only a small fraction of all samian imports.

The period of time spanned by this table covers two major periods of samian supply to Britain: the Lezoux dominated late second century and the early third century after the collapse of the Central Gaulish industries, when only East Gaulish wares were imported. Much of the East Gaulish samian from Folly Lane could well be early third century in date and a few very chalky Trier pieces most certainly are. The majority of the East Gaulish samian is, however, from long-lived forms and cannot be easily subdivided between the two periods. What this means is that the Central Gaulish share of the late second-century samian market would in reality have been well above the 78.1 per cent quoted and the East Gaulish share correspondingly lower during that period. East Gaulish samian importation during the early third century was on nothing like the scale of samian supply during the Antonine period and it is probable that less than half of the East Gaulish material in TABLE 32 above belongs to the period after 200.

THE AMPHORAE FROM THE LOWER SLOPE

by D. F. Williams

The amphorae assemblage from the remainder of the site (TABLE 33) is dominated by the Baetican olive oil container Dressel 20, even when one makes allowance for the propensity of this globular-shaped, thick-walled vessel to fracture into many pieces (Peacock and Williams 1986, Class 25). Dressel 20 accounts for well over 90 per cent of both weight and sherd count and follows the usual pattern of this form, being the most common amphora found on the majority of Romano-British towns, as well as many other types of site (Williams and Peacock 1983; Carreras forthcoming). On the evidence of the sixteen rims present, most of this material probably arrived during the period from the latter part of the first century A.D. to the end of the second century A.D., with the majority perhaps arriving in the second half of the second century A.D. Using the Dressel 20 rim typology established at the well-dated site of Augst (Martin-Kilcher 1987), five of the Folly Lane rims can probably be dated to the period A.D. 70–110 (AJB/cellar AJS; cesspit ABR/ABQ; the causeway over the Iron Age ditch, BEB; shafts ACG, BBS/BCH), three to A.D. 110–50 (shaft ABC; the upper silt in the enclosure ditch, BEC and the fill of a late Roman gully in area J, CPR) and eight to A.D. 150–210, two from the silt on the hollow-way in area P, AGP; the upper silt in the enclosure ditch, BET, BEC and BRV; and the late Roman well BPK. This evidence falls nicely into place with a survey of Dressel 20 finds from a variety of sites in Roman Britain, which showed that the period of greatest importation of Baetican olive oil was during the second half of the second century A.D. (Williams and Peacock 1983).

In contrast to the Dressel 20 finds, the number of sherds belonging to potential wine amphora from these same deposits are noticeably fewer, accounting for only just over 4 per cent by sherd count of the total assemblage. The majority of this material, including part of a rim, is made up of the thin-walled, flat- bottomed amphora form from southern France, Gauloise 4 (Peacock and Williams 1986, Class 27). The Folly Lane vessels were almost certainly imported some time between the latter part of the first century A.D. and the early fourth century A.D. (Laubenheimer 1985).

Three small plain bodysherds, one with the beginnings of a handle stump, probably belong to the Dressel 2-4 type of amphora, of a similar form to those found in the Funerary Shaft and burial pit, although in this case in different fabrics. This form of amphora was produced in many different centres and had a relatively long life, for it was still being produced in Italy at the beginning of the third century A.D. (Freed 1989). However, Dressel 2–4 amphorae found in Roman Britain seem to have arrived mostly in the first and to some extent early second century A.D.

Also in this wine-amphora group are ten thinnish-walled plain bodysherds in the distinctive 'black sand' fabric, commonly associated with production in the region around the Bay of Naples in southern Campania, and in this case probably also belonging to the Dressel 2–4 form (Peacock 1977; Peacock and Williams 1986, Class 10 Campanian fabric). Because of this location, it seems likely that production of 'black sand' Dressel 2–4 amphorae must have been severely disrupted by the Vesuvian eruption of A.D. 79, when much of the area around the Bay of Naples was adversely affected (Widemann 1986). This suggests a pre-A.D. 79 date for the arrival of these sherds at Folly Lane.

The 'black sand' fabric was also used for a later, almond-rimmed Campanian amphora type, that seems to have been imported into Roman Britain in limited numbers during the period from the mid-third century A.D. to the mid-fourth century A.D. (Arthur and Williams 1992). However, to date finds of this amphora form have tended to come from military sites, mainly in the north of the country. It seems on balance, therefore, more likely that the Folly Lane 'black sand' sherds belong to the earlier Dressel 2–4 form.

Six very hard, thin, reddish-orange to dark grey ribbed bodysherds, all belonging to the same vessel, suggest a late Roman eastern Mediterranean source. Palestinian amphorae have previously been recognized from St Albans (VER 57 Y X (3) and C87 ABV 7) and a similar origin is a possibility for this vessel, in which case it may well have carried the wine of the region. Only nine sherds belonging to southern Spanish 'garum' amphora are present, two of which are in a fabric associated with production in the Cadiz region (A91/A BCC). It is difficult to identify the exact forms present here, though these are probably to be found amongst Classes 16 to 19, arriving during the first two centuries A.D. (Peacock and Williams 1986). A large hollow spike from one of the small carrot amphora types was recovered, which can probably be dated to the first century A.D/early second century A.D. (ibid., Class 12). A recent find from Carlisle of a carrot bodysherd containing a *titulus pictus* may help to shed some light on the source of this unusual amphora form (Tomlin 1992). A reading of this inscription suggests that the vessel may well have been carrying the fruit of the doum palm, which seems to point to an origin in Egypt (ibid.). However, to the best of the writer's knowledge no actual finds of carrot amphorae have been found in Egypt or in the surrounding countries.

A small number of plain bodysherds could not be identified and have been left undesignated.

TABLE 33. AMPHORAE FROM THE LOWER SLOPE

	% by weight		% by count	
Dressel 20	99,384 g	97.3%	1,488	94.1%
Gauloise 4	1,232 g	1.3%	49	3.1%
'Black sand'	268 g	0.3%	10	0.6%
Dressel 2–4	141 g	0.1%	3	0.2%
Southern Spanish	234 g	0.2%	9	0.6%
Carrot	85 g	–	1	–
?Palestine	39 g	–	6	0.4%
Undesignated	822 g	0.8%	16	1.0%
Totals	102,205 g		1,582 sherds	

THE SAXON POTTERY

by Malcolm Lyne

Introduction

The site at Folly Lane produced small amounts of Saxon pottery, indicating slight occupation of a somewhat ephemeral nature, and perhaps associated with agricultural activities.

The fabrics

The following Saxon fabrics were identified on the site:

S.1. Friable brown-black hand-made fabric with numerous elongated vesicles and occasional sand grains. The vesicles were created by the burning-out of organic temper, possibly grass, chaff or the organic content of cow dung as suggested by Farley (1976).

S.2. Brown-black hand-made fabric with profuse fine quartz-sand, some mica and occasional up-to 2.00 mm rounded milky quartz inclusions. An early Saxon fabric.

S.3. Very fine dark grey-brown handmade fabric with orange margins and smooth surfaces. A middle Saxon fabric.

S.4. Soapy brown fabric with 1.00 mm rounded vesicles from the leaching out of chalk filler. A late Saxon fabric.

The assemblages

Assemblage 1. The pottery from the fill of the hollow-way in Areas P2 and R1 (AGP, ASE)

The fill of the hollow-way in Area P2 contained 306 g (103 sherds) of fabric S.1 and 22 g (three sherds) of fabric S.2. Another fragment of fabric S.1 came from the edge of the hollow-way in Area R1 and a piece of fabric S.2 from pit AQZ south of building 1 in Area P2. There are no rims, although the fragments have the appearance of coming from small closed forms.

The absence of diagnostic forms makes the close dating of this assemblage very difficult. At Portchester it was noted that fine sandy wares were predominant during the fifth- and sixth-century occupation and were then superseded by 'chaff tempered' wares, which remained dominant until the later eighth century (Cunliffe 1976, 177). This replacement of sandy wares by organic-tempered ones was also noted at Walton near Aylesbury (Farley 1976), where the two earliest grubenhauser had less than 10 per cent organic-tempered wares and three later houses with late sixth- to seventh-century metalwork had as much as 75 per cent of such wares.

At the King Harry Lane site (Stead and Rigby 1989), two fabric S.2 pots came from late seventh-century graves and there were a number of Saxon sherds in ditch 60 (Ager 1989). This small assemblage consisted of 139 sherds of fabric S.1 and two of fabric S.2 or similar. It would appear, on this evidence, that both the King Harry Lane ditch 60 and Folly Lane hollow-way Saxon pottery assemblages are unlikely to be earlier than *c.* 550 and could both be seventh century in date.

Assemblage 2. The pottery from the postholes in the fourth-century droveway in Area L (DCN, DCR)

Posthole DCN contained one sherd of fabric S.2 and posthole DCS had a stubby everted rim fragment in fabric S.3, which may be in one of the finer Ipswich ware fabrics. The rim form is paralleled at Burgh Castle and elsewhere (Johnson 1983, fig. 45.9) and is of late sixth- to seventh-century date.

Assemblage 3. The pottery from the curved gully in Area D (BNJ and BJM)

This feature contained one sherd in fabric S.1 and three in fabric S.4. The latter included:

251. In-turned rim of a bowl. External rim diameter 200 mm. The form is the same as that used for shelly St Neots ware bowls and is closely paralleled at Walton in tenth-century features (Farley 1976, fig. 23.12). The vessel can probably be broadly dated to the Late Saxon period (FIG. 83.51).

THE CERAMIC EVIDENCE FOR A TEMPLE/THEATRE/BATH HOUSE COMPLEX AT VERULAMIUM

It has been suggested (Niblett 1995, 100) that the construction of the theatre, the temple opposite it, the Branch Road bath house, and the alterations to the Ceremonial Enclosure ditch at Folly Lane were effected simultaneously in order to create a large religious complex, similar to that at Gosbecks Farm, near Colchester (Hull 1958, 259). Is there any ceramic evidence for this?

The theatre

We have shown that the pottery from the Ceremonial Enclosure ditch indicates that the alterations to the enclosure were carried out just after the Antonine fire of *c.* 150–55/160 (p. 242). The theatre was, however, dated by Kenyon to *c.* 140-50 (Kenyon 1936, 214). As this slightly earlier dating was based on the state of knowledge of Roman ceramics sixty years ago, it was decided to re-assess the pottery from both beneath the theatre and contexts associated with its construction.

Kenyon used samian and coins to arrive at her dating: the samian forms from constructional and pre-theatre deposits are datable to the period 100-30 and had two coins of Hadrian associated. These latter consisted of an as of *c.* 125–8 and a sestertius of 130. The worn nature of both of these coins persuaded Kenyon to opt for a date slightly later than that of the samian for the construction of the theatre. There are no problems with her samian and coin dates, but advances in knowledge over the years mean that we can now date the associated, and shorter-lived, coarseware vessels with considerably more precision than was possible in 1936.

The large assemblage of pottery from the pre-theatre ditch sealed under the south side of the building supplies us with a good *terminus post quem* for the theatre's construction (Kenyon 1936, 217). Most, if not all, of this pottery still survives and was quantified (TABLE 34).

TABLE 34. POTTERY FROM THE PRE-THEATRE DITCH

Fabric	Jars EVES	Open Forms EVES	Beakers EVES	Others EVES Lids	Total EVES	%
VERWH	NJ1.01 IIH 0.12	IVA 0.85		LIDS 0.28	2.26	39.2
VRG	IIH 0.20				0.04	2.9
HWC	IIE 1.85	0.21	IIF 0.29		2.35	40.8
GROG	IIA 0.09				0.09	1.6
LLNVRE		0.05			0.05	0.9
SAND		IVA 0.11			0.11	1.9
TOT. CSE					5.26	91.3
LOMI		0.14		IBC 0.20	0.34	5.9
FINE		NB 0.16			0.16	2.8
Total	3.27 (56.8%)	1.72 (29.9%)	0.29 (5.0%)	0.48 (8.3%)	5.76	

The high percentage of jars and other forms in HWC fabric is reminiscent of that in the Hadrianic shaft sinkage assemblage 14 (p. 151). The pottery includes reeded and carinated bowls of Frere's types 681 (*c.* 130–50), 942 (*c.* 150–70), 2444 (*c.* 130–80), 2453 (*c.* 140–60) and 2460 (*c.* 160–80), necked-jars of types 867 (*c.* 150–55/160), 876 (*c.* 150–55/160) and 879 (*c.* 130–70). These are all in VERWH fabric as is a IIH jar of type 901 (*c.* 150–55/160). A poppy-head beaker rim in HGWREC fabric can probably be dated *c.* 135-90 and a small latticed jar of Frere's type 861 is comparable with examples from the Antonine fire deposit (*c.* 150–55/160). Other forms include a mica-dusted Gallo-Belgic platter in VERD fabric of type 1317 (*c.* 100–60) and a type 675 IVA bowl in VERRE fabric (*c.* 135–45). The samian from the ditch includes a pre-Flavian Ritterling 12, Flavian Dr. 18, 27, 35 and 37 fragments, a Dr. 33 base of PATERCLI (*c.* 80–120) and a Hadrianic Dr. 37. There was also a worn sestertius of Hadrian, dated A.D. 130.

When we place all the coarseware vessel types and their date ranges in sequence, they suggest that the ditch was backfilled between A.D. 150 and 160 and that the theatre construction is unlikely to have commenced much before 160 (TABLE 35).

It is not surprising that the dates for the samian are earlier than those for the coarse pottery, as finewares would tend to have a much longer life in use than coarse cooking vessels, soon fouled and discarded. Evidence for the long usage of old Antonine samian vessels lies in the appreciable quantities found within the late shore forts of Pevensey (Lyne forthcoming) and Portchester (Morris 1975, 276), which were only founded towards the end of the third century.

Other small assemblages from pre-theatre and theatre construction deposits reinforce the ceramic evidence for a *c.* 150–60 construction date for the building. The black earth scooped up to make the earthen ramp supporting the theatre *cavea* contained an Oxfordshire whiteware mortarium rim of Young's type M3-7, dated by him to *c.* 140–200. Only one other stratified

TABLE 35. SEQUENCE OF DATED FORMS FROM PRE-THEATRE DITCH

TABLE 35

Form	70	80	90	100	110	120	130	140	150	160	170	180	190	200
675								--------						
681							----------							
861									--------					
867									--------					
876									--------					
879							----------							
901									--------					
942									----------					
1317				----------										
2444							----------							
2453								----------						
2460										----------				

mortarium rim of this type is known from Verulamium and comes from the Antonine fire deposits (Frere type 1010, dated *c.* 140–70 by him at Verulamium). Young had difficulty in finding well stratified examples of this mortarium type and his starting date was heavily dependant on Frere's example from the Antonine fire deposits. His closing date for the type was based on the presence of examples in association with *c.* 200 pottery forms in the waste from the Blackbird Leys kiln (Young 1977, 68–70).

A green sandy deposit beneath the original floor of the north-east room of the theatre produced a BB1 dish with rim edge beading (Frere type 2545, dated *c.* 145–200). Gillam dated the type to the mid-second century in the north (Gillam 1976, fig. 5.69) and the type is represented by seventeen examples in late second-century contexts at Fishbourne (Cunliffe 1971, Type 201). A date range of *c.* 150–200 seems appropriate for this type. The same deposit also produced a ring-neck flagon rim in BRHWS fabric of Frere type 811 (*c.* 140–80) and a type 963 bowl in HWC fabric (*c.* 145–65).

The Branch Road bath house (Saunders 1976)

There was relatively little pottery associated with the bath house construction, although construction trench fills included a necked-jar rim in VERWH fabric of Frere's type 1711 (*c.* 100–30), two poppy-head beakers of types 602 (*c.* 135–70) and 1491 (*c.* 140–90), a grey ware bowl of type 980 (135–65), and mortaria of types 774 (*c.* 120–60) and 2666 (*c.* 120–60). An Antonine CLI CLBB2 dish with beaded rim is unlikely to be earlier than 130 at source and than 150 at St Albans, and there is a small shell-tempered necked jar of type 2183 (*c.* 135–45). Fragments from an Antonine face-pot also came from the wall construction trenches and joined with pieces from the contemporary occupation between the bath house and the Roman road to Colchester, the first stretch of which is known to have been constructed during the Early Antonine period.

The occupation surface contemporary with the bath house construction had a necked-jar of Frere's type 878 (*c.* 135–80), a grey ware cooking-pot of type 588/898 (*c.* 145–60), an imitation Dr. 33 in similar fabric of type 997 (*c.* 150–55/160), a CLBB2 bowl of type 986 (*c.* 150–55/160) and a Verulamium Region mortarium with a hooked flange (*c.* 140–200).

If these dated forms are tabulated in the same manner as the ditch assemblage forms from beneath the theatre the results shown in TABLE 36 are achieved.

Once again there is a strong possibility that this building was also constructed between 150 and 160, a deduction reinforced by the presence of two coins of Antoninus Pius, one dated 138–61 and the other to 154–6. Of the fourteen vessel types, eleven have their date ranges

TABLE 36. SEQUENCE OF DATED FORMS FROM BRANCH ROAD BATH HOUSE

TABLE 36

Form	70	80	90	100	110	120	130	140	150	160	170	180	190	200
588/898									----------					
602								----------						
774						----------								
878								----------						
980								----------						
986									--------					
997									--------					
1491								----------						
1711				----------										
2183								---------						
2519								--------						
2666						----------								
FACE POT								----------						
HOF MORTARIUM								----------						

overlapping the period 150–60 and three are residual. There are no pottery forms regarded as commencing later than 160.

The occupation associated with the use of the bath house yielded large assemblages of pottery, nearly all of which seems to be Antonine to early third-century in date. There is very little residual pottery.[23]

The temple in *insula* XVI (Lowther 1937)

There are major problems with the dating of this structure, as very little pottery came from the constructional levels of the earliest building and none could be located in Verulamium museum for re-examination. Lowther published two fragments of early Flavian samian from the cella wall construction trenches and the greater part of a ?glazed beaker from the make-up of the cella floor. Lowther dated this vessel as Claudian but came to the conclusion that the first temple was constructed *c.* A.D. 90. A somewhat later date for the earliest temple may be indicated by the presence of early second-century sherds in the construction trench for the first *temenos* wall enclosing the building. This *temenos* wall construction trench was cut from the same horizon as those for the walls of the phase 1 theatre nearby. The temple/*temenos* plan is so well integrated that it is difficult to believe that the two components are of different dates.

THE PATTERN OF POTTERY SUPPLY TO THE FOLLY LANE SITE

Introduction

Verulamium has lagged behind Londinium and other major Roman towns in Britain in not having had an overview of its changing patterns of pottery supply throughout the long four hundred or more years of occupation. The pottery from Folly Lane is perhaps not the ideal material to base such work on, as the site is deficient in both late first- and late fourth-century assemblages. Nevertheless there are a number of good pottery groups from the intervening period.

The relative importance of the various pottery suppliers and their percentages of total pottery supply at different periods are based on quantifications of assemblages shown in pie chart form against the groups of illustrated sherds from those assemblages. Quantification of pottery can never be an exact science and the figures are prone to distortion by the specialized and biased nature of some assemblages. Residuality within an assemblage can also create problems, as it is

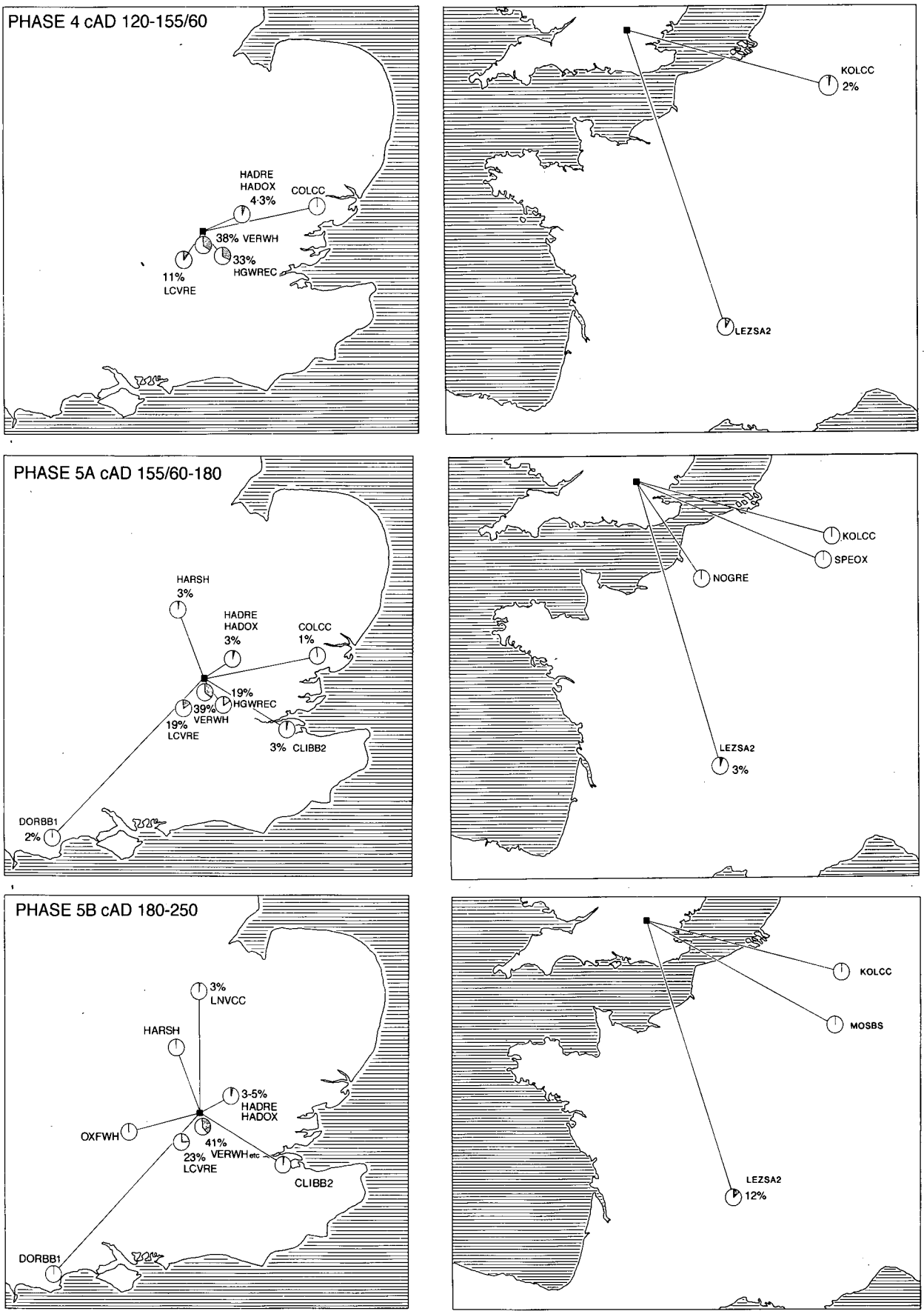


FIG. 85. Sources of pottery supply, periods 4–5.

not always detectable. The percentages shown in pie chart form on the pottery supply maps must therefore be regarded as approximations of the true situation (FIGS 85–6).

Period 4: *c.* A.D. 55-155/60 (FIG. 85)

There are no quantifiable late first-century pottery assemblages from Folly Lane. Part of the BEB assemblage in the sinkage over the Iron Age ditch may be of this date and most of the cremation pots from the various cemeteries most certainly are. None of this material is suitable for quantification, however, but Wheeler's (1936) and Frere's excavation reports (1972) indicate that significant production of local grog-tempered wares in romanized fabrics continued well into the Flavian period and that production of Verulamium Region Whitewares had probably started before A.D. 60. Frere's published material suggests that Type IIE necked-and-cordoned jars and other forms in Fabric C from the Highgate Wood kilns had already started to appear at Verulamium before A.D. 75 (Frere 1972, fig. 140.150–155). The absence of Flavian Fabric B material from the same source at Verulamium may indicate selective marketing.

The earliest quantifiable pottery assemblages from Folly Lane are the Hadrianic ones from the sinkages over shafts DKM and ABT (p. 250). An average taken from the pottery quantification figures for these two assemblages would appear to indicate that the most significant source of pottery during this period was the Highgate Wood kilns, which supplied very large quantities of Type IIE jars, as well as significant numbers of poppy-head and other beaker types. This is surprising at first glance, given that such wares were coming from considerably further away than the products of the local Verulamium Region whiteware industry. The phenomenon can be explained, however, by the fact that identical Type IIE jars in a macroscopically indistinguishable fabric were also manufactured at the Fulmer and Hedgerley kilns near Gerrards Cross in Buckinghamshire (Cottrill 1937, pl. IX.1). The Highgate Wood IVA bowl form is also present in the Fulmer and Hedgerley kiln material, but other Highgate forms, such as the poppy-head beaker seem to be absent. Many of the coarser Hedgerley fabric variants differ considerably from those in use at Highgate, as do the associated vessel forms. Some of these coarse Hedgerley products were present at Folly Lane before 150, but in very small quantities. It is therefore suggested that splitting the IIE jars in a ratio of 3:1 between Highgate and the Fulmer/Hedgerley kilns respectively would reflect fairly accurately the true nature of supply to Verulamium during the period.

The second most significant source of pottery was the Verulamium Region industry (38 per cent). This industry supplied a considerable variety of vessel forms, including necked-jars, carinated bowls with reeded-rims, flagons, lids, unguent- pots and mortaria, from kilns scattered over a large area of southern Hertfordshire between Verulamium and Brockley Hill. The necked-jars and bowls are probably to be regarded as cooking vessels and make up the overwhelming bulk of most assemblages of Verulamium Region pottery. The kilns of this industrial grouping produced pottery in a considerable variety of fabrics, of which by far the most significant are the oxidized so-called whitewares (VERWH). These make-up nearly 90 per cent of all the Verulamium Region industry products in Hadrianic pottery assemblages and vary considerably in their colour range, from pure white to heavily-blackened orange-brown. It is probable that a close study of the products of individual kilns would enable subdivision of these 'whitewares' to be made. The rest of the Verulamium Region industry products are far less significant and comprise grey wares (VERRE), white-slipped coarse red-wares (VERWS), Brockley Hill white-slipped wares (BRHWS) and a very fine version of the white VERWH fabric (RDBK) used on fineware forms including Curle 11 copies and ring-and-dot beakers.

Other coarse pottery suppliers were very insignificant during this period. There are one or two grog-tempered store-jars in GROG fabric: these probably came from the Hedgerley kilns. A few coarse grey wares came from an unknown source or sources: some of them could be Hadham products, as they include sandy Braughing type jars with horizontally rilled shoulders (Going and Ford 1988, 65).

Central Gaulish samian forms account for more than 10 per cent of all the pottery, but the imported range of other finewares is very restricted and consists almost entirely of Cologne

roughcast beakers with corniced rims (2 per cent). The local industries seem to have been capable of providing most of the fine pottery used during the early second century. The Verulamium industry supplied vessels in RDBK fabric and lead-glazed bowls and other forms were produced both locally and at Staines. There are several mica-dusted ware variants, one of which is probably from Colchester, another from Staines and the other local. None of these British fineware fabrics is individually responsible for more than 1 per cent of the pottery in any assemblage.

Period 5: *c.* A.D. 155/60–250

The pattern of pottery supply changed appreciably during this period. As a result Phase 5 can be subdivided into Phases 5a (*c.* A.D. 155/60–80) and 5b (*c.* A.D. 180–250).

Period 5a: *c.* A.D. 155/60–80 (FIG. 85)

The supply of both Verulamium Region industry wares and Highgate Wood industry vessels remained remarkably constant during this period. The form/fabric breakdowns of the pottery assemblages from shaft contexts AIJ/K and AIL and cellar context AJZ were averaged and give us a figure of 39 per cent for Verulamium Region products and 38 per cent for those in Highgate Fabric C. There was little change in the range of forms being supplied, although face-pots and type IIH neckless and lid-seated jars were added to the VERWH range. The range of forms in Highgate Fabric C declined with the virtual disappearance of bowls and IIIE beakers. It seems likely that more of the type IIE jars were now coming from the Hedgerley kilns, as other Hedgerley forms in coarser fabric variants are now present in one or two of the Folly Lane assemblages. It has been said elsewhere that the Highgate Wood industry ceased production *c.* 160 (Davies *et al.* 1994, 82), but the evidence of the Early Antonine assemblages at Folly Lane indicates that production is likely to have continued for some years longer. It is probable, however, that there was a transfer in supply from those kilns to the related Hedgerley industry ones towards the end of the Early Antonine period.

Small amounts of CLBB2 started to be supplied to Verulamium during the Early Antonine period. The percentage of all the pottery in circulation is very small (3 per cent) and the forms are largely restricted to pie-dishes with external burnished latticing. The source of this CLBB2 is uncertain but it is macroscopically similar to the Thameside industry version from West Kent. There are also tiny amounts of Dorset BB1 from around Poole Harbour (0.3 per cent). The forms include dishes with beaded rims, flat-rimmed dishes and cooking-pots.

The tiny amounts of both of these long-distance traded coarsewares suggests that they might have been distributed as secondary loads transported with a more important commodity. Both the BB1 and CLBB2 industries are coastally sited in large areas of salt-marsh and it may be that this important commodity was salt for flavouring and the preservation of foodstuffs. It has been shown convincingly on the evidence of briquetage and pottery wasters that BB1 manufacture took place in close proximity to brine-boiling at Hamworthy (Lyne 1993) and Ower (Woodward 1987).

Grog-tempered store-jars are still present in Early Antonine assemblages (3 per cent) and come from both Hedgerley and other, unspecified, sources. Similar amounts of Bedfordshire shelly wares are also present for the first time and consist of necked store-jars and smaller cooking vessels.

A few continental coarseware products are present in assemblages of this date. Two Eifelkeramik cooking-pots in differing fabrics were present in the fill of shaft AAB, as was a necked 'bandes lustrées' bowl or jar from north-east Gaul. A few other grey ware vessels from North-East Gaul were present in other Antonine assemblages from Folly Lane. A disturbed burial in pit DBK (burial 27) included the lower part of a whiteware lagena, which may have come from the Muille Villette kilns in the same region of Gaul.

Central Gaulish Samian was still the most significant fineware (3 per cent), with Cologne roughcast beakers continuing to be the most important other such import. There is, however, at least one roughcast beaker of similar type from Central Gaul and a few others from the

Colchester kilns. Local finewares continued to be significant although it is probable that LOMND-dusted and glazed products ceased being manufactured by A.D. 180.

Period 5b: *c.* A.D. 180–250 (FIG. 85)

Verulamium Region wares continued to maintain their percentage share of pottery assemblages (41 per cent), but there was a sharp fall-off in the percentage of vessels in HGWREC fabric (15 per cent). This latter phenomenon can be attributed in part to the cessation of pottery production at Highgate Wood and the residual nature of some at least of the HWC fabric fragments present in assemblages of this date. There is a corresponding rise in the percentage of sherds in Hedgerley fabrics LCVRE1 and LCVRE2 from less than 1 per cent in Phase 5a assemblages to more than 8 per cent of those belonging to Phase 5b. It seems likely that the Hedgerley kilns supplied Verulamium with about one-sixth of its pottery during this period, with the wares roughly equally divided between late type IIE jars with more developed rims and a miscellany of imitation CLBB2 pie-dishes and bowls, Dr. 33 imitations and straight-sided dishes. Many of the open forms are decorated with white/slate coloured slip similar to that used at Highgate Wood. The slip is, however, simply applied by dipping the inverted vessel into it so that the slip is only present on the upper part of the wall, inside and outside.

The Verulamium Region industry ceased producing mortaria during the early third century, although other forms continued to be manufactured. The reason for the abandonment of such a widely produced vessel form is unknown, but the Oxfordshire whiteware mortaria producers seem to have captured the market. These whiteware mortaria with their distinctive multi-coloured quartz trituration grits are not found in London or elsewhere in the south-east of Britain until after *c.* 240, but were present in small numbers at Verulamium from the mid-second century onwards. The Oxfordshire fineware manufacturers do not seem to have been as successful in penetrating the Verulamium market. Very few Oxfordshire colour-coated vessels were present at Verulamium before the mid-fourth century, whereas at least two whiteware flagons from second- and third-century Folly Lane burials can be identified as coming from that source.

The supply of CLBB2 seems to have continued at a similar level to previously (3 per cent), the same predilection for pie-dishes being evident. There are a couple of fragments of BB1, but these may be residual. Very few grog-tempered store-jars are present (1 per cent) and even fewer Bedfordshire shell-tempered ware pots. Hadham HADRE grey and HADOX oxidized wares appeared for the first time at Folly Lane during the early third century and between them account for an average of 3 per cent of all the pottery in the quantified assemblages.

Considerable changes in the supply of finewares took place at the end of the second century. The supply of Cologne roughcast beakers ceased as did that of Central Gaulish samian. The new sources for beakers were the Lower Nene Valley kilns around Durobrivae and those of the Moselle valley in Germany. There is a considerable variety of Nene Valley colour-coated wares, including 'Castor' boxes and their lids, Hunt-cups, scaled and indented beakers and other funnel-necked types. Such wares account for about 3 per cent of all the pottery. This contrasts with the very poor showing of Moselkeramik beakers from the Trier region, which are normally very common in south-east Britain and were traded as an adjunct to the exportation of barrels of wine to Britain during the third century. Only a handful of sherds were present in the third-century assemblages.

Period 6: *c.* A.D. 250–300 (FIG. 86)

Only two of the four quantified pottery assemblages, those from the fills of shaft ASK and the recut shaft BBS, are considered reliable enough to be used here. The other quantified late third-century pottery assemblages, from BRV and ACG, contained significant quantities of residual pottery. Only 20 per cent of the BBS and 15 per cent of the ASK pottery need be residual and the percentages quoted below are calculated after its extraction. FIGURE 86 shows that nearly all of the pottery being supplied to Verulamium now came from local kilns and sources to the west and north of the town. The only major exception was the Hadham group

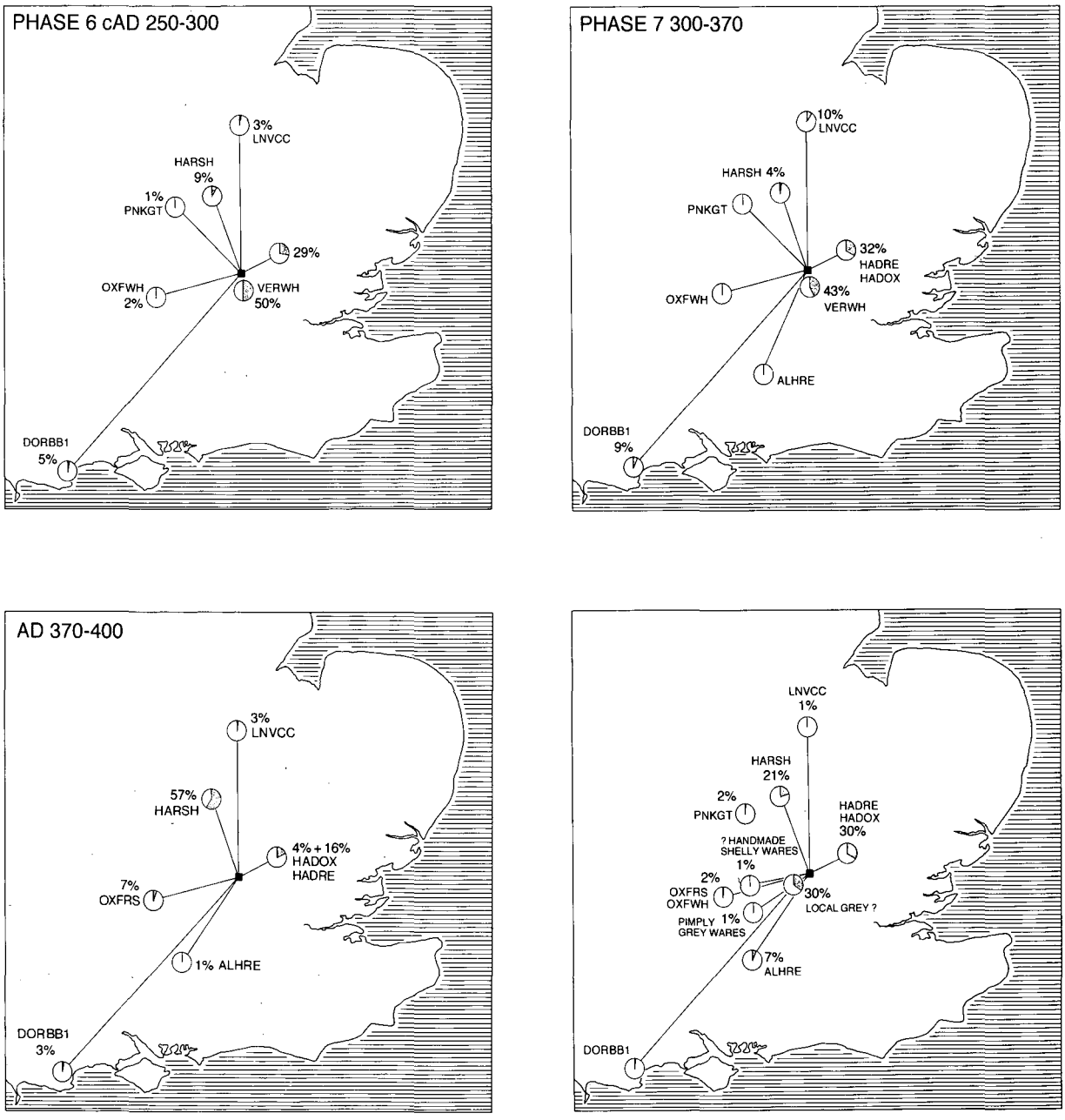


FIG. 86. Sources of pottery supply, period 6 – A.D. 400+.

of kilns, which were situated a relatively short distance to the east of the town. Very little if any pottery was imported from the Continent after the 270s and none from the south-east of Britain.

Verulamium Region wares were now more significant and account for 50 per cent of all the pottery. This greater percentage is unlikely to be due to any increase in the production of such wares, as their more distant markets, such as London, had been largely lost by the 270s. The reason for the greater occurrence of Verulamium Region wares may simply be due to the disappearance of other suppliers such as Hedgerley. It has been argued (Lyne 1994) that there was a shortage of pottery in certain coastal areas of the south-east of Britain during the late third and fourth centuries: a problem which became much worse during the latter half of the fourth century. This problem may have affected Verulamium as well.

The range of Verulamium Region Whiteware forms remained remarkably constant throughout most of the long period of production. The mainstay of this very conservative industry continued to be the necked jar and the reeded-rim carinated bowl, with little departure from the types which were current 150 years earlier. The late third century did, however, see the beginnings of innovation. Copies of Thameside pie-dishes and indented beakers made their appearance for

the first time, albeit in very small quantities. The appearance of these new forms may reflect difficulties in acquiring their prototypes from the original suppliers. Vessels in white and cream fabric variants are less common and there is an increased emphasis on jars and bowls in very coarse orange fabrics. This and a poorer finish to many of the pots suggests a deterioration in both firing techniques and potting skills.

The late third century saw a significant increase in the supply of products in the various Hadham fabrics. The recut shaft BBS assemblages have 15 per cent and some of the 13 per cent miscellaneous grey wares may come from the same source. Small amounts of BB1 (4.6 per cent) are clearly not residual and included incipient-beaded-and-flanged bowls and straight-sided dishes.

Colour-coated fineware supply was limited to Lower Nene Valley vessels, mainly beakers and 'Castor' boxes, which were now joined by flagons, jars and other forms. Only the flagon is represented in shaft BBS, but the other forms are known from smaller assemblages elsewhere on the site. Other finewares consist of oxidized Hadham indented beakers and bowls (4 per cent), already referred to above. Virtually all mortaria now came from the Oxfordshire kilns and are of Young's type M17. There are none from shaft BBS but several are present in the midden pushed back into the Ceremonial Enclosure ditch and in smaller non- quantifiable assemblages from elsewhere on the site.

Period 7: *c.* A.D. 300–400 (FIG. 86)

Two of the four quantified fourth-century pottery assemblages are considered reliable enough to use here. These came from pit AVA in Area P2 and the upper fill of well BPK (BPC). The assemblage from the hollow-way (AGP) spans both the late third and fourth centuries and that from the lower fill of well BPK (BPD) has very large quantities of residual pottery. The two other assemblages are early fourth-century in date. The percentages shown in FIGURE 86 are taken from the quantifications of the two assemblages after elimination of residual material and show that the supply of pottery from centres to the west and north continued, with none coming from south-east coastal regions or the Continent.

The Verulamium Region wares appear to have declined in importance during the early fourth century: a very similar percentage (43 per cent) was recorded for both assemblages. The range of forms produced was considerably reduced and the overwhelming bulk of production restricted to necked jars. Reeded-rim bowls are now much rarer and heavier rimmed: in most cases they have lost their carinations and are poorly finished. The new indented beaker and pie-dish forms were joined by straight-sided dishes and developed beaded-and-flanged bowls are known from other Verulamium sites (see below). Context AFM in Area P1 yielded the lower part of a bowl of uncertain form with diamond-pattern roller-stamping on its lower half. This treatment may have been inspired by the roller-stamping on Argonne ware bowls, which tends to be in a similar position (Chenet 1941). The Verulamium bowl is in a very coarse orange fabric variant with sparse fragments of very coarse red ironstone. This fabric variant was perhaps the last to disappear and was also used for indented beakers, crude reeded-rim bowls and necked jars.

When did the Verulamium Region industry cease production? Frere (1984) does not date any of his forms later than *c.* 320, but pit AVA had coinage up to at least the 330s, possibly the 340s, and its pottery has a high VERWH percentage (36 per cent) similar to that from the other fourth-century features at Folly Lane.

Trench RIV in extramural site R to the north of the town yielded a late Roman sequence of alternating flood and occupation deposits (Frere 1983, 277). The flood deposit RIV.9 contained small amounts of pottery, including a VERWH necked-jar rim of late type, and was dated 270–320. Further flood deposits RIV.8 were dated 320–50 and also had small amounts of pottery, but no VERWH fabric. Above this was a mass of laid rubble with much pottery and dated by twenty-five coins to 364–70. There were no VERWH fabric sherds, but considerable quantities of shell-tempered wares. The amounts of pottery from RIV.8 are small and the lack of VERWH fabric sherds cannot be taken as certain evidence for the end of the industry taking place *c.* 320.

A date nearer 360 for the end of the Verulamium industry is suggested by re-examination of the pottery from Frere's excavations. The basement of the house in *insula* XXVIII (Frere 1983, 248) had a sequence of fourth-century occupation deposits. The final occupation deposit (Layer 2) had twelve coins terminating with a barbarous *fel. temp. reparatio* issue. This occupation was overlain by quantities of rubble with large numbers of coins terminating in an issue of 368. From this it can be inferred that the occupation within the basement ended *c.* 360. About 10 per cent of the pottery consisted of oxidized VERWH wares, including five necked-jars and two developed beaded-and-flanged bowls. Developed beaded-and-flanged bowls in VERWH fabric are very uncommon and are amongst the last products of the industry. Layer 2 could, of course, have accumulated over sixty years between *c.* A.D. 300 and 360, and the VERWH pottery belong to the first twenty years of that occupation. Nevertheless we are faced with the possibility that very limited production of wares in VERWH fabric continued throughout the early fourth century.

The second most important pottery supplier to Folly Lane during the early fourth century was the Hadham industry (20 per cent), supplying grey, oxidized and black-slipped wares. The real figure may be appreciably higher as the miscellaneous grey wares for both assemblages average out at 12.2 per cent and some or all may be Hadham products. The BB1 percentage (9.2 per cent) is higher than before and includes developed beaded-and-flanged bowls, straight-sided dishes, cavetto-rimmed cooking-pots and a possible 'fish dish'. A few sherds of white-slipped Alice Holt fabric are also known from Folly Lane. Vessels from this source were rare at Verulamium until the last years of the fourth century: there were appreciable quantities in the rubbish tipped into the *cavea* of the theatre (Geddes 1977).

Some pink, grogged, store-jar body sherds are present in the quantified assemblages and large rim fragments were present in the fills of the droveway side ditches. These vessels were traded over much of the Midlands during the late third and fourth centuries (Booth and Green 1989) and were probably transported by road down Watling Street from their source in the Towcester area, not far from the shell-tempered ware producing centres. These latter wares still form an insignificant component of assemblages (2.5 per cent) and are represented almost entirely by large storage jars and cooking-pots.

The finewares supplied to Folly Lane during this period were dominated by Hadham oxidized pottery (10.0 per cent) and a range of colour-coated Lower Nene Valley wares (10.4 per cent), including pinch-neck flagons, jars, boxes and beakers. Very small quantities of Oxfordshire red and brown colour-coated wares also started to arrive at Folly Lane during the early fourth century and include beakers and Dr. 38 copies.

The Harrold kilns and other production centres in Bedfordshire supplied shell-tempered wares to fill the gap in pottery supply to Verulamium caused by the collapse of the Verulamium Region industry during the mid-fourth century, and were the most important single pottery supplier after 360. In Frere's site R, context RIV.5, dated 360–70, such wares comprised 33 per cent of the pottery assemblage and in context RIII.3, dated 375–400, they made up 65 per cent. None of the Folly Lane assemblages has percentages of shell-tempered wares remotely approaching these figures, yet a coin of Valentinian I (364–75) came from the fill of the hollow-way. It seems likely that the nature of occupation in the Folly Lane area changed during the mid-fourth century to one using minimal amounts of pottery and perhaps operating at a very low level of material culture.

There is not enough late fourth-century pottery from Folly Lane to justify a map of suppliers during the period 370–400, but such a map (FIG. 86) can be constructed from the quantification of the assemblage from context RIII.3, dated 375–400, from Frere's extra-mural Site R north-west of the town (Frere 1983, 275). This shows that the bias towards more distant northern and western pottery suppliers became more pronounced with the disappearance of the Verulamium Region industry. It has been shown that the Harrold kilns greatly increased their share of the market and in this assemblage they comprise 59 per cent of all the pottery. Assemblage RIII.3 also has a more significant percentage of red-colour-coated Oxfordshire wares than earlier fourth-century assemblages and this increase seems to have been to the disadvantage of the Lower Nene Valley colour-coated ware suppliers. Hadham grey and oxidized ware

percentages are lower than those from early fourth-century Folly Lane assemblages and quantities of BB1 from the south-west are minimal. There are no Alice Holt wares present in the Site R assemblage but other contemporary pot groups do have a few sherds: as a result, this pottery source is shown on the map as a supplier to Verulamium during the period 370–400.

c. 400–430

The pottery within the *cavea* of the theatre is from rubbish dumping, which commenced during the very last years of the fourth and continued into the fifth century. The pottery from that part of the dump excavated in 1933 (Kenyon 1934) was quantified by this author a few years ago. The dump was subdivided by the excavator into a lower brown earth (layers 5, 5a and 6) and an upper black earth (layers 1, 2, 3 and 4). Much of the pottery from the upper, black earth, layers appears to have been dumped after most, if not all, of the Romano-British pottery suppliers had ceased trading and new vessels had become almost impossible to obtain in Verulamium. As a result, most of the pottery from these upper layers had been residual in use and not reliably indicative of any current supply pattern.

The pottery from the brown earth below is a different matter and probably was dumped when appreciable quantities of pottery were still available during the early years of the fifth century. The map of early fifth-century pottery supply to sub-Roman Verulamium (FIG. 86) is based on the pottery from this brown earth and shows a marked decline in the supply of Harrold shell-tempered wares and a corresponding increase in that of sand-tempered grey wares. These present a problem in that, although some are clearly Hadham products, many of the forms appear to be from a non-Hadham source and may be of local origin. Until a corpus of Hadham products and kiln groups are published, the exact split between Hadham and non-Hadham grey wares from the theatre must remain uncertain: a fifty-fifty split is shown on the map (FIG. 86), but the poor showing of Hadham oxidized wares within the assemblage (1 per cent) suggests that there should be greater bias towards the new ?Verulamium grey ware source. An increase in the showing of Alice Holt pottery from the Hampshire/Surrey border regions to 7 per cent of all the pottery from the brown earth and a contemporary decline in the importance of shell-tempered wares do not seem to be isolated phenomena within the civitas of the Catuvellauni during the early years of the fifth century. A massive ditch at Datchworth, Great Humphrey had successive dumpings of fourth-century pottery (A. Rook, pers. comm.). Two assemblages dated to the mid-late fourth century had in excess of 60 per cent shell-tempered wares and only nominal amounts of Alice Holt pottery, but another, later, assemblage with a coin of 395–402 in association had only 28 per cent shell-tempered wares and a greatly increased Alice Holt presence (18 per cent).

Other wares are present in the theatre assemblage for the first time and include high-fired, pimply, grey wares from an unspecified source in the Thames valley between Hambleden and Bray and crude hand made shell-tempered jars from somewhere near Aylesbury on the basis of their distribution. Continuing tiny amounts of Dorset BB1 include bowl and dish forms with poorly executed flanges and could conceivably be later than 400.

The increased range of suppliers to Verulamium during the early fifth century has been noted in very late assemblages from other sites in south-east Britain and may reflect a decline in overall pottery production and a resultant inability of remaining suppliers to meet demand. As a result potters and their negotiatores distributed their wares more widely, but more thinly, than previously and into the centres of other pottery industries' marketing zones. The overall shortage of pottery may be reflected in the now largely aceramic nature of the occupation at Folly Lane.

THE EVIDENCE FROM ASSEMBLAGE QUANTIFICATIONS FOR TYPES OF ACTIVITY AT FOLLY LANE

The Folly Lane site produced pottery assemblages from a variety of features associated with ritual, industrial, agricultural and domestic activities. Many of these assemblages were quantified

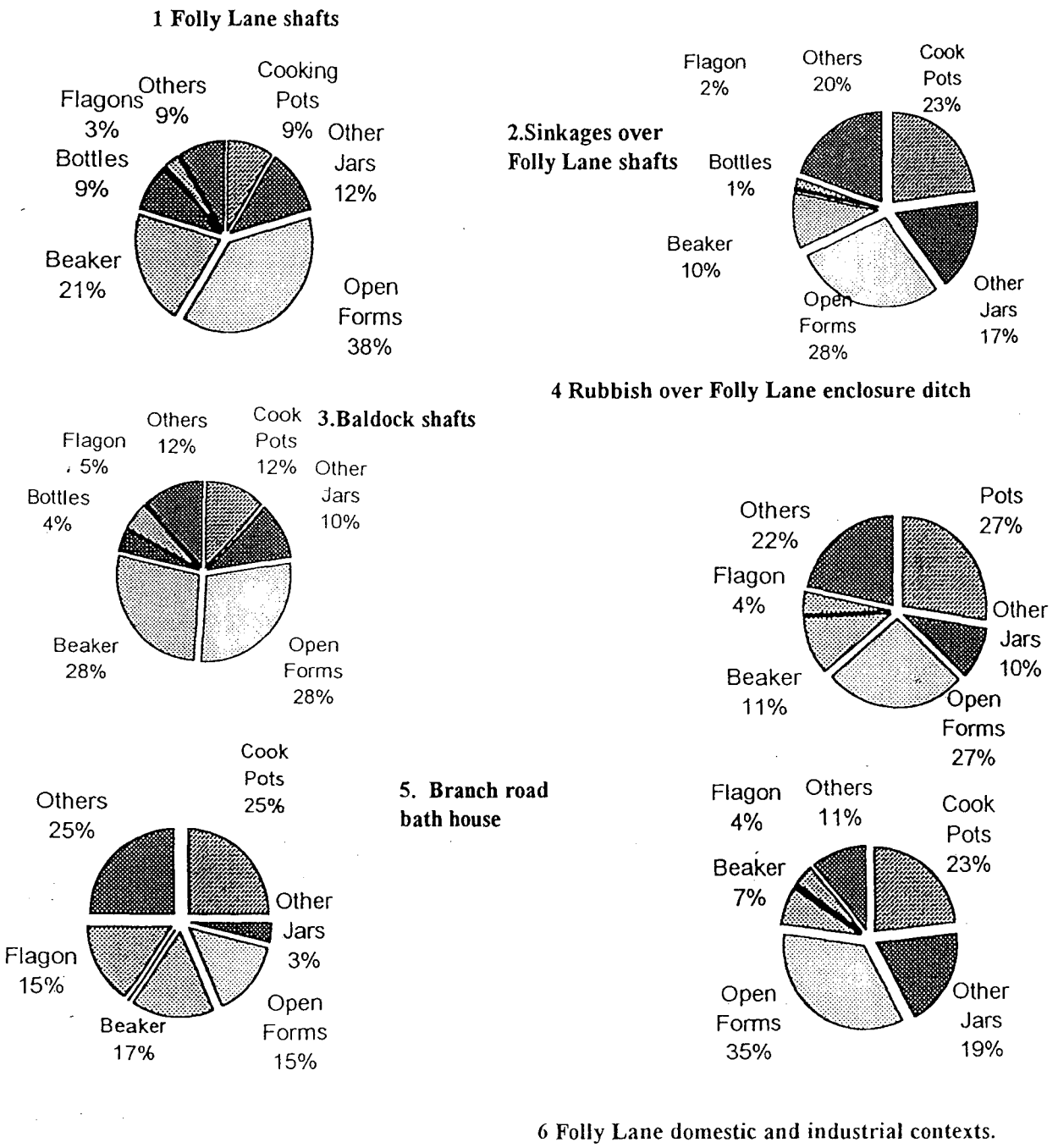


FIG. 87. Charts showing the relative frequency of different vessel types from deposits at Folly Lane, Baldock and the Branch Road bath house.

in the hope that the varying emphases on different vessel forms and fabrics might relate to the different types of activity taking place on the site.

A number of the shafts contained complete or partially complete pots, both in their primary fills and in the sinkages above. A similar phenomenon was noted at Baldock and it was suggested there that this pottery represented some kind of ritual pit-closing deposit (Stead and Rigby 1986, 258). This hypothesis was given weight by the nature of the vessels found in the Baldock shafts: there was a clear bias towards the fine bowls, dishes, beakers and flagons, normally associated with grave-groups, in preference to plainer and more utilitarian products. This is clearly shown in FIGURE 87. There are fewer partially complete pots from the Folly Lane shafts but these seem to indicate a similar, if less pronounced, bias towards fine bowls and dishes. There is, however, no clear bias towards beakers. Another difference is that face-pots are associated with many of

the Folly Lane shafts. Apart from the largely complete examples, there are smaller fragments from shafts AET, ACG, CML, CMM, DKB, ADN and ASK. Other shafts may have contained fragments but many were only superficially examined and their fills remained unexcavated or only partially dug. The only other Folly Lane features to produce face-pot fragments were the Ceremonial Enclosure ditch, gully CPR in area J and cellar AJS in Area P2. The pot from gully CPR is largely complete, but appears to have had the face removed.

The majority of stratified British face-pots come from ritual deposits and the faces on them were probably regarded as having apotropaic properties, protecting the ashes of the deceased or other materials stored in the vessels (Braithwaite 1984). A London example and a fragment from Dover were found in stream beds and other examples come from graves at Colchester and elsewhere. The Chester-le-Street face-pot additionally has moulded smiths' tools in relief, which may be connected with the worship of the Smith God. The face-pot fragment from AET came from over a puppy burial in the bottom of the shaft. The dog was associated with the hammer god Sucellos (Ross 1992, 423). One of the two face-pots from Folly Lane apparently unconnected with ritual activities is that from gully CPR in Area J. This feature was, however, situated close to pit CPB, which contained iron slag and ?tuyeres made from a flagon neck. Potters and other craftsmen of Classical Greece used to hang face masks over the furnaces of their kilns to protect them and their products from injury (Burford 1972, pl. 17). Such an object was clearly regarded as having apotropaic powers and it may be that the iron-workers in Area J at Folly Lane removed the face from the pot in gully CPR to serve the same purpose.

Only one face-pot was found at Baldock and this came from an occupation deposit (Stead and Rigby 1986, fig. 147.629). Baldock is some distance from the Verulamium kilns and supply of face-pots from that source may have been difficult. It is interesting to note that shaft B204 at that site had a ceramic theatre mask, which may have been used in an apotropaic role, in its fill. Face masks do not need to be made from pottery and it may be that examples carved from wood or made from some other perishable material were more generally used as substitutes at Baldock.

The forms of the complete and largely complete pots from the sinkages over the backfilled shafts are very similar to those from the Baldock shafts. There are significantly higher percentages of bowls, dishes and beakers than are present in the shaft fills below. Face-pots are absent, as are mortaria and store-jars. Instead there are unguent jars and at least one tazza. This does, perhaps, suggest that the ritual practices associated with the open shafts at Verulamium may have differed from those carried out above them after they had been filled in.

Both the Baldock and Verulamium ritual shaft pots include misfired kiln wasters or seconds. The practice of including such vessels in cremation pot groups was very widespread in Roman Britain and reasons put forward to explain the practice range from the stinginess of relatives to the more likely explanation of the need to 'kill' the pot to prevent it being used in some way against the living (Down and Rule 1971, 73). Some of the pots from the ritual shafts were probably 'killed' for the same reason and in the same manner. A more common method of 'killing' pots at Folly Lane seems to have been to smash them and omit portions when burying them in the shafts. As at Baldock, it was not possible to reconstruct many of the pots from the shafts completely, most were half or three-quarter vessels.

This practice of omitting portions of vessels from shafts presents us with a problem: it may be that larger portions of some vessels were left out compared with others and single rim or body sherds could either be from pots involved in the shaft rituals or from rubbish inadvertently introduced when they were backfilled. When we compare the total EVES percentages of different vessel types from quantified shaft assemblages with those from a range of other assemblages a number of interesting, albeit often ill-defined, patterns emerge. The differences between the various groups of assemblages are for the most part not as clearly defined as one would like: it is even questionable in some cases as to whether the pottery relates to the feature containing it. Defining the nature of an occupation deposit relies for the most part on the nature of the feature from which the assemblage comes, whether it be a ritual shaft, rubbish pit or occupation on the floor of a building, and to a lesser extent on the material accompanying the pottery, such as iron slag, worked bone, etc. These definitions have to assume that the pottery is both

contemporary and related to the associated feature and not brought in at a later date from elsewhere, as may well be the case with some at least of those Folly Lane assemblages associated with the levelling of the ritual complex at the end of the third century and the turning over of the Folly Lane area to agrarian activities. However, it may be that the pottery came from contemporary nearby middens and thus contains elements related to the functions of the containing features.

The bias towards open forms and beakers in the shaft and shaft sinkage material, which was so obvious in the quantifications of the complete and partly complete vessels from these features, becomes somewhat less well defined when the total assemblages are quantified. This may indicate that most of the more fragmentary vessels present in the shafts and their sinkages are from domestic rubbish swept into the features when they were backfilled.

The vessel percentages listed under other jars are almost entirely Highgate Wood Fabric C necked-and-cordoned jars of late pre-Roman Iron Age derivation, which from their origins as situla in continental Europe may have been intended as wine buckets and drinking vessels (Lyne and Jefferies 1979, 24). Jars of this type are most common at Folly Lane during the Hadrianic and Early Antonine occupation and two of the highest percentages in quantified pottery groups are in the AAE/ABZ and ABT shaft and shaft sinkage assemblages. Both of these pottery assemblages also have more beakers and significantly lower percentages of both cooking-pots and open forms than other contemporary ritual assemblages. The high percentages of both necked-and-cordoned jars and beakers in these assemblages further supports the idea that these jars were Belgic-type drinking vessels and a native alternative to the more Romanized beaker forms.

There is a sharp decline in percentages of type IIE jars in assemblages after the Early Antonine period, both in shafts and sinkages, following on cessation of their production at Highgate. This decline is accompanied by an increase in the percentages of open vessel forms, some of which are Dr. 33 and other cup forms and others take the form of shallow bowls and dishes, more suitable for cooking and eating. There is also a measurable increase in fine ware beaker percentages from the early third century onwards.

The pottery from the upper silts of the Ceremonial Enclosure ditch (BEC) and from the midden over it (BJD) has remarkably similar form breakdowns and date ranges. In both cases, it may derive from accumulated rubbish from within the enclosure and from ritual activities associated with the temple. The breakdown of this material certainly has much in common with that from the Antonine shafts, both in the presence of partly complete vessels and face-pot fragments. The ratios of different vessel types are less distinctive, however, and are most closely paralleled in the fills of cellar AJS, an apparently domestic feature. It is curious that AJS was the only 'domestic' context to produce a face-pot fragment and that both the enclosure ditch and the cellar were backfilled with old rubbish around 300. Perhaps the pottery came from the same midden. The pottery from pit BNS cutting the main Colchester road in Area C almost certainly did include pottery from this same old midden, as parts of the same flower-stamped mortarium were found in both BJD and this feature. The other pottery from pit BNS indicates that it was also backfilled at some time between 250 and 300.

The two assemblages selected from the Branch Road bath house occupation are the group 12C material deposited outside room 5 and the pottery from the fill of well pit 4. They are both characterized by high percentages of flagons, to be expected in an establishment where activities involved the pouring of water, both into the baths and on to a hot surface to make steam (FIG. 87). Another peculiarity is the paucity of type IIE jars in both deposits and two of the highest percentages of beakers in all of the quantified assemblages. The high percentages of beakers may explain the dearth of necked-and-cordoned jars and indicate that those using the baths liked to imbibe from more Romanized drinking vessels. It is thought that the Branch Road baths may have been for ritual purification of priests and visitors to the temple within the enclosure (Niblett 1995). All that can be said here is that the presence of at least eight face-pots and a triple vase is strongly indicative of such activities.

The pottery from the earlier, Antonine, levels of the theatre is too small and heavily 'weeded'

to furnish reliable quantification figures, but there seems to be a predominance of open forms. The presence of rim fragments from a number of face-pots seems to indicate a ritual aspect to the usage of this building, which might be expected were it part of the Romano-Celtic temple/theatre/bath house complex postulated by Niblett (1995 and above).

One of the most obvious differences between the groups of assemblages associated with different types of activity is that there are fewer bowls and dishes in industrial and occupational assemblages of second- and third-century date compared with the percentages of such forms in shaft and shaft sinkage assemblages of the same period. The Phase 7 occupation assemblages do, however, display a marked increase in the significance of open vessel forms, a phenomenon shared by fourth-century pottery assemblages from Frere's excavations in the town, quantified by this author (Lyne 1994) (TABLE 37).

TABLE 37. PERCENTAGE OF OPEN VESSEL FORMS FROM FOURTH-CENTURY POTTERY ASSEMBLAGES FROM FRERE'S EXCAVATIONS AT VERULAMIUM

Context	**Date**	**%**
Insula XIX, layers 14a and 15 (1956)	290–310	27.4
Insula XXI P.1.4. and 10 (1956)	330–60	43.7
Sites E1.2, YIII.8, YVI,4a, 5 and 10 (1956)	364+	38.8
Theatre (1933) Layers 5 and 6a	400+	33.0
Theatre (1933) Layer 3	400+	43.3

The industrial assemblage from ABR has some of the lowest percentages of both open forms and finewares in all of the quantified pottery groups. The assemblage from cellar fill AJZ, like those from ritual shafts AAE, ABZ and ABT, has a very high percentage of necked-and-cordoned jars, although there is not the dearth of open forms associated with those assemblages. There are, however, few cooking-pots and a virtual absence of samian vessels, resulting in the lowest fineware percentage of all the quantified groups.

Total percentages of finewares in quantified assemblages tend to increase during the third and early fourth centuries. This can be shown clearly in the Ceremonial Enclosure ditch sequence: the late third-century silt BRV has 13.4 per cent, period 5 silts BEC 16.5 per cent, midden BJD 20.9 per cent and the well BPK 26.5 per cent. It is true that the BEC and BJD pottery is largely residual, but there are significant quantities of late third-century Nene Valley colour-coated wares and worn out Central Gaulish samian in both assemblages. This increase in the percentages of finewares present may be due to both the shorter life of later non-samian vessels of this type and the eventual total discard of the more highly prized and longer lived samian vessels. A third factor may be involved in the case of the assemblage from well BPK: this is one of the latest pottery assemblages from Folly Lane and it may represent the effect of total pottery discard at the onset of an aceramic phase. Fineware vessels would be more valued than cooking-pots and other coarse pots and therefore last longer, leading to the latest pottery assemblages having very high percentages of fine vessels. This can be shown by the percentages of finewares in the sequence of early fifth-century rubbish tips within the *cavea* of the abandoned theatre (TABLE 38).

TABLE 38. PERCENTAGES OF FINEWARES IN EARLY FIFTH-CENTURY RUBBISH TIPS WITHIN THE CAVEA OF THE ABANDONED THREATRE

Layers in theatre cavea (1933)	**%**
Brown Earth; layers 5 and 6a	3.6
Black Earth layer 3	2.6
Black Stony earth layer 2	4.1
Black Earth layer 1	25.6

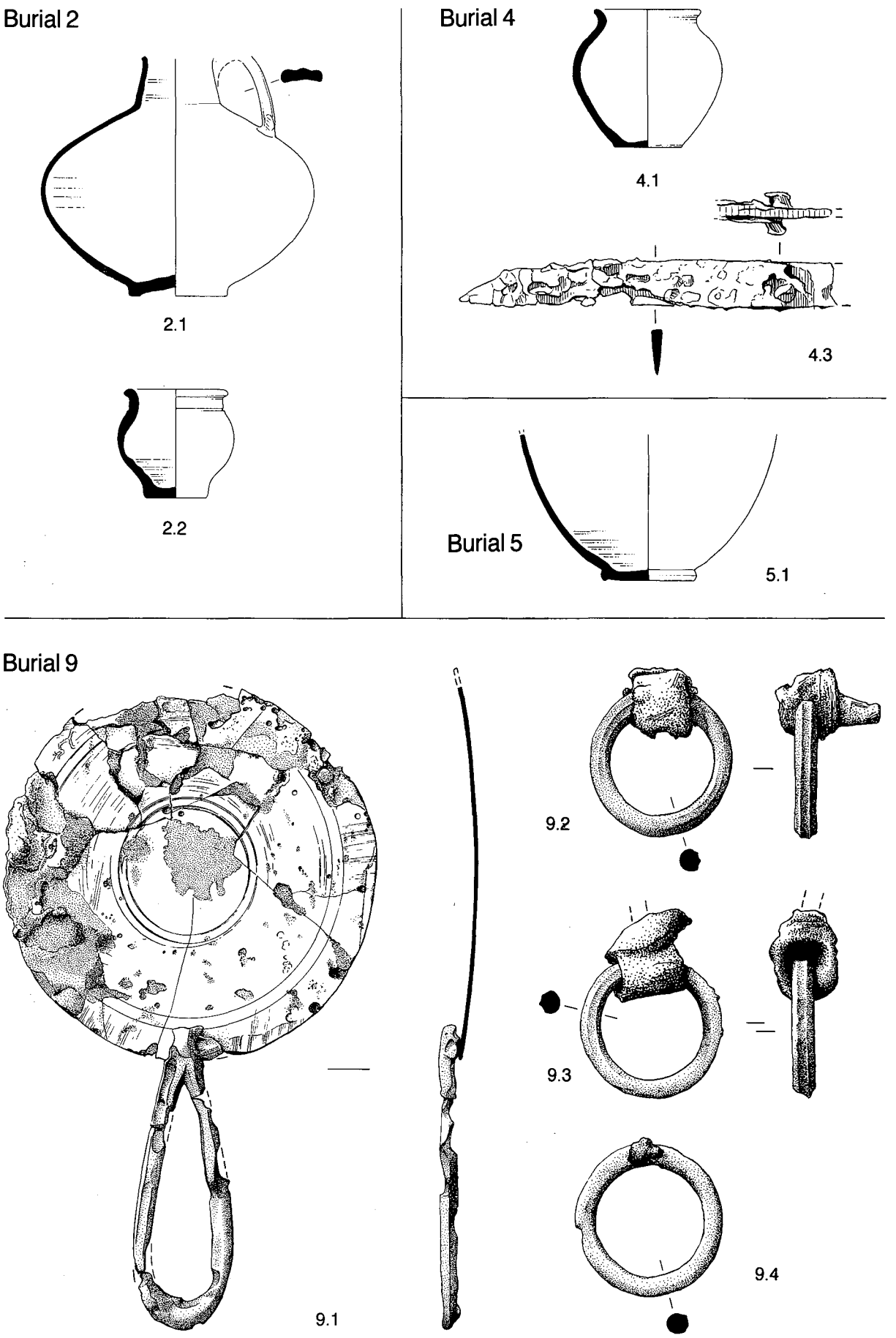


FIG. 88. Pre-Flavian burials; groups 2, 4, 5 and 9. Scale pottery 1:4, objects 1:1.

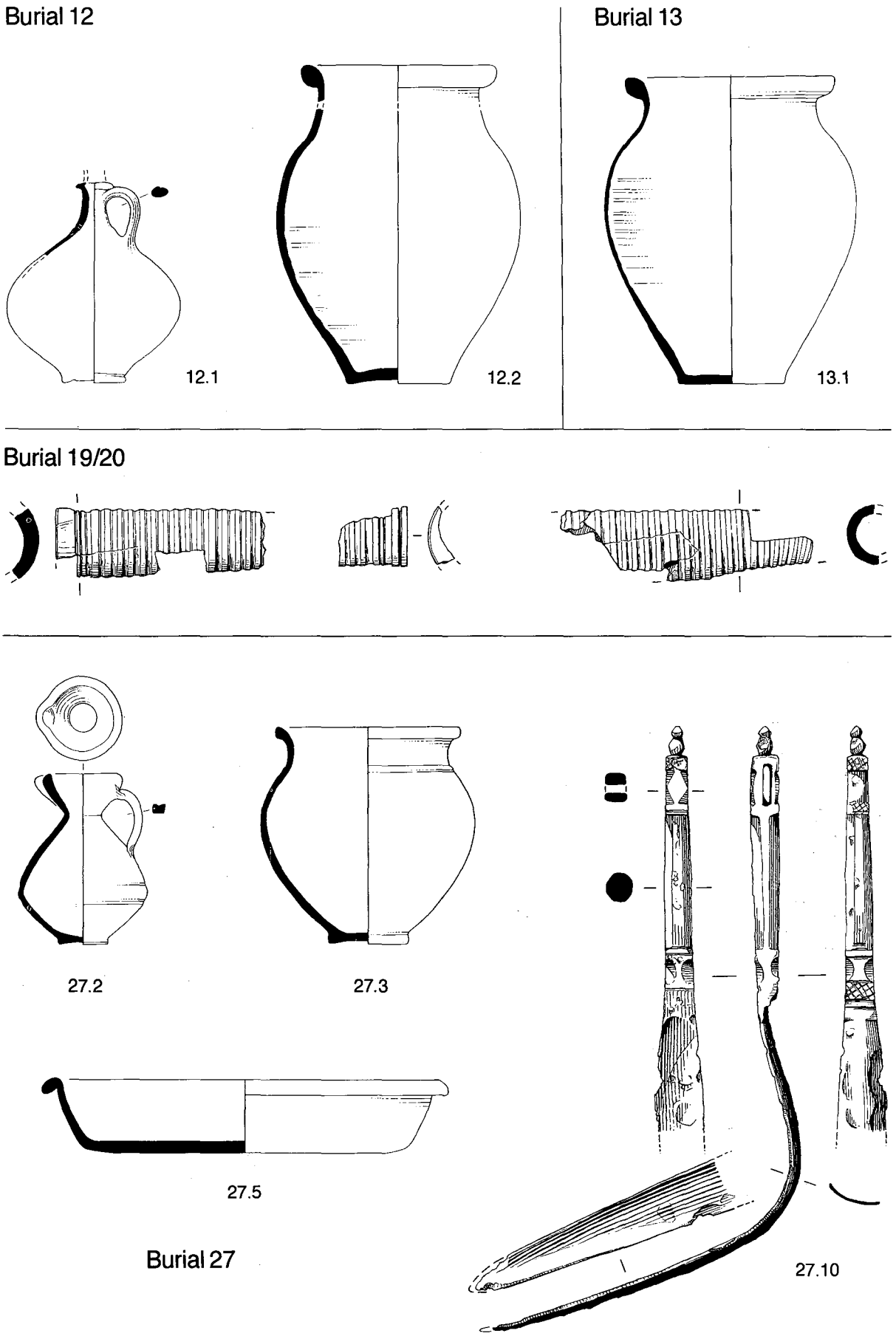


FIG. 89. Burial groups 12, 13, 19/20 and 27. Scale pottery 1:4, objects 1:1.

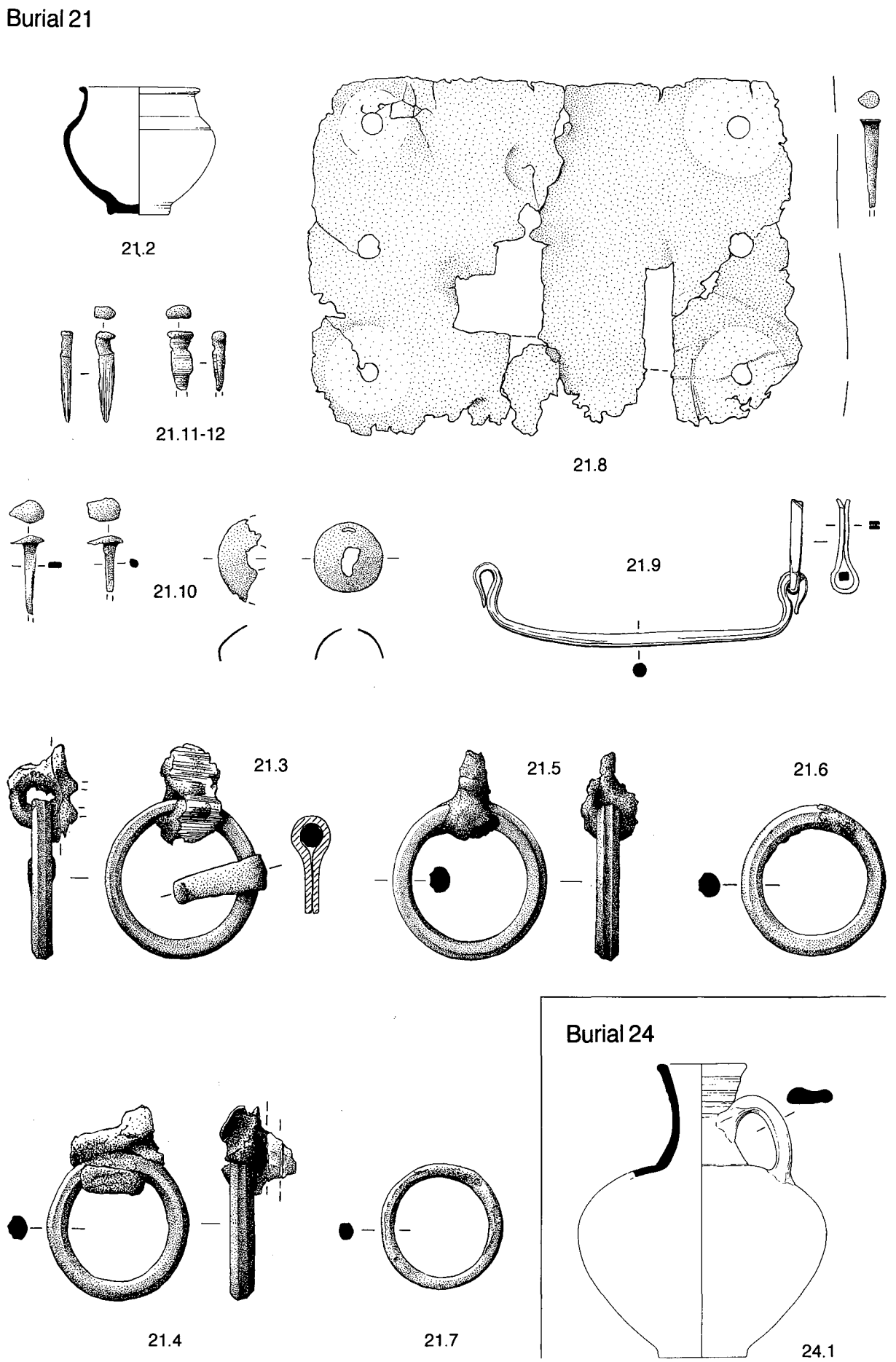


FIG. 90. Pre-Flavian burial groups 21 and 24. Scale pottery 1:4, objects 1:1.

The very low percentages of finewares in the lower part of the rubbish tip may simply be due to all the rubbish having been deposited after new pottery had largely ceased to be available and fine pots being more carefully looked after in the knowledge that they could no longer be replaced.

THE HUMAN BONE

by S. A. Mays and J. Steele

Twenty-two cremations and seven inhumations, recovered during excavations of a Romano-British site on the edge of Roman Verulamium are examined. An unusual find was a cremation burial of first-century A.D. date with a large funerary chamber, within a sub-rectangular enclosure. Study of the bone from this context revealed the quantity of human remains to be small, a finding which parallels that on similar burials from Stanway, Essex. Perhaps burial of substantial quantities of human remains did not form an important part of the funerary treatment of these, presumably high status, individuals. In another part of the site, a skull from a second-century A.D. pit showed perforations and cut marks. The perforations may have resulted from injuries which caused death or may have been mutilations visited upon a lifeless (but still fairly fresh) corpse. The cut-marks appear to reflect defleshing of the skull. Close parallels to this specimen are difficult to find from Roman contexts either in Britain or in northern continental Europe. An inhumation burial of first-century A.D. date showed evidence suggestive of tuberculosis, making it one of the earliest cases of the disease from Britain.

RECOVERY OF THE BONE

The inhumed material was recovered by hand, supplemented by wet sieving of grave cut fills through a 0.5 mm mesh. The cremated material was recovered by wet sieving of all the grave fills or burial urn contents through a 0.5 mm mesh. The only exceptions to this were cremations 11 and 21, which were hand recovered.[24]

THE CREMATIONS

TABLE 39. SUMMARY DATA ON THE CREMATIONS[a]

Area	Context	Age	Sex	Weight (g)	Est. fragment count	Est. mean fragment fragment size (mm)
G/b	Burial 11	?	?	1.3	6	11
G/b	Burial 12	Middle/ old adult	?	296.8	360	9
G/b	Burial 13	Middle/ old adult	Male	429.6	1750	8
G/b	Burial 31	Adult	?	195.7	1400	8
A	Burial 1	Middle adult	?	382.4	2750	5
A	Burial 2	Young/ middle adult	?Female	1670.9	6450	7
A	Burial 3	MNI=2: Infant <18 months; adult	?; ?	364.1	6000	5
A	Burial 4	Adult	?Male	757.7	3350	9
A	Burial 5	Child, 2–7 years	?	7.1	53	8
A	Burial 7	Middle adult	?Male	1144.1	6100	7
A	Burial 8	Adult	?	314.8	2200	7
A	Burial 9	Young adult	?	428.3	3500	5
A	Burial 10	Adult	?	98.2	350	11
A	Burial 29	Juvenile/adult	?	22.5	27	12

J/K	Burial 17	?Juvenile	?	6.9	7	14
J/K	Burial 18	Young/middle adult	Male	1026.3	11000	6
J/K	Burial 19	Adult	?	785.3	4850	8
J/K	Burial 20	Adult	?	665.1	2450	8
J/K	Burial 21	Juvenile/ adult	?	77.8	200	9
J/K	Burial 22	Young adult	?	311.1	3350	5
J/K	Burial 24	Middle/ old adult	?	16.1	205	6
J/K	Burial 26 (mixed deposit)	MNI=2; one young adult, one adult	One male, one unknown.	2734.7	20850	6

[a]Age estimated from epiphysial fusion (Workshop of European Anthropologists 1980) and cranial suture closure (Perizonius 1984); sex estimated from morphology of skull fragments, and from general skeletal robusticity (Brothwell 1981). The age catagories in TABLE 39 corresponds to approximate age in years as follows: 0–2 years; child, 2–12 years; juvenile, 12–18; young adult, 18–35 years; middle adult, 35–50 years; old adult, 50+ years.

DEMOGRAPHY

Almost all the cremations are of single individuals. In one case (Burial 3) bones of an infant were included with those of an adult. In cases where a second individual is detected in a cremation by only a few fragments of bone, it is necessary to decide whether this represents a deliberate burial practice, or accidental inclusion of elements from a previous cremation during recovery of ashes from a pyre site for interment in an urn. The inclusion of several fragments of long bone and rib of the infant with the adult in Burial 3 suggests deliberate interment, since the small size of infant bones makes the chance recovery of more than one or two fragments from a pyre unlikely. In the only other case (Burial 26), two individuals, both adults, were represented, but the context evidently contained a mixture of material from more than one deposit. There is thus only one cremation which seems to represent a true double burial. At the nearby Romano-British cemetery at King Harry Lane, cremation burials of two individuals, usually an adult and a juvenile, occurred in ten out of 388 interments (Stirland 1989).

As at King Harry Lane, and at the Romano-British sites at Baldock (Henderson 1982) and Godmanchester (Mays 1993), there are few infant cremations — at Folly Lane they made up 4 per cent of the total, at Godmanchester they comprise 2 per cent, and at Baldock there were none. The proportion of infants at these three sites is very much less than that which might be expected given the high infant mortality which characterized the pre-modern era. The dearth of infants probably reflects differential burial treatment: according to Pliny, infants who died before teething were not usually accorded the cremation rite (*Naturalis Historia* 7.16.72, cited by Watts 1989).

CREMATION TECHNOLOGY AND ROMANO-BRITISH PRACTICES FOR RECOVERY AND INTERMENT OF CREMATED BONE

Cremation of an adult human corpse yields about 1.5–2.5 kg of bone (Trotter and Hixon 1974). The single adult cremations from Folly Lane weighed on average about one quarter of that amount (TABLE 40). This could be due either to a deficiency in collection of the remains from a pyre, or to post-depositional truncation of the burials. The frequency-distribution of cremation weights has been used as an indicator of the extent to which an assemblage has been truncated by post-depositional activity on the site (Mays 1993). At Godmanchester the untruncated, single adult cremations averaged 777 g, with a normal distribution about that mean. By contrast, at sites where there is significant loss of cremated bone due to truncation of burial features by later activities, the distribution of bone weights tends to be more or less skewed towards the lower weights (e.g. at Mucking, Mays 1992a). At Folly Lane, where most of the

```
Midpoint  N  |
100       8  | ****************
300       4  | ********
500       2  | ****
700       3  | ******
900       0  |
1100      2  | ****
1300      0  |
1500      0  |
1700      1  | **
             I.+..I..+..I..+..I.+..I
             0  2   4   6   8
```

FIG. 91. Histogram of weight of human bone from all single cremations 200 gram intervals.

cremations had been damaged or truncated by later activity, the distribution of weights for the single adult cremations is skewed toward the low weight ranges (FIGS 91, 92). This implies that truncation of cremations by later activities was a significant factor in reducing the amount of bone present in these burials.

Experiments by Shipman *et al.* (1984) have shown that the approximate temperature sustained in a pyre can be estimated from the colour and condition of the burnt bone. Almost all of the bone from Folly Lane was of a white or greyish-white appearance, indicating that it had been fired to temperatures of approximately 900–950°C., similar to the temperatures achieved in modern crematoria (Wahl 1982).

Small quantities of burnt animal bone (Appendix A) were recorded in some of the cremations. While some Romano-British cremation cemeteries have yielded burials with burnt animal bone which appears indicative of deliberate burning of animal parts as funerary offerings, the small quantities recovered here would probably be consistent with chance incorporation of discarded bone into pyres and burial deposits.

```
Midpoint  N  |
100       3  | ******
300       4  | ********
500       2  | ****
700       3  | ******
900       0  |
1100      2  | ****
1300      0  |
1500      0  |
1700      1  | **
             I.+..I..+..I
             0  2   4
```

FIG. 92. Histogram of weight of single adult human bone from cremations 200 gram intervals.

TABLE 40. SUMMARY STATISTICS OF WEIGHTS OF BONE (g) FROM CREMATIONS

All single cremations			**Single adult cremations**		
N	Mean	Range	N	Mean	Range
20	431.9	1.3–1670.9	15	503.8	16.1–1670.9

THE CREMATION FROM THE PERIOD 3 BURIAL PIT, ADJACENT TO THE FUNERARY SHAFT (BURIAL 31)

The weight of cremated bone recovered from the grave pit and mortuary shaft was quite low (195.7 g), both compared with the weight expected from a complete adult cremation, and compared with the other Folly Lane cremations. The majority of the bone (164.3 g) came from the grave pit contexts (DAB, DAC, DAD), including 23.7 g animal bone, which was mostly charred but not wholly calcined. The periphery of the Folly Lane grave pit was subject to some disturbance in antiquity, but it seems unlikely that this could have led to very substantial loss of cremated bone from the deposit.

Niblett (1992) points out that perhaps the closest parallel with Folly Lane burial 31 is provided by some of the cremation burials excavated at Stanway, Essex. Like Folly Lane 31, the Stanway burials consist of cremation burials within large, sub-rectangular enclosures, with large mortuary chambers with remains of timber structures within. The burials are of broadly similar date to the Folly Lane example, and were likewise accompanied by rich grave goods. Crummy (1992) gives an account of three Stanway burials of this type, and he remarks on the small amount of cremated bone which was recovered from them. This was confirmed by one of us who has examined the Stanway bone (Mays 1992b). The three Stanway burials discussed by Crummy contained even less bone than did Folly Lane 31 (18 g, 49 g and 82 g). Like the Folly Lane burial, all were adults, but in no case could sex be determined due to the paucity of remains. At both Stanway and Folly Lane, loss of bone due to later disturbance of burial features and to soil erosion seems insufficient to account for the small yields from these interments. It seems probable that burial of substantial quantities of cremated bone did not form an important part of the funerary rituals in these cases. What happened to the rest of the human remains is uncertain, although some possibilities are discussed for the Stanway burials by Crummy (1992).

THE INHUMATIONS: DATA

The period 3 inhumations in the main enclosure ditch, on the east side of the entrance

Burial 14

Material: Poorly preserved skeleton, about 25 per cent complete
Age: Probably about 30–50 years (dental wear: Brothwell 1981; cranial suture closure: Perizonius 1984)
Sex: Possibly female (Workshop of European Anthropologists 1980)
Dental formula:

```
   A C                     C
O  * . . . x . T . x x . . . - -
8  7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
8  7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
O  x . . x x - - * * x . . x . O
     C C               C
     A A
      L E F T       R I G H T
```

Key: . = tooth present in socket; T = loose tooth present; O = congenital absence of tooth; *= tooth lost ante-mortem; x = tooth lost post-mortem; U = unerupted tooth; – = socket and tooth missing post-mortem; C = caries; A = abscess.

Note: There are advanced osteoarthritic changes to two cervical vertebrae, see Appendix A for details.

Burial 15 (PL. VIII)

Material: Moderately well-preserved skeleton, *c.* 25 per cent complete
Age: Probably 20–30 years (dental wear: Brothwell 1981; cranial suture closure: Perizonius 1984)
Sex: Probably female (Workshop of European Anthropologists 1980)
Dental formula:

x	.	.	.	.	.	.	x	x	x	x	.	.	.	x	.
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
.	.	.	.	.	.	x	x	x	x	x	x	x	T	T	.
		L	E	F	T					R	I	G	H	T	

Note: A lower lumbar vertebra shows an irregular cavity in the inferior part of its centrum, and shallow, irregular destruction of the superior/anterior part of the centrum (PL. XLIV). The trabeculae in these lytic areas are somewhat sclerotic. There is negligible reactive bone. A fragment of the anterior part of the body of another lumbar vertebra shows a small lytic area lined with sclerotic trabeculae, and there is a little new bone formation on the anterior wall of the body of this vertebra. No further lumbar vertebrae were recovered and only a few fragments of thoracic and cervical vertebrae are present. These show no signs of abnormality which might be linked to the changes in the lumbar vertebrae and neither does the rest of this very incomplete and fragmentary skeleton.

These lesions are suggestive of tuberculosis. When it affects the skeleton the vertebral bodies are favoured sites for lesions, particularly in the lower thoracic and lumbar spine. The neural arches are often spared. The anterior part of the vertebral body is usually the most seriously affected. The predominantly lytic nature of the lesions with very little new bone formation is typical of tuberculosis.

Other possible diagnoses include brucellosis and osteomyelitis. The dearth of new bone formation would appear to argue against osteomyelitis. Differential diagnosis with brucellosis is more difficult. When brucellosis affects the spine the intervertebral discs are common sites for lesions. When such foci lead to infection of the adjacent bone they tend to produce cavities in the central part of the superior or inferior surfaces of the vertebral body. Also new bone formation may be a feature of brucellosis but is not generally found in tuberculosis (diagnostic criteria for this case are taken from Zimmerman and Kelley 1982; Ortner and Putschar 1985; Steinbock 1976).

Burial 16 (PL. IX)

Material: Moderately well preserved skeleton, *c.* 20 per cent complete
Age: Probably 35–45 years (dental wear: Brothwell 1981; cranial suture closure: Perizonius 1984).
Sex: Probably female (Workshop of European Anthropologists 1980)
Dental formula:

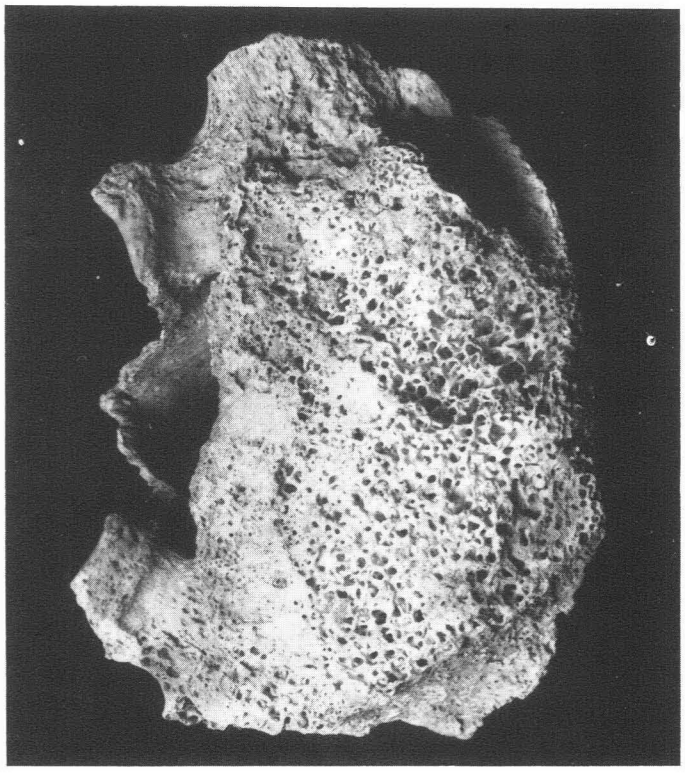


PLATE XLIV. Superior surface of a lower lumbar vertebra from burial 15. There is irregular destruction of the superior surface of the vertebral body. The trabeculae here show remodelling and are somewhat sclerotic. The lesion is suggestive of tuberculosis. *Photograph: English Heritage*

```
C C
T T - - - - - - - - T - - - T -
8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
* * . . . x . . . . . . . . * *
    C                         A
      L E F T         R I G H T
```

Note: There is bilateral calcification of the stylohyoid ligament complex. The surviving parts of the styloid processes (PL. XLV) of the temporal bones are unusually long (36 mm and 29 mm), and show shape irregularities and a radiolucent transverse line which may indicate the junction of the styloid process with the calcified stylohyoid ligament. Usually asymptomatic, calcification of the stylohyoid ligaments can manifest itself clinically in the form of facial pain and swallowing difficulties, when it is known as 'Eagle's Syndrome' (Resnick and Niwayama 1988, 4247; Ferrario *et al.* 1990).

There are also osteoarthritic changes to a number of joint surfaces (see Appendix A).

The inhumations from Areas A, J and K

Burial 28, Area A

Material: Several well preserved elements of the postcranial skeleton of an infant, and one fragment of cranial vault.
Age: Perinatal, *c.* 41 weeks gestational age — approximately full-term (long bone length, Scheuer *et al.* 1980)
Sex: Unknown

Burial 23, Area J

Material: Good condition, 90 per cent complete
Age: probably 30–45 years (dental wear: Brothwell 1981; pubic symphysis: Suchey *et al.* 1987)
Sex: Male (Workshop of European Anthropologists 1980)

PLATE XLV. Parts of the styloid processes of burial 16. The elongation of these processes appears to be the result of ossification of the stylohyoid ligaments which attach to the lower ends of the styloid processes. The junction between the styloid process and the ossified ligament seems to be marked by the swelling visible on both processes.
Photograph: English Heritage

Stature: About 1.70 m (Trotter and Gleser 1952, 1958, quoted in Brothwell 1981, 101)
Dental formula:

```
                                C C
. . . . . . . . . . . . . . . .
8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
8 7 6 5 4 3 2 1 1 2 3 4 5 6 7 8
O . . . . . - - . . . . . . . O
    LEFT         RIGHT
```

Note: There are malformations in elements of the lower vertebral column, which have led to scoliosis and to severe arthritic changes in the affected parts of the spine. Both the eleventh thoracic vertebra and the first lumbar vertebra have developed as hemivertebrae, with cleavage in the sagittal midline. T11 and 12 are fused together, as are L1 and L2 (PL. XLVI). T10 and L2–L5 show degenerative changes including osteophytosis of their bodies and osteoarthritis of some facet joints. In addition, the articular facets between these lower elements of the vertebral column have in some cases developed anomalously, probably as a response to the unusual distribution of loadings in this mis-shapen spine: there was evidently a slight left scoliotic curve. These lesions appear to represent a fairly rare congenital malformation known as 'butterfly vertebra'. It seems to be a defect of bone formation which occurs in the embryonic period of development (Schmorl and Junghanns 1971, 72–3; Mann and Murphy 1990, 62–3).

There is also a malformation of the glenoid cavities of the scapulae. In the right glenoid cavity, a groove runs transversely across the joint surface, and the lower part of the joint surface is bumpy and irregular. The left glenoid cavity, although much damaged by soil erosion, appears to show similar changes. There is no apparent fracture, and the morphology and bilateral nature of these lesions would appear to favour a developmental defect rather than trauma as a cause, but it is unclear whether these malformations are connected with those present in the spine.

This skeleton showed a united fracture of the left second metacarpal. There is also a healed fracture of the superior part of the left acetabulum of the pelvis (PL. XLVII). The corresponding part of the right acetabulum is roughened like the left, and close examination suggests that

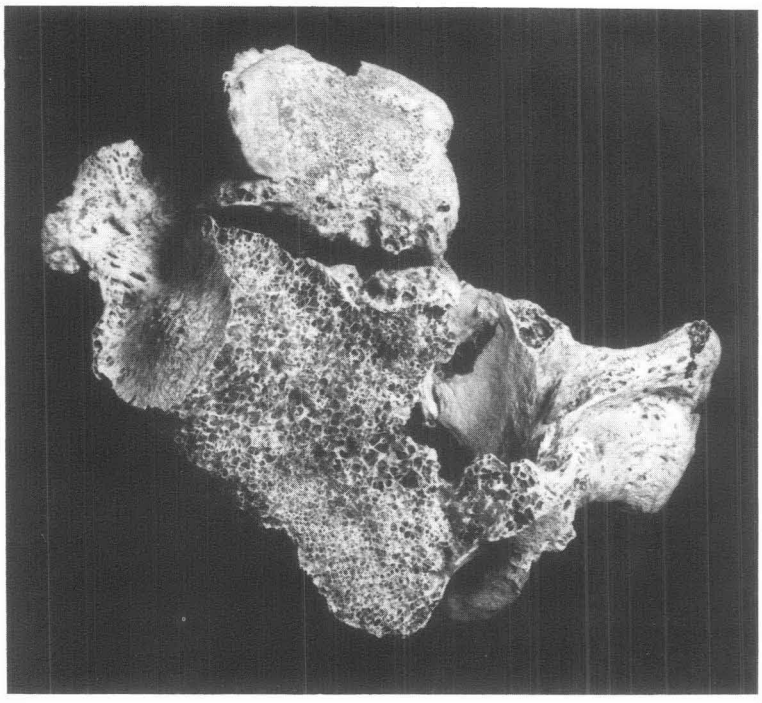


PLATE XLVI. Left lateral view of the first two lumbar vertebra from burial 23. They are fused together at their neural arches and centra. The right hemi-vertebra of L1 is visible; the left side of it is missing post-mortem and the left side of L2 likewise shows post-depositional damage. *Photograph: English Heritage*

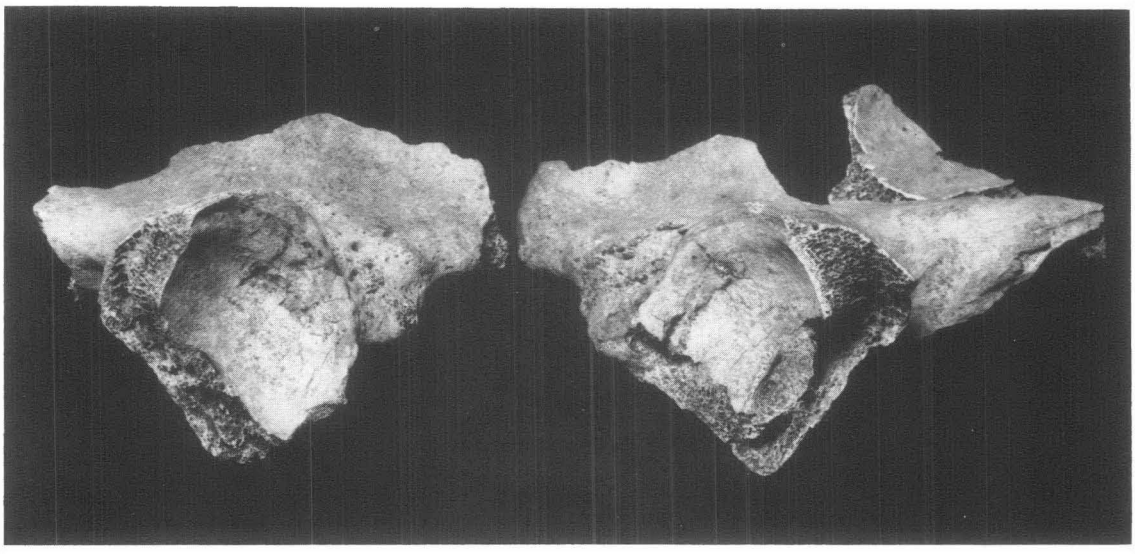


PLATE XLVII. Parts of the pelvic bones from burial 23. The acetabulum on the left pelvis (the one on the right in the picture) shows a healed fracture in its superior part. The joint surface of the right acetabulum, is, like the left, bumpy and irregular, and it too is probably fractured. *Photograph: English Heritage.*

superficial fissure fractures of the joint surface may be present. The lesion to the left acetabulum appears to be a 'flange fracture' (Wells 1976). X-ray revealed a hole within the left ilium immediately superior to the acetabulum which communicates with a hole in the acetabular joint space. This appears to be a supra-acetabular cyst, as described by Wells (1976).

Burial 30, Area K

Material: A skull lacking mandible. The skull is in good condition, but lacks the posterior part of the base and the left temporal bone. It was found placed upright at base of a pit.
Age: 15–18 years (dental eruption: White 1991)[25]
Sex: Male (Workshop of European Anthropologists 1980)

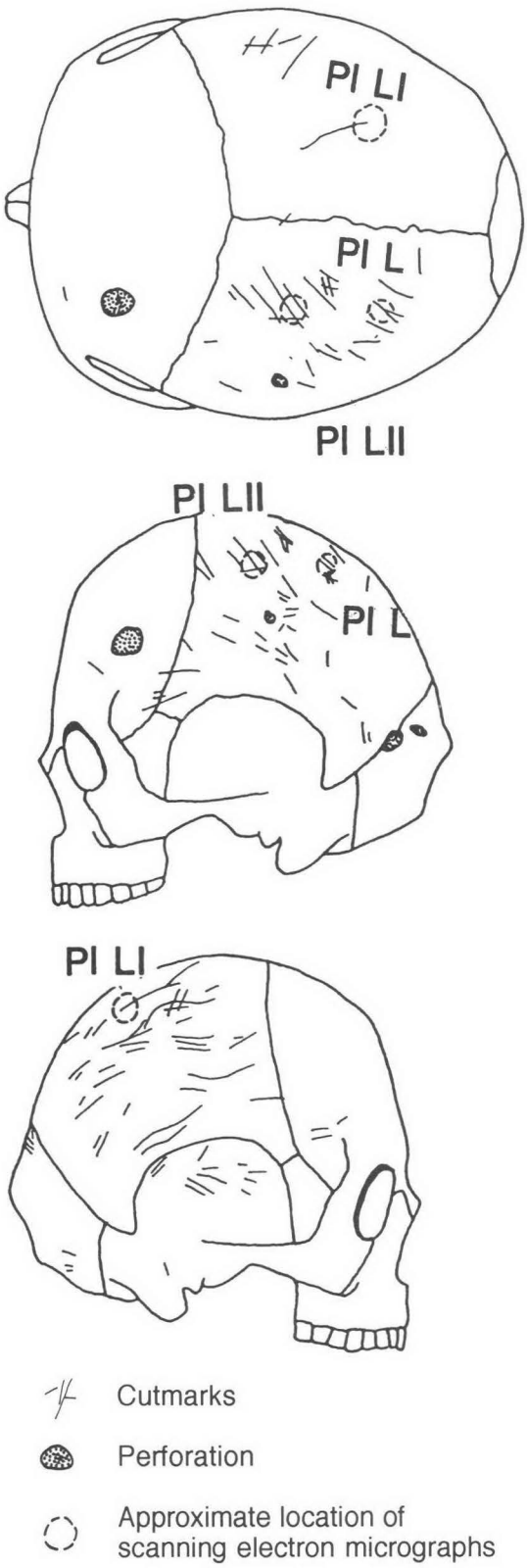


FIG. 93. Schematic representation of a human skull to show the location of perforations and cut-marks in the skull from shaft AET. The location of the scanning electron micrographs (PLATES XLVIII–LI) is also shown

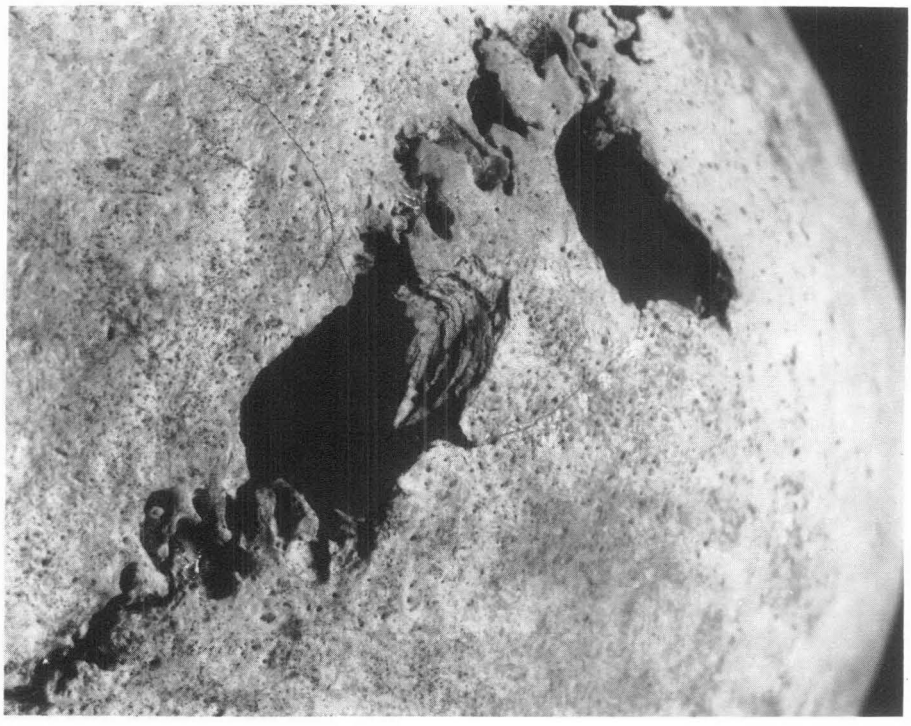


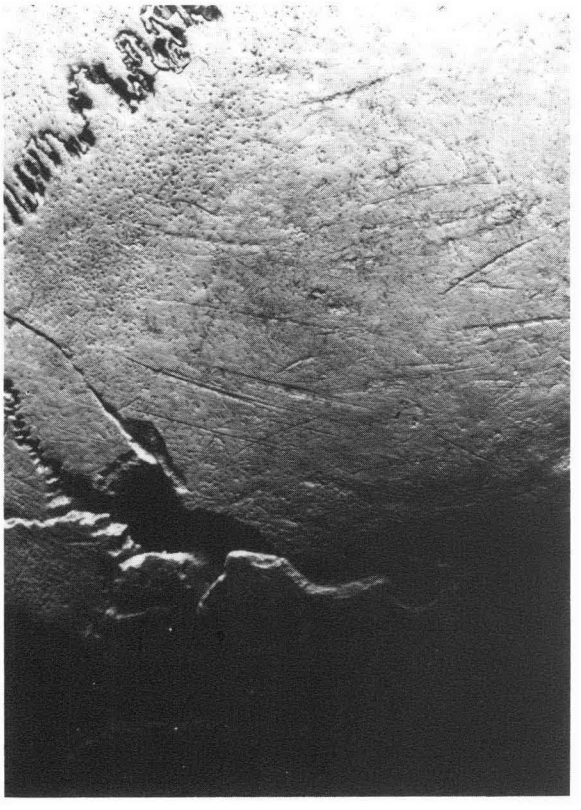
PLATE XLVIII. Burial 30; perforation on the left lambdoid suture. The margin shows adherent inwardly-pushed fragments. *Photograph: English Heritage.*

Dental formula:

U															U
.	.	.	x	x	x	x	x	x	x	x	x	x	.	.	x
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			L	E	F	T					R	I	G	H	T

Note: There are four perforations visible on the left side of the cranial vault (FIG. 93). One, on the lambdoid suture, shows attached flakes of bone which are pushed inwards (PL. XLVIII). Inspection of the endocranial surface of this lesion reveals that the diameter of the lesion is greater on the inner than the outer side due to breaking away of fragments of the inner table of the skull around the hole. The broken edges of the hole present a weathered appearance, indicating that it is an injury which occurred in antiquity rather than a recent break. This lesion appears to be due to a blow to the skull. The greater diameter of the hole within the skull than without indicates that the blow that caused it was to the skull's outer surface. The presence of adherent, inward-pointing fragments indicates that it was sustained whilst the bone was living or at least fresh enough to retain its slight elasticity (Ortner and Putschar 1985, 72). The injury may have been cause of death or may have been a mutilation inflicted upon a lifeless, but still fairly fresh corpse, it is impossible to distinguish which.

The three other holes have also probably been caused by blows. Like the one discussed above, they have greater internal than external diameters and their broken edges show weathering.



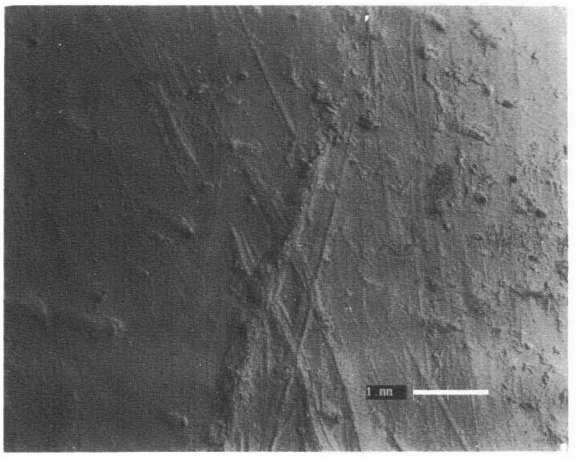


PLATE XLIX. (left) Burial 30; anterior part of the left parietal bone showing cut-marks.

PLATE L. (above) Burial 30; scanning electron micrograph showing intersecting cut-marks on the posterior surface of the left parietel. Note the coarse cut-mark obliterating the underlying ones. Note also the fine striae on the adjacent surface, consistent with scraping.

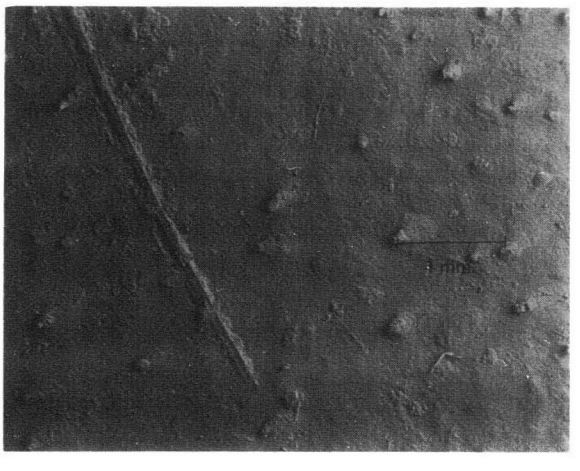


PLATE LI. Burial 30; scanning electron micrograph showing the posterior end of a cut-mark on upper right parietal. Note the fine groove at the base of this cut, and the absence of 'scrapemarks' on the adjacent vault surface.

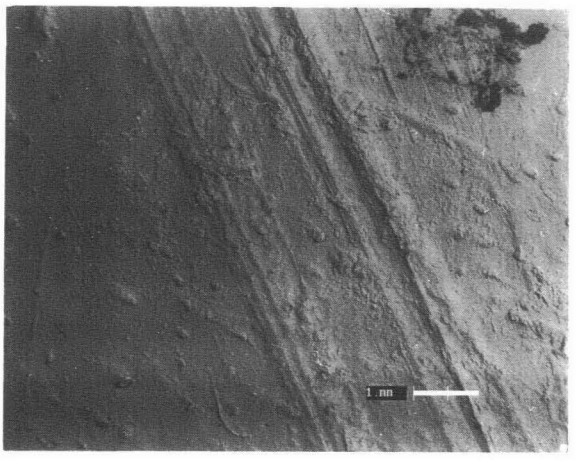


PLATE LII. Burial 30; scanning electron micrograph showing parallel cut-marks on anterior surface of left parietal.

(Note: PLS L–LII are back-scattered scanning electron micrographs of negative moulds of the surface of the skull of burial 30. Locations are indicated on FIG. 93).
Photographs: English Heritage

Unlike the hole on the lambdoid suture, however, they lack adherent fragments at their edges. Despite this last it would seem reasonable to infer that they too represent perimortal lesions. (Even perimortal injuries sometimes lack adherent inward-pointing fragments at their margins (Ortner and Putscher 1985).

There is a 2 cm diameter fragment from the skull vault, consisting of outer table and diploe with a marked indentation on its outer surface. The diploe on the reverse side shows some splintering, although the fragments still adhere to one another. The broken edges of this fragment have a weathered appearance, and are bevelled so that its diameter is least on the external surface. The fragment appears to have been detached from the skull by one of the blows which caused the perforations described above. It is too big to fit any of the holes save that in the frontal bone. However, whether it did indeed come from this area cannot be confirmed due to post-depositional damage to this part of the skull. If this fragment was detached from the skull in antiquity it is surprising that it was found with it on excavation. It may have remained attached to the skull by remnants of soft tissue (although there is evidence for deliberate removal of flesh from the skull — see below) or it may have been attached by the inner table and inner parts of the diploe which are now missing.

There are many (at least 90) fine cut-marks to the ectocranial surface of the vault, concentrated on the left and right parietals and on the right temporal bone (FIG. 93 and PLS XLIX–LII). The left temporal bone is missing; however, there are few marks to the surviving occipital and frontal, and no marks to the surviving elements of the facial skeleton (right zygomatic, left and right maxillae). Impressions were prepared of parts of the cut-marked areas, and these were examined under scanning electron microscope at low magnification, using backscattered electron mode. Most of the cut-marks were narrow in relation to their widths, had V or U-shaped profiles and had parallel longitudinal striations within the main groove (PLS LI, LII). These cuts were probably made by a fine-bladed, sharp knife. A few cut-marks were broader and had less regular profiles (PL. L). These appear to have been made with a less sharp blade, whether a different instrument, or simply a blunter part of the blade which produced the finer cuts is uncertain. This may suggest that more than one instrument was used on the skull, the heavier marks suggesting a broader, less sharp blade. The direction of the cut-marks appears fairly random. Microscopy also revealed many, finer striations which were not visible to the naked eye. These were not visible over the whole surface of the skull, but seemed particularly to be associated with the dense group of cut-marks on the left parietal bone. These observations suggest that they are unlikely to be due to soil erosion. They may have been caused by scraping of a blade across the skull surface.

Two possible interpretations of these cut-marks suggest themselves. One possibility is that their purpose was scalping, another is that the aim was defleshing of the skull. The distinction is important as in the first scenario the removed scalp is the valued object, whereas in the second it is the skull itself.

Studies on remains from the Great Plains in the USA (Owsley *et al.* 1994; Olsen and Shipman 1994) show that when the objective is scalping the cut-marks tend to encircle the vault in a ring; by contrast the marks made in defleshing tend to be both more numerous and much more randomly oriented. The marks on the Folly Lane skull would, on this basis, seem more consistent with defleshing than with scalping. If we are correct in our interpretation of the fine striations as indicative of scraping of the skull surface, then they too would appear to support a defleshing rather than a scalping scenario. In defleshed secondary burials on the Great Plains cut-marks are common on the facial bones, as it is often difficult to remove flesh from this area. However, no marks were found on surviving facial bones of burial 30 at Folly Lane.

In summary, the cut-marks on burial 30 are unlikely to be due to scalping. Although the evidence is not wholly unequivocal, defleshing, with the skull rather than the soft tissue being the valued object, is a much more likely explanation. The individual may have been killed by the blows which caused the four perforations to the left side of the skull, or these may have been inflicted once the person was already dead. All the maxillary anterior teeth, save the broken stump of the root of one canine, have fallen from their sockets after death. Despite careful excavation, no trace of them was found in the pit so they must have fallen from the skull before

it was buried. The skull was also missing the mandible when it was placed in the pit. Although the left mandibular fossa is missing, the right is present; it shows no cut-marks or other signs of forcible removal of the lower jaw. That the mandible was missing, but apparently not forcibly removed, suggests that when the skull was placed in the pit the facial area was free of soft tissue. The missing anterior maxillary teeth indicate an interval between the death and burial sufficient for the periodontal ligament and other supporting soft tissues to rot, releasing the teeth from their sockets. Perhaps the skull was exposed, after having been partially defleshed, for sufficient time for the mandible and anterior teeth to fall away. The Roman temple at Folly Lane is of second–third-century date, so broadly contemporary with the skull. Perhaps the skull was displayed for ritual purposes within or outside the temple before being placed in the pit.

The skull lacks the area around the foramen magnum. None of the missing fragments from this area were found in the pit and the weathered appearance of the broken edges confirms that this part must have broken away in antiquity. Damage to this area could have been caused by mounting the skull on a staff or pole, but there is no further evidence for this.

Burial J/CPA

Material: A femur and one fragment of cranial vault only present. Good bone preservation.
Age: Perinatal infant, *c.* 38 weeks gestational age — approximately full-term (long bone lengths: Scheuer *et al.* 1980).
Sex: Unknown.

THE INHUMATIONS: DISCUSSION

Pathological conditions

The possible case of tuberculosis (burial 15) is of interest, primarily because of its early date. Although tuberculosis in modern urban populations is most frequently of the pulmonary kind caused by *Mycobacterium tuberculosis*, it is likely that in earlier periods the pathway of infection via milk and dairy products infected by bovine tuberculosis (*Mycobacterium bovis*) would also have been important (Stirland and Waldron 1990). The earliest skeletal cases of tuberculosis from Britain seem to date from the Romano-British period. Stirland and Waldron (1990) discuss probable cases from Ashton, Northamptonshire (fourth century A.D. or earlier) and Alington Avenue, Dorchester (second–fourth centuries A.D.). Burial 15 from Folly Lane is of mid-first-century A.D. date and so is slightly earlier than Stirland and Waldron's cases, although the diagnosis is perhaps less certain. Another early case of tuberculosis has been recognized from Tarrant Hinton, Dorset in a skeleton dated to the Iron Age/Romano-British period (Mays 1986).

Burial 16 showed bilateral calcification of part of the stylohyoid ligament. Although this is a common condition in recent populations, with a frequency as high as 84 per cent in some clinical surveys (Ferrario *et al.* 1990), it has not to our knowledge been hitherto reported or studied in collections of ancient skeletons. The spinal malformation known as 'butterfly vertebra' exhibited by burial 23 is, by contrast, rare in modern populations and has likewise rarely been reported in archaeological remains.

The cut-marked skull from shaft AET (burial 30)

The cut-marks on the skull (burial 30) apear to represent defleshing marks and as such are fairly unequivocal evidence for mutilation of the dead, presumably for social or ritual reasons. The perforations observed on the skull are a result of blows and may represent part of this process of mutilation or may be cause of death. British parallels for the Folly Lane skull are hard to find. At some Iron Age sites human skulls are found deposited in pits. For example, nine fairly complete skulls were found in pits at Danebury (Hooper 1991, 425–31). None showed knife-marks of the type found in the present case, although three showed perforating injuries to the bones of the vault. At Wroxeter a number of skull fragments were recovered from third/fourth-century A.D. contexts. One showed fine parallel cut-marks above the brow ridge on the frontal bone (Wilkinson n.d.). The location and parallel orientation of these marks is quite

different, though, to those on the Folly Lane example. The cuts on the Wroxeter skull fragment are much more consistent with scalping (an interpretation made by Barker 1981, 15, and by Wilkinson n.d.) than with defleshing, in contrast to the present case.

It is tempting to postulate some connection between the Folly Lane find and the well known Romano-British phenomenon of decapitated burials. In most cases the severed head is buried in the grave with the rest of the body (Philpott 1991), although in a few cases the head appears not to have been deposited in the grave. According to Philpott, however, there are very few examples of decapitated burials which can be securely dated to earlier than the fourth century A.D. A link between the Folly Lane skull and the phenomenon of the decapitated burials is unlikely.

As for Britain, evidence for scalping and defleshing of skulls from the Roman period in northern continental Europe is sparse (Anger and Diek 1978).

APPENDIX A: THE CREMATIONS AND INHUMATIONS: ADDITIONAL NOTES ON INDIVIDUAL BURIALS

Notes on individual cremations

Burial 1

One cervical vertebra with osteoarthritis of facet and Luschke joint to Sager's Grade 3 (Sager 1969, reproduced in Brothwell 1981, fig. 6.9). Partially divided hypoglossal canal.

Burial 2

Right supraorbital foramen complete.

Burial 3

Includes metaphysis of an infant long bone, infant ribs, and an unfused infant epiphysis.

Burial 4

Includes one iron fragment from context BAG 2, with iron stains on two fragments of bone from context BAG 5.

Burial 5

Includes five sherds pottery.

Burial 9

Includes calcaneum of immature pig/sheep/goat. Some fragments of vault and of trabecular bone are very slight, but may not be human. Six sherds pottery.

Burial 10

Includes calcaneum of immature pig/sheep/goat.

Burial 12

Includes animal bone.

Burial 13

Osteophytes and osteoarthritis to Sager's Grade 3 to the lateral articular surface of the clavicle. Iron stain on one fragment cranial vault and two fragments post-cranial bone. Some large fragments of blackened, charred bone, possibly animal.

Burial 17

One fragment probable animal tooth.

Burial 18

72.5 g (about 7 per cent of the total bone from this burial) was excavated in three spits from the fill of the burial urn. There were more fragments of blackened bone and charcoal in this material, but no indication of any vertical sorting of the human bone within the urn. An iron nail was recovered from spit 2. Three fragments of unidentified bone with unfused epiphyses are present. These clearly represent immature skeletal elements, but it is unclear whether or not they are human.

Burial 19

One fragment of animal bone.

Burial 20

Includes animal bone.

Burial 21

Includes two fragments pig skull, and one animal right rib.

Burial 26

A very mixed sample apparently deriving from more than one deposit. Two cremated individuals are represented, indicated by the duplication of the left frontal bone in context 107FR, and there is also some unburned human bone in 107FR (including a left scapula which cannot derive from the individual in burial 23). There are also fragments of animal bone, some charred and some unburnt; and from 107FR an iron object and an intrusive piece of transparent plastic.

Burial 29

Includes animal bone.

Burial 31

The central grave pit cremation from the ritual enclosure. The majority of the bone (164.3 g) came from the grave pit contexts (DAB, DAC, DAD), including 23.7 g animal bone (which was mostly charred but not wholly calcined). Compared to cremated human bone from the grave pit and from elsewhere on the site, the human bone from the mortuary shaft contexts (DAF, DAG, DAP, DGJ, DJE) was all in very poor condition, with a chalky, friable texture.

Notes on individual inhumations

Burial 14

Intervertebral disc degeneration (to Sager's Grade 3, without lipping) between cervical vertebrae C5 and C6. C1 also has some osteophytes.

Cranial measurements (mm, definitions and symbols following Brothwell 1981): S'3 86.5.

Burial 15

Pathology: Lesions to two lumbar vertebral bodies (see main text). DISH-type bone growth on anterior rim of first sacral vertebra. Slight dental calculus (Grade 1 (on scale of Dobney and Brothwell 1987)).

Cranial and mandibular measurements (mm, definitions and symbols following Brothwell 1981): G'H 56.4, NH' 42.6, NB 24.3, O'1 36.4, G'1 37.2, G2 39.8, S'1 106.3, RB'(l.) 32.4.

Burial 16

Pathology: Osteoarthritis to Sager's Grade 1 on two cervical vertebra, and also to Grade 3 with eburnation on the right inferior facet joint of C7 and the right superior facet joint of thoracic

vertebra T1. Osteophytosis to Sager's Grade 2 on the odontoid of C2, and on the articular facet for this process on C1. Grade 1 osteoarthritis on the right humeral head. Bilateral calcification of the stylohyoid ligament. Moderate dental calculus (Grade 1-2 (of Dobney and Brothwell 1987)).

Cranial and mandibular measurements (mm, definitions and symbols following Brothwell 1981): FL 35.0, Biast. B 104.3, ZZ 43.0, RB'(r.) 32.7, RB'(l.) 31.3, H1 32.6, ML 101.0, CrH(r.) 53.0, Mandibular angle 122 degrees.

Burial 23

Pathology: T10 is laterally wedged with compression of the left side, osteophytosis, a circular depression on the inferior surface of the centrum, and lateral eversion of the left inferior facet of the neural arch with arthritic degeneration. T11 and T12 are fused at the spines of the neural arches; T11 is a 'butterfly vertebra' with sagittal cleft on the midline, and the left hemivertebra is largely missing (as is the body of T12). The centrum of L1 was also cleft sagittally ('butterfly cleavage'): only the right hemivertebra survives. It is partly fused to the superior surface of the centrum of L2, which slopes inferolaterally in the same plane as the overlying hemivertebra (see PL. XLVI). L1 and L2 are fused at the spines and neural arches of the posterior processes, and L2 has severe osteophytosis to the right inferior rim and severe osteoarthritic changes to the inferior surface of the centrum. L3 and L4 both have severe osteophytosis. The right inferior articular facet of L3 is rounded inferiorly. The right superior articular facet of L4 is correspondingly rounded at base; a secondary right inferior facet has formed below the body, oriented posteriorly. The left inferior facet is located superior to its normal position. There is a good deal of disorganized new bone formation to the right pedicle and lamina. The centrum of L4 is incompletely cleaved posteriorly in the mid-sagittal plane. L5 has enlargement of the left inferior facet while the right inferior facet shows possible disuse hypotrophy. There is also a transitional lumbosacral vertebra (S1) unfused to S2 on the left side, with oblique wedging — the unsacralized half being lower, as is usually the case (Schmorl and Junghanns 1971). The left superior articular facet of the sacrum occurs on the underlying sacral vertebra S2.

There is an apparent congenital bilateral malformation of the glenoid of the scapula.

There is a benign cortical defect of the left humerus at the point of insertion of teres major (a lesion that may be associated in adults with acute or chronic trauma to the shoulder (Mann and Murphy 1990, 85), and there are severe osteoarthritic changes (Sager's Grade 3) to the lateral articular surface of the left clavicle.

There are also a number of traumatic lesions, including a probable healed fracture to the left second metacarpal (which radiographic analysis showed to be well remodelled). Additionally, one and possibly both acetabula of the pelvis have 'flange fractures' (Wells 1976) to the superior rim, with exostoses at the points of attachment of the ligaments on the postero-inferior surface of the ilium (see PL. XLVII). The left acetabulum has a cavity superior to the fracture, with two small holes below the anterior iliac rim posterior to the fracture with localized periosteal rective bone deposition. There is a raised area of coarse reactive bone on the superior surface of the left ilium above the cavity. No pathological changes were observed to either femur: the pelvic lesions are likely to be 'flange fractures', with unilateral formation of a supra-acetabular cyst (Wells 1976) on the left side (radiographic examination showed a large multilocular cavity in the left ilium).

There is bilateral retention of the broken root of deciduous mandibular M2, in each case anterior to the junction between PM2 and M1 of the permanent dentition. Slight dental calculus (Grade 1 (of Dobney and Brothwell 1987)).

Cranial and mandibular measurements (mm, definitions and symbols following Brothwell 1981): B' 107, GoGo 101, ZZ 47, RB'(l.) 36, RB'(r.) 37, ML 106, CrH(l.) 71, CrH(r.) 71, Projective corpus length 87, Mandibular angle 110 degrees.

Postcranial measurements (mm): RFeL1 450, RHuL1 359, RRaL1 255, LHHD 51, RHHD 52, RHMAX 25.3, RHMIN 19.8, LHEW 65, RHEW 69, LFeD1 33, RFeD1 32.5, LFeD2 32, RFeD2 35, RFMAP 32, RFMTV 30, LTiD1 33, RTiD1 36, LTiD2 29, RTiD2 28.

L = Left; R = Right; HHD = maximum humerus head diameter; HMAX = maximum diameter of humerus at midshaft; HMIN = minimum diameter of humerus at midshaft; HEW = humeral epicondylar breadth; FMAP = A-P diameter of femur at midshaft; FMTV = transverse diameter of femur at midshaft. Otherwise abbreviations and definitions follow Brothwell (1981).

Burial 28

Infant.

Postcranial measurements (mm, definitions and symbols following Brothwell 1981): LTiL1 69, RRaL1 55.

Burial 30

Cribra orbitalia of Brothwell's Type B (Brothwell 1981) was present as unremodelled lesions in both orbits. This condition is usually associated with acquired iron-deficiency anaemia, a common condition often associated with gut parasites (Stuart-Macadam 1992).

Cranial measurements (mm, definitions and symbols following Brothwell 1981): G1 35.0, G2 40.0, S'2 95.0.

APPENDIX B

TABLE 41. ADDITIONAL HUMAN BONE, INCLUDING MATERIAL RECOVERED FROM THE ANIMAL BONE ASSEMBLAGE

Context	**Identification and notes**
Burial 32	Right humerus, probably adult. Not derived fom the inhumation burials 14, 15, or 16
G/CXD	Moderately well-preserved infant left ilium. Estimated age: 0–3 months (cf. Molleson and Cox 1993, 152).
	Left humerus, probably adult. Probable animal gnawing of distal end (S. Payne, pers. comm.).
K/CVD	Adult fibula.
A91/A BDG	
A91/B BET	Adult left ulna.
A91/A BDK	Adult right radius.
A91/A BDK	Adult left tibia.
A91/5A ADL	Infant right tibia, right femur. RTiL1 = 63 mm, RFeL1 = 68 mm. Estimated gestational age (Scheuer *et al.* 1980): 35–37 weeks.
A91/C BPC	Adult right tibia.
A91/J CPY	Adult left humerous.
A91/A BEB	Adult left femur.
A/91A ACA	Left ilium with acetabulum. Adult, ?male.
A91/B BEC	Adult left humerus.
A91/B BGA	Adult right humerus.
A91/C BRV	Adult left ulna.
A91/C BRV	Adult ulna.
A91/A CMM	Adult left humerus. Charred.
A91/B BGH	Adult right humerus.
E93/P2 APF	Infant right ilium. Probably 0–3 months, cf. Molleson and Cox 1993: 152.
E93/P2 AQG	Infant right tibia, left tibia, right fibula, left fibula, right ulna. RTiL1 = 68 mm, RFiL1 = 65.7mm, RU1L1 = 61.7 mm. Estimated gestational age (Scheuer *et al.* 1980): 39–40 weeks. Inhuman burial?
E93/P2 AME	Adult right femur.
E93/M2 HBE	Adult left tibia.

THE ANIMAL BONE

by Alison Locker

The animal bone from Folly Lane can be attributed to four broad phases of activity: the late Iron Age ditch (period 2), the construction of the rectangular enclosure ditch with a central mid-first-century cremation burial (period 3), the construction of the Roman temple within the enclosure and the upper ditched deposits recut with some cremation and inhumation burials outside the enclosure (periods 4–5). A number of later pits outside the enclosure area may represent the remains of wells, cess pits, votive offerings and industrial activity (periods 6–7). There are also some late Roman buildings.

The following species were identified: horse (*Equus* sp. domestic), cattle (*Bos* sp. domestic), sheep/goat (*Ovis* sp. domestic/*Capra* sp. domestic, referred to hereafter as ovicaprid) pig (*Sus* sp. domestic), red deer (*Cervus elaphus*), roe deer (*Capreolus capreolus*), dog (*Canis* sp. domestic), cat (*Felis* sp. domestic), ?fox (*Vulpes vulpes*), hare (*Lepus* sp.) and rabbit (*Oryctolagus cuniculus*, intrusive). There was no evidence for the presence of goat, so it is assumed that the ovicaprids are all sheep.

Bones of shrews, voles, wood mouse (*Mus sylvaticus*) and frog (*Rana* sp.) were present in the sieved samples.

Birds were few numbering seventy-six, see TABLE 54. 58 per cent were domestic fowl (*Gallus* sp. domestic), domestic duck/mallard (*Anas* sp. domestic/*Anas platyrhynchos*), goose (*Anser* sp. domestic), pigeon (*Columba* sp.), thrush (*Turdus* sp.) crow/rook (*Corvus corone*/*Corvus frugilegus*) were also identified. Apart from the partial remains of two domestic fowl from the enclosure ditch discussed later the bird bones were often identified as single occurrences, this may be partly reflective of the recovery level. The sieved samples, which produced many small fish bones and small mammals, contained only a thrush radius and two indeterminate fragments, suggesting that bird remains were truly represented by hand collection.

The 156 fish bones were largely recovered from sieved samples; eel (*Anguilla anguilla*), smelt (*Osmerus eperlanus*), dace (*Leuciscus leuciscus*), Cyprinidae, cod (*Gadus morhua*), brill (*Scophthalmus rhombus*) and flatfish indet were identified and are shown in TABLE 55. The latter three were handpicked during excavation and with eel and smelt are probably domestic food debris. Cod, brill and flatfish are all marine food fishes, while eel and smelt (only in the lower reaches) migrate into rivers and form seasonal fisheries. The cyprinids were very small specimens, e.g. one dace was less than 50 mm in total length, their presence may be incidental as part of a larger catch from a river, or possibly as the stomach contents of a larger fish. Among the indeterminate fragments were scales that could not be identified to species.

The number of bones referred to in the text only includes handpicked material, of which 14,099 were attributable to mammal. Bones from the samples or the burials were counted separately. The bones were measured according to von den Driesch, 1976. The large number of contexts and fills from the site required some combining for tabulation and have been put into the following groups:

TABLE 42: The late pre-Roman Iron Age. Period 2
TABLE 43: The main enclosure ditch, excluding the top midden. Periods 3–6
TABLE 44: The main enclosure ditch top midden. Periods 6–7
TABLE 45: Late first century-mid-second century, excluding the enclosure ditch. Period 4
TABLE 46: Late second century-third century, exluding the enclosure ditch. Periods 5 and 6
TABLE 47: Fourth century, excluding the enclosure ditch. Period 7
TABLE 48: Bone pit AET, fills AEY, AES. Periods 5–6
TABLE 49: Fill DDP of bone pit AET. Periods 5–6
TABLE 50: Fill DHR of bone pit AET. Period 6
TABLE 51: Pit ABR. Period 5
TABLE 52: Shafts, Periods 4-6
TABLE 53: Hollows over shafts. Periods 5–6
TABLE 54: The birds. All periods
TABLE 55: The fish. All periods

THE LATE PRE-ROMAN IRON AGE DEPOSITS (PERIOD 2)

TABLE 42 shows the bones identified from the fills of the Iron Age ditch and a gully which were all in poor condition. 80 per cent of the bones from this period were from a black humic ditch fill, with evidence of burning (contexts BEW, BHF) in which 62 per cent of the bones were cattle or sheep-sized ribs, long bone fragments or indeterminate fragments. Fourteen bones were burnt; two sheep-sized vertebral fragments, four sheep-sized long bone fragments and eight indeterminate fragments. Five bones from a newborn piglet were also identified from this layer. The assemblage from this period seems to reflect disposal of domestic food debris, there are no horse remains which occur in later deposits throughout the site.

The ovicaprid remains are dominated by mandibles and loose teeth, the ageing of which is discussed later. A skull fragment showed where a horn core had been broken off, and the skull was broken axially down the suture. In the post-cranial skeleton metatarsals (five) are the most frequently occurring bone, two of the three complete fully fused metatarsals from the site are from BEW, one of which has cut-marks on the proximal anterior surface of the shaft. Other broken shafts showed evidence of cut-marks and axial splitting.

Two cattle metatarsals were also split axially and broken across the shaft. Medio-lateral breakage/chopping was more prevalent in cattle (though the samples are small) with cut-marks on the anterior surface of a proximal metacarpal. A horn core fragment was porous and showed evidence of copper staining. A mandible fragment was chopped leaving the alveoli of the second premolar as all that remained of this bone.

There was slight evidence for canid gnawing on both cattle and ovicaprid bones, a condition which is evident in much of the later material.

The comparative number of cattle and cattle-sized fragments against ovicaprid and ovicaprid-sized fragments provides the only evidence from this assemblage where sheep might be considered the most numerous domestic species. Later levels all seem to suggest a Romanized cattle based economy also reflecting local urbanization and an increased demand for meat.

TABLE 42. ANIMAL BONE FROM PERIOD 2. LATE PRE-ROMAN IRON AGE

	Cattle	**Ovicap**	**Pig**	**Dog**	**Cattle S**	**Ovicap S**	**Indet**	**Total**
Skull	0	2	0	0	9	7	0	18
Horncore	2	0	0	0	0	0	0	2
Maxilla	1	0	1	0	0	0	0	2
Mandible	3	9	0	0	0	0	0	12
Teeth	0	7	1	1	0	0	0	9
Vertebra	0	1	1	0	4	12	0	18
Scapula	1	2	2	0	1	2	0	8
Radius	0	3	0	0	0	1	0	4
Ulna	0	0	1	0	0	0	0	1
Metacarpal	2	2	0	0	0	0	0	4
Pelvis	0	0	3	0	0	0	0	3
Femur	0	1	0	0	1	2	0	4
Tibia	2	1	0	0	1	2	0	6
Astragalus	1	0	0	0	0	0	0	1
Calcaneum	2	0	0	0	0	0	0	2
Metatarsal	3	5	0	0	0	1	0	9
Metapodial	1	0	3	0	0	2	0	6
Carpal/Tarsal	0	0	0	0	1	0	0	1
Phalanges	2	0	0	0	4	0	0	6
Rib frags	0	1	0	0	20	32	0	53
Long bone	0	0	0	0	15	24	0	39
Fragment	0	0	0	0	0	8	66	74
Total	20	34	12	1	56	93	66	282

THE CEREMONIAL ENCLOSURE DITCH

The bone from the enclosure ditch, the east and west terminals and excavated sections, may represent ritual activity associated with the central burial and later temple and is shown in TABLE 43. The midden material overlying the main ditch deposits has been added to this material in TABLE 44. The differences between these two deposits are discussed later.

Only 12 per cent of the bone was from primary silts at the base of the ditch, which appears to have been relatively clean, the bone was largely cattle-sized long bone fragments and indeterminate fragments.

Pit BJC was cut into the west terminal in Period 4. It contained part of a ?single adult horse including fourteen loose teeth and a fragmentary mandible in poor condition. The limb bones were broken and largely attributable to the left side. A metatarsal and a humerus showed evidence of black staining, whether this resulted from pre- or post-depositional processes is not clear, but eleven other broken cattle-sized vertebral fragments were also stained black. Three cattle horn cores were also recovered from this recut, broken off from the skull. Only two bones were attributable to ovicaprid; a maxilla fragment and a split humerus shaft. The artefacts associated with the central burial included an enamelled horse bit and it is tempting to connect this with the horse remains, although there is no evidence.

The secondary silts (A.D. 100–20) included the mandibles from at least two adult dogs. Horse was identified from loose teeth (including a worn deciduous tooth), a mandible fragment and two vertebrae. The domestic food species were also well represented by skull and associated fragments including cattle horn cores and teeth, ovicaprid mandibles and pig by a single mandible and a loose tooth. Cattle and ovicaprid post-cranial fragments were also present, some of which showed evidence of canid gnawing. A single fragment of ovicaprid rib had a shiny ivoried appearance, possibly from boiling?

The bone from four deposits of turf and chalk levelling (A.D. 140–60) in both east and west terminals and sections of ditch is shown in TABLE 44. All but twenty-one bones come from contexts BGR, BHM, BGH and BLY, the other levels (contexts BLZ, BRP, BGH and BTZ) produced little material all fragmentary and in poor condition. As can be seen in the table 73 per cent of the bone was cattle/sheep-sized or indeterminate rib, long bone or fragments, reflecting the fragmentary condition of this group of bones. Again cattle horn cores, mandibles and teeth are predominant and mandibles and loose teeth for ovicaprids. Pig was only identified from a single tooth. A very low percentage of pig appears typical of these enclosure deposits, less than 1 per cent in both secondary deposits and chalk levelling, (none in the primary) only rising marginally in later fills.

The upper and top silts of the enclosure ditch are not distinguished from each other by particular mammal assemblages, except for horse remains concentrated in the upper silt of the east terminal. Horse is present in relatively high percentages throughout the enclosure deposits; 12.5 per cent in primary and secondary silts, 5.6 per cent in the turf and chalk levelling and 5 per cent in the upper and top silt. Although this percentage does decrease in later midden deposits (1.8 per cent) and horse appears so regularly in deposits across the site (including seven fragments in the cattle limb bone deposit in shaft AET) that its occurrence as an indicator of ritual or status offerings associated with the central burial/temple is based on quantity rather than occurrence. In the upper silt deposit DDH the remains of part of at least two horses were identified, and although the bones were broken none showed any evidence of butchery. The cattle and ovicaprid remains reflect those of earlier enclosure deposits, such as cattle horn cores. Deposit DDJ contained most of the headless carcase of a mature domestic fowl, and the leg and wing bones of an immature fowl, which could be an offering. Three other fowl and an indeterminate bird bone fragment were also recovered from these deposits. A human fibula was identified from the silt over the chalk levelling (BRV).

In the midden deposits over the ditch, shown separately in TABLE 44, the range of species is greater than in earlier deposits and the percentage of horse is lower, down to 1.8 per cent. The bone comes from three main deposits, primarily BED from which 70 per cent was recovered, BJD and BGA. The horse remains from BED (BEC) included part of a femur, astragalus and

phalanx which were very eroded and may be redeposited or were left lying on the surface for some time prior to disposal. A pair of horse mandibles was present, aged around eight years from the height of the third premolar (after Levine 1982), from an adult ?female animal, with faint evidence of knife marks on the medial surface of the right mandible.

Cattle horn cores (five) included one mature core which appeared stretched and flattened from the base to approximately half way along the length and may be evidence of poor nutrition. A number of mandibles, all from mature animals, were broken. One showed knife cuts under M2 and M3, three articular condyles were chopped from the mandible. Scapulae were broken across the neck and there was some evidence for the spine being chopped off. There were few bones of humerus/radius and femur/tibia/hock, although the remains of these may be represented in the splintered long bone fragments. The metapodials showed evidence of axial splitting as well as breakage across the shaft. A first phalanx had cut-marks on the lateral side. Rib fragments (twenty-six) tended to be no greater than 100 mm long, a further six were ivoried possibly as a result of boiling and showed cut-marks. Vertebrae were fragmented and some had cut- marks.

The ovicaprid remains included a high proportion of mandibles (eleven), teeth (thirty-three) and radii (seven) of the sixty-two bones attributed to this group. The mandibles were broken, but with ageable tooth rows in full wear, radii were broken across the shafts. Pig remains were from all parts of the carcase and as with the other domestic species showed evidence of dog gnawing which is widespread across the site, including on some human bones. Roe deer was identified from a split metatarsal and the distal end of a humerus, while red deer was tentatively identified from a humerus shaft, deer were not identified from the ditch deposits. Dog bones were few, a maxilla and metapodial, hare was identified from a scapula, and a cockerel from a spurred tarsometatarsus shaft.

The midden over the main Enclosure ditch (context BJD) included a horse mandible from an animal of approximately six years (ibid.) and some loose teeth. Among the post-cranial bones was a metatarsal with superficial chop marks on the proximal end and chopped through the distal end, one of the few examples of butchery on horse at this site. Cattle were dominated by mandibles (three) all fully mature and showing evidence of butchery, chopped through the

TABLE 43. ANIMAL BONE FROM MAIN ENCLOSURE DITCH (EXCLUDING TOPMOST MIDDEN)

	Horse	Cattle	Ovicap	Pig	Dog	Cattle S	Ovicap S	Indet	Total
Skull	2	2	4	1	0	17	3	0	29
Horncore	0	14	0	0	0	0	0	0	14
Maxilla	0	0	1	0	1	0	0	0	2
Mandible	2	3	14	1	4	10	1	0	35
Teeth	23	15	23	2	0	0	0	0	63
Vertebra	3	2	0	1	4	30	2	0	42
Scapula	1	1	1	0	1	19	0	0	23
Humerus	1	1	3	1	1	3	3	0	13
Radius	1	4	2	0	0	0	0	0	7
Ulna	0	1	0	1	0	0	0	0	2
Metacarpal	1	1	5	0	0	0	1	0	8
Pelvis	2	6	2	0	0	8	0	0	18
Femur	1	0	1	0	0	2	1	0	5
Tibia	2	1	4	1	0	2	2	0	12
Astragalus	0	3	0	0	0	0	0	0	3
Calcaneum	0	2	0	1	0	0	0	0	3
Metatarsal	3	1	3	0	0	0	1	0	8
Metapodial	2	2	0	0	0	0	0	0	4
Carpal/Tarsal	0	1	0	0	0	0	0	0	1
Phalanges	4	9	0	0	0	0	0	0	13
Rib frags	0	0	0	0	0	18	17	0	35
Long bone	0	0	0	0	0	79	53	0	132
Fragment	0	0	0	0	0	161	0	121	282
Total	48	69	63	9	11	349	84	121	754

TABLE 44. ANIMAL BONE FROM MAIN ENCLOSURE DITCH: TOPMOST MIDDEN

	Horse	Cattle	Ovicap	Pig	Dog	Hare	Deer	Cattle S	Ovicap S	Indet	Total
Skull	0	4	1	3	0	0	0	39	3	0	50
Horn/antler	0	11	0	0	0	0	2	0	0	0	13
Maxilla	0	2	2	1	1	0	0	0	0	0	6
Mandible	3	13	27	3	0	0	1	7	6	0	60
Teeth	8	19	37	7	0	0	0	0	2	0	73
Vertebra	0	0	0	0	0	0	0	32	1	0	33
Scapula	0	3	0	2	0	1	0	5	0	0	11
Humerus	1	0	0	2	0	0	2	6	4	0	15
Radius	1	2	8	0	0	0	0	5	7	0	23
Ulna	0	0	0	0	0	0	0	2	0	0	2
Metacarpal	0	8	3	0	0	0	0	0	1	0	12
Pelvis	1	2	3	2	0	0	0	4	1	0	13
Femur	1	1	0	0	0	0	0	6	5	0	13
Tibia	1	1	4	5	1 Fox	0	0	4	4	0	20
Astragalus	1	2	0	0	0	0	0	0	0	0	3
Calcaneum	0	1	0	0	0	0	0	0	0	0	1
Metatarsal	1	9	5	0	0	0	0	0	3	0	18
Metapodial	3	0	0	1	1	0	0	0	0	0	5
Carpal/Tarsal	0	1	0	0	0	0	0	1	0	0	2
Phalanges	2	11	1	0	0	0	0	1	0	0	15
Rib frags	0	0	0	0	0	0	0	46	25	0	71
Long bone	0	0	0	0	0	0	0	154	114	0	268
Fragment	0	0	0	0	0	0	0	16	0	685	701
Total	23	90	91	26	3	1	5	328	175	685	1428

Red deer antler, madible and humerus
Roe deer antler and humerus

diastema, with cut-marks on the medial side. Bones from the post-cranial skeleton were metacarpals (two), astragali (two) and a femur shaft chopped both proximally and superficially, and which had also been gnawed. Ovicaprids were identified from a few fragments largely mandibles/teeth, pig from an immature mandible. Fox was identified from a fragment of tibia. An eroded fragment of red deer antler had been shaved down one side and appears to have been discarded. Among the many splintered cattle-sized long bone fragments were a section of humerus shaft which had been shaped down one side and hollowed (50 mm long), a splinter of long bone smoothed and pointed (90 mm long) and a smaller splinter smoothed and worn (40 mm long). A single hare scapula was also identified. Sixteen fragments were burnt, all cattle/sheep-sized, indeterminate fragments.

Nearly half, 48 per cent, of the bone was classified as indeterminate from the midden, indicating a greater level of fragmentation than in the underlying ditch fills.

Determining characteristics of 'ritual' and 'non ritual' deposits here is complex since as well as the rituals centred round the temple, industrial activities and dumping of food waste also took place and the cult status attributable to offerings of a particular species as identified at Uley and Harlow (discussed later) cannot be discerned here. However, although horse appears in most deposits here it does seem to be more common in deposits associated with religious activity. Horse is more common in the ditch deposits than the overlying midden. It is also more common in the ritual shafts (see TABLE 52) than the other deposits. Dog is also common throughout the site and may in some cases be associated with ritual activity, but it has not been possible to suggest the same distinction.

THE OTHER ROMAN DEPOSITS

The remaining deposits have been grouped either by period or by context type or individual context of special interest in the case of the bone pit.

In TABLE 45 the period 4 features included were an assortment of two pits, two cremation pits and a wall footing. The small sample of bones (120) was dominated by cattle and ovicaprid remains, largely domestic food debris with five bones from the post-cranial skeleton of horse.

TABLE 45. ANIMAL BONE FROM PERIOD 4 EXCLUDING THE ENCLOSURE DITCH. LATE FIRST CENTURY TO MID-SECOND CENTURY

	Horse	Cattle	Ovicap	Pig	Cattle S	Ovicap S	Indet	Total
Skull	0	0	0	0	2	0	0	2
Horncore	0	1	0	0	0	0	0	1
Maxilla	0	1	0	0	0	0	0	1
Mandible	0	0	2	0	0	1	0	3
Teeth	0	1	7	1	0	0	0	9
Vertebra	0	1	3	0	11	0	0	15
Scapula	0	5	1	0	0	0	0	6
Humerus	0	0	1	0	0	0	0	1
Radius	1	0	3	0	1	0	0	5
Ulna	0	0	0	0	1	0	0	1
Metacarpal	1	1	0	0	0	0	0	2
Pelvis	1	0	1	0	1	0	0	3
Tibia	0	0	1	0	0	1	0	2
Metatarsal	0	2	4	0	0	0	0	6
Metapodial	1	0	0	0	0	0	0	1
Phalanges	1	1	0	0	0	0	0	2
Rib frags	0	0	0	0	11	2	0	13
Long bone	0	0	1	0	8	4	0	13
Fragment	0	0	0	0	20	8	6	34
Total	5	13	24	1	55	16	6	120

TABLE 46. ANIMAL BONE FROM PERIODS 5 AND 6 (EXCLUDING THE ENCLOSURE DITCH)

	Horse	Cattle	Ovicap	Pig	Dog	Deer*	Cattle S	Ovicap S	Indet	Total
Skull	0	9	1	3	1	0	16	1	0	31
Horn/antler	0	7	2	0	0	2	0	0	0	11
Maxilla	0	3	6	3	1	0	0	0	0	13
Mandible	3	3	15	4	5	0	9	3	1	43
Teeth	9	13	35	11	2	1	5	0	0	76
Vertebra	0	4	1	0	1	0	25	1	0	32
Scapula	0	6	3	3	0	0	11	4	0	27
Humerus	0	2	0	0	1	0	4	2	0	9
Radius	1	2	6	3	0	0	3	6	0	21
Ulna	0	1	1	2	0	0	1	0	0	5
Metacarpal	1	7	2	0	0	0	0	0	0	10
Pelvis	0	8	5	5	0	0	2	2	0	22
Femur	1	2	0	4	0	0	1	3	0	11
Tibia	0	3	9	3	1	0	1	9	0	26
Astragalus	2	2	0	1	0	0	2	0	0	7
Calcaneum	1	4	1	0	0	0	2	0	0	8
Metatarsal	0	5	6	0	0	0	1	4	0	16
Metapodial	2	2	0	3	0	0	1	1	0	9
Carpal/Tarsal	0	2	0	0	0	0	0	0	0	2
Phalanges	3	17	1	0	0	0	0	0	0	21
Rib frags	0	0	0	0	0	0	65	63	0	128
Long bone	0	0	0	0	0	0	156	156	0	312
Fragment	0	0	0	0	0	0	32	9	560	601
Total	23	102	94	45	12	3	337	264	561	1441

*All Red Deer

A much larger sample is shown in TABLE 46, where both periods 5 and 6 are shown together. A variety of context types make up this table, including pit, posthole, and quarry fills, and are considered to be unrelated to ritual activity. The horse remains included three left lower temporary molars from an animal of less than one year, (found in BER, the causeway across the late Iron Age ditch, opposite the Enclosure entrance) with little other bone (twenty-six pieces in all) including three other permanent, left loose horse teeth, and not from the same individual

TABLE 47. ANIMAL BONE FROM PERIOD 7 (EXCLUDING THE ENCLOSURE DITCH MIDDEN)

	Horse	Cattle	Ovicap	Pig	Dog	Deer	Cattle S	Ovicap S	Indet	Total
Skull	0	0	1	9	1	0	43	3	1	58
Horn/antler	0	6	0	0	0	1	0	0	0	7
Maxilla	0	2	1	1	4	0	0	0	0	8
Mandible	3	17	23	2	5	0	18	0	0	68
Teeth	16	44	60	9	0	0	0	5	0	134
Vertebra	0	0	0	1	8	0	25	0	0	34
Scapula	0	14	1	3	2	0	10	0	0	30
Humerus	6	1	1	2	5	2	1	2	0	20
Radius	6	6	12	1	5	0	1	5	0	36
Ulna	0	5	1	3	4	0	0	0	0	13
Metacarpal	4	15	4	1	0	0	0	4	0	28
Pelvis	5	7	3	1	2	0	11	1	0	30
Femur	7	1	0	3	4	1	4	4	0	24
Tibia	5	4	5	7	1	1	1	7	0	31
Astragalus	1	1	0	1	0	0	1	0	0	4
Calcaneum	0	3	0	0	0	0	1	0	0	4
Metatarsal	0	12	2	0	0	0	0	3	0	17
Metapodial	1	0	0	2	11	0	2	0	0	16
Carpal/Tarsal	0	3	0	0	0	0	0	0	0	3
Phalanges	4	21	0	0	0	0	0	0	0	25
Rib frags	0	0	0	0	31	0	59	32	0	122
Long bone	0	0	0	0	0	0	237	24	0	261
Fragment	0	0	0	0	0	0	17	0	876	893
Total	58	162	114	46	83	5	431	91	877	1866

Red deer humerus, femur and tibia
Roe deer antler and humerus

as above. A pig humerus from this feature was sawn across the proximal and distal end of the shaft, one of the few examples of sawing from this entire assemblage. A distal end of a human femur was found beneath the causeway. In shaft CLM a cattle skull in many pieces (counted as one) showed all teeth in wear and a horn core which was long compared to others from the site, see FIGURE 99. There were knife cuts across the maxillae, possibly made in skinning. With only seven other bones from this pit, it is possible that this skull is a votive offering.

The table indicates an overall lower proportion of horse (1.5 per cent) compared with those deposits associated with the temple and supports fluctuating quantities of horse as an indicator of ritual activity.

TABLE 47 shows period 7, the fourth-century deposits containing bone, a compilation of gully fill, fills over pits and posthole fills. Horse is intermediate here, between the low incidence in non-ritual deposits and the higher incidence associated with the temple. There is a relatively large number of dog bones from this group, part of two or three animals from the quarry fill (CPN). A high degree of fragmentation among the food animals is prevalent, 47 per cent of all bone is indeterminate and numbers of loose teeth of cattle and ovicaprid are higher than in any other group. This group appears to be non-votive in origin despite the increased numbers of dog bones, and higher numbers of horse than in other non votive deposits.

TABLES 48–50 detail the large bone assemblage from the upper fill of shaft AET. This late second-/early third-century pit contained the human skull with cut-marks at its base covered by a relatively clean deposit (see Mays and Steele, this volume), overlying this and unrelated to it was a large deposit seemingly dumped in at least four episodes. The main deposits, layers AEY and AES, TABLE 48 (FIG. 40, p. 84 above), show the concentration of cattle forelimbs (humerus to radius/ulna and carpals) and hind limb (femur to navicular and tarsals). These were chopped in a very particular and intensive manner resulting in repeated occurrences of articular ends and a large number of smashed shaft fragments. Knife cuts are very few, the activity centres on chopping and smashing sections of the limbs which have already been carefully separated from the main area of the carcase and the feet including metapodials have also been removed. 98 per cent of the bones in TABLE 48 are from these limbs, and the pattern of chop marks are illustrated

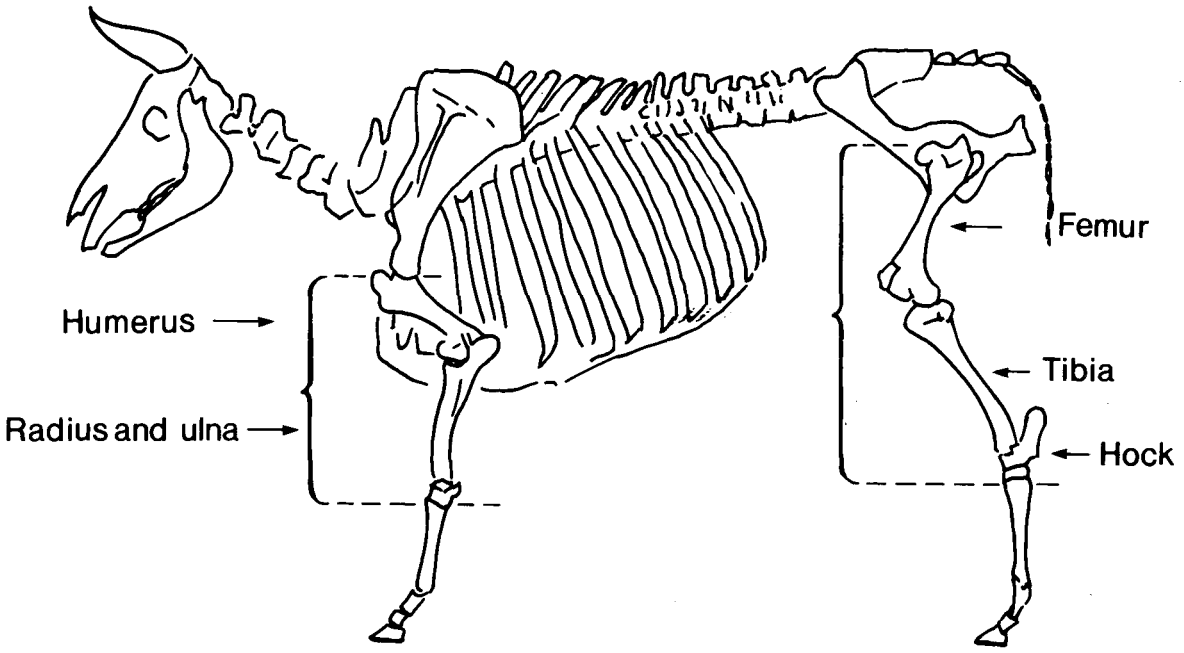


FIG. 94. Animal bone: schematic drawing of cattle skeleton.

in FIGURES 94–8. A large number of filleting marks were also observed on the long bones, particularly the humerus and tibia.

Minimum numbers of limbs have been calculated and show the right side seemingly more common than the left, a minimum number of thirty-eight on the right for the fore limb for both humerus and radius, on the left side twenty-one and thirty-four respectively. For the hind limb, which was rather more difficult to calculate owing to the heavy fragmentation of the hock, thirty-eight was also calculated for the right side from the calcaneum, thirty-five from the left. The astragalus gave higher figures (sixty-six right and forty-seven left), but the heavy fragmentation of this bone could lead to the same bone being counted twice so was excluded.

All the bones were from adult animals, i.e. all epiphyses were fused, but they were so fragmented that measurements were rarely possible. The care with with the proximal humerus was separated from the glenoid of the scapula, and distally the carpals from the proximal

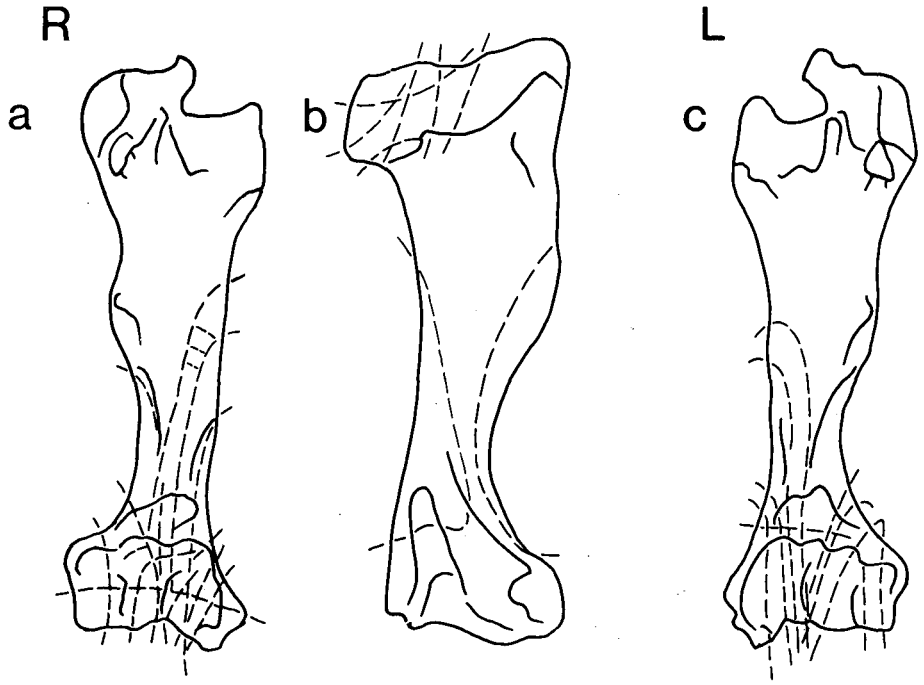


FIG. 95. Cattle humerus, showing butchery.

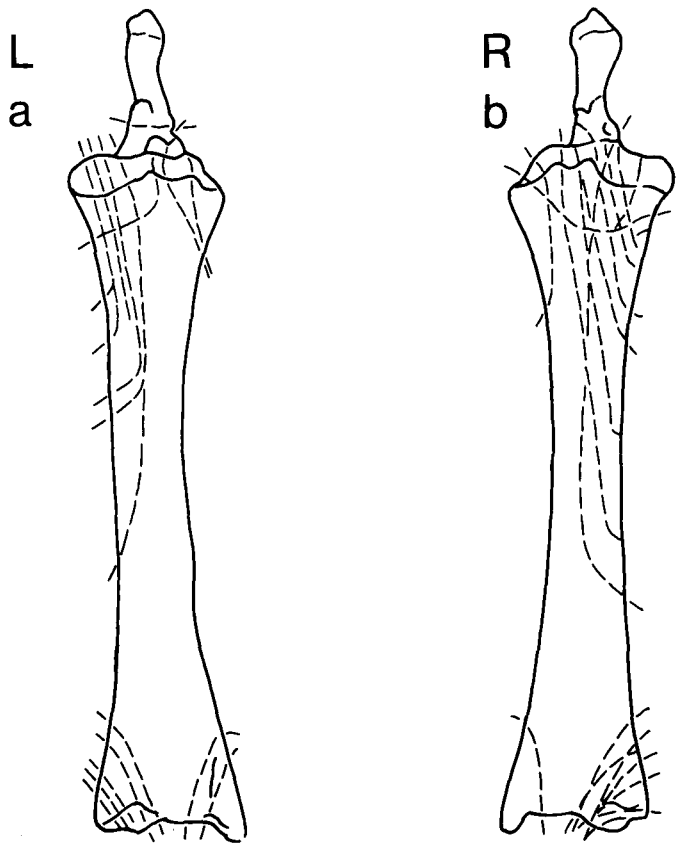


FIG. 96. Cattle radius and ulna, showing butchery.

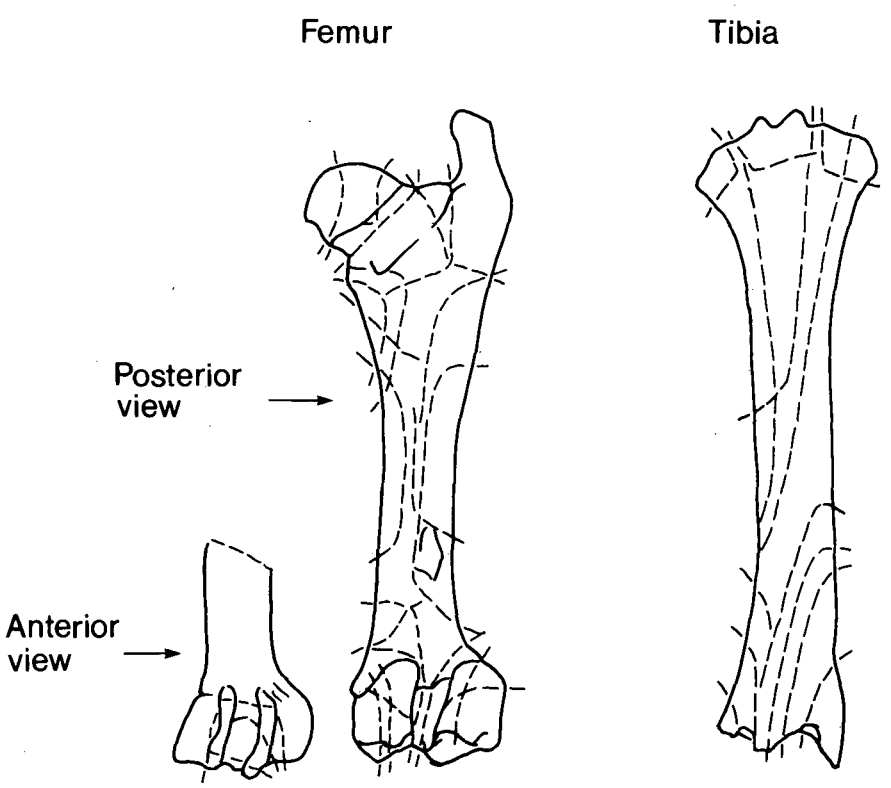


FIG. 97. Cattle femur and tibia, showing butchery.

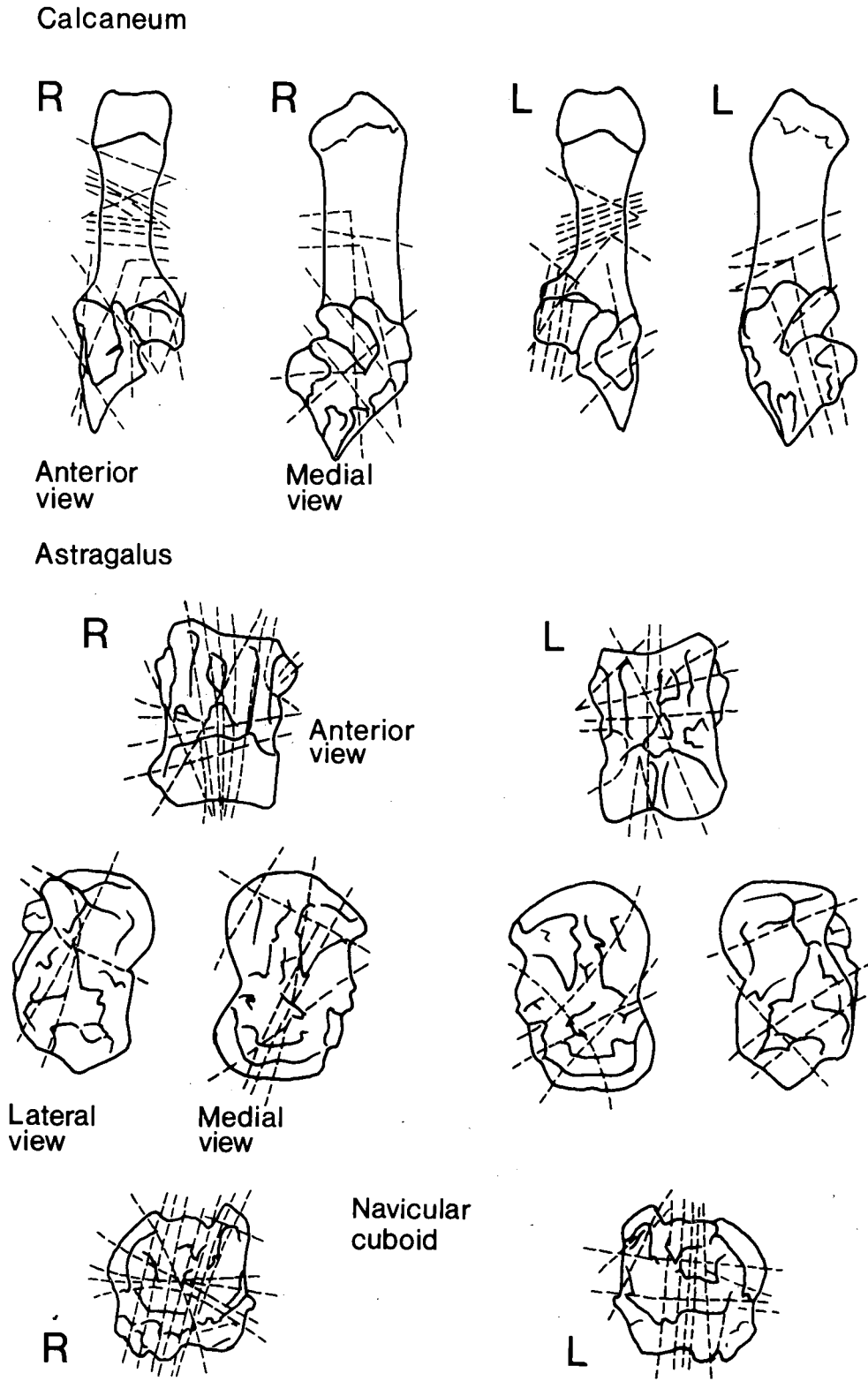


FIG. 98. Cattle calcaneum, astragalus and navicular cuboid (hock), showing butchery.

metacarpal, and on the hind limb the acetabulum from the head of the femur and distally the tarsals from the proximal end of the metatarsal, presumably at some other location, might at first seem at odds with the intensive butchery that followed. However, there is a clearly defined pattern to this butchery which has been recognized at other sites, notably Winchester Northern Suburbs. Maltby (1989), while examining variations in urban and rural butchery in Romano-British sites in Hampshire, considers this may reflect a Roman urban type of butchery which

TABLE 48. ANIMAL BONE FROM PERIOD 5–6 PIT AET, FILLS AEY, AES

	Horse	Cattle	Ovicap	Pig	Dog	Cat	Deer	Cattle S	Ovicap S	Total
Skull	0	5	0	0	2	0	0	0	1	8
Horncore	0	1	0	0	0	0	0	0	0	1
Maxilla	0	2	0	0	2	0	0	0	0	4
Mandible	1	2	6	1	2	0	0	0	0	12
Teeth	0	2	10	2	0	1	0	0	0	15
Vertebra	1	13	0	0	0	0	0	2	1	17
Scapula	0	4	0	1	0	0	0	0	0	5
Humerus	0	221	3	1	0	0	0	0	0	225
Radius	0	259	0	1	1	0	0	0	0	261
Ulna	0	41	0	0	0	0	0	0	0	41
Metacarpal	0	4	3	0	0	0	0	0	0	7
Pelvis	2	4	3	0	0	0	0	0	0	9
Femur	0	226	2	1	0	0	0	0	1	230
Tibia	0	227	3	0	0	0	0	0	5	235
Astragalus	1	118	0	0	0	0	0	0	0	119
Calcaneum	0	77	0	0	0	0	0	0	0	77
Metatarsal	1	2	1	0	0	0	1	0	1	6
Metapodial	1	1	2	1	0	0	0	0	0	5
Carpal/tarsal	0	277	0	0	0	0	0	0	0	277
Phalanges	0	4	0	0	0	0	0	0	0	4
Rib frags	0	11	6	1	0	0	0	10	0	28
Long bone	0	60	0	0	0	0	0	3031	3	3094
Fragment	0	0	3	0	0	0	0	0	1	4
Total	7	1561	42	9	7	1	1	3043	13	4684

Deer = Red deer

contrasts with the less intensive more cut-mark orientated traditional methods, found on more rural settlements.

There is evidence elsewhere on the site of butchery, particularly on the scapula (absent in AET) where the removal of the glenoid, glenoid tuberosity and the spine on the scapula during filleting is common. Maltby also found this in the Winchester samples where both scapulae and metapodials were found with the other limb bones, showing the Folly Lane sample to be even more selective. Similar concentrations have also been recognized from Roman sites in Europe; in Holland at Zwammerdam from ditches in the vicus outside the castellum (van Mensch 1974), interpreted as a soup kitchen and in Switzerland from Augusta Raurica (Schmid 1972), where a concentration of large limb bone fragments, with no articular ends has been interpreted as evidence of glue boiling and having an association with military sites. In the light of Maltby's more recent work perhaps the military aspect reflects the peculiarly Roman methods applied to reducing cattle carcasses quickly, efficiently and intensively, variations reflecting different purposes.

Two other deposits were also identified in pit AET. DDP (TABLE 49) had a high proportion of cattle limbs but also the remains of a puppy. DHR (TABLE 50) also contained part of the post-cranial skeleton of a young dog whose limb bones were unfused, but no cattle bones were found in this layer. It is thought that these are both associated with the human skull at the base of the pit, and are therefore votive in origin. The cattle limb fragments in DDP are likely to be part of AES or AEY.

The upper fill of cattle limb bones of this pit does not appear to be associated with any other feature at Folly Lane. A similar type of pit found close by, ABR, contained little bone, see TABLE 51. The bone assemblage includes a scapula and ulna from a newborn puppy and has more in common with DDP and DHR than AEY and AES. Remains of at least two frogs, a field vole skull and mandibles in DHR, and two frog pelves in ABR suggest these pits were left open for sufficient time to act as a pit fall for small mammals and amphibians.

A number of shafts were thought to be of ritual origin from the nature of their finds, these are shown in TABLE 52. Of fourteen contexts tabulated 70 per cent of the bones are from three shafts, ABZ (AIK), AAB (AIL) and in particular ACG (AIM). Ninety-one of the ninety-eight

TABLE 49. DDP FILL OF AET

	Horse	Cattle	Dog	Total
Teeth	1	0	0	1
Vertebra	0	0	16	16
Scapula	0	0	2	2
Humerus	0	10	2	12
Radius	0	11	2	13
Ulna	0	0	2	2
Pelvis	0	0	2	2
Femur	0	15	1	16
Tibia	0	20	0	20
Calcaneum	0	6	0	6
Astragalus	0	6	0	6
Metapodial	0	0	2	2
Carpal/tarsal	0	18	0	18
Rib frag	0	0	20	20
Long bone	0	660	0	660
Total	1	746	49	796

TABLE 50. DHR FILL OF AET

	Horse	Ovicap	Pig	Dog	Indet	Total
Scapula	0	0	2	0	0	2
Humerus	0	0	1	1	0	2
Radius	0	0	0	1	0	1
Pelvis	0	0	0	1	0	1
Femur	0	0	0	1	0	1
Tibia	1	0	0	2	0	3
Astragalus	0	0	0	2	0	2
Calcaneum	0	0	0	1	0	1
Metatarsal	0	1	0	0	0	1
Metapodial	0	0	0	4	0	4
Rib frag	0	0	7	6	0	13
Fragment	0	0	0	0	20	20
Total	1	1	10	19	20	51

horse bones and teeth are from these three shafts. A left hind leg was found in AIK largely complete with evidence of canid gnawing on the proximal end of the calcaneum. A horse mandible from AIL was aged eight–nine years (after Levine 1982). The horse bones were sometimes broken but there was little evidence of butchery, a proximal fragment of metatarsal from AIL was split axially, which may be attributable to bone-working. The table shows 58 per cent of all bone was classified as cattle-sized; skull, rib, long bone and fragments. Half of these were from pit AIM, where 77 per cent of the total 507 bones were fragmentary and assigned to cattle-sized.

There is no evidence from the finds that the deposits classified as 'sinkages over shafts' in TABLE 53 are of votive origin. However, in shaft ABC (ABE), one of the larger deposits with 377 bones, the remains of two adult cattle skulls were found on the base of the shaft, and a number of fragments that are likely to belong to the same skulls, which might suggest a votive origin. Also from this feature was a horse mandible from an individual from under one year, but the incidence of horse was low, ten bones, and immature horse teeth were also found in

TABLE 51. PIT ABR, PERIOD 5

	Horse	Ovicap	Dog	Cattle S	Ovicap S	Indet	Total
Skull	0	0	0	1	0	0	1
Mandible	0	3	0	0	0	0	3
Teeth	1	0	1	0	0	0	2
Vertebra	0	0	12	1	0	0	13
Scapula	0	0	3	0	0	0	3
Ulna	0	0	1	0	0	0	1
Metacarpal	0	0	0	0	1	0	1
Pelvis	0	0	1	0	0	0	1
Femur	0	0	0	1	0	0	1
Tibia	0	0	0	0	1	0	1
Metatarsal	0	0	0	0	1	0	1
Rib frags	0	0	2	1	0	0	3
Long bone	0	0	0	1	0	0	1
Fragment	0	0	0	0	0	1	1
Total	1	3	20	5	3	1	33

Dog: a scapula and an ulna are from a newborn puppy.

BER where they were not considered to be votive. In the sinkage over shaft ABA the remains of two incomplete dog skeletons were identified. A mature individual showed pathology on the shaft of the radius and more severely on the articulating ulna shaft. This may have resulted from a severe infection following a wound. The other immature animal was represented by a pair of mandibles in which the third molar had just erupted and part of the forelimbs, where the distal end of the humerus had just fused. In the remaining thirty-one contexts the assemblages were similar to the mixture of table and butcher's waste typical of the non-votive deposits.

The cattle horn cores

Of a total number of thirty-two horn cores from the site which were complete enough to permit some measurement of the base, seventeen could be measured along the length of the core and

TABLE 52. ?RITUAL SHAFTS, PERIODS 4–6

	Horse	Cattle	Ovicap	Pig	Dog	Deer	Cattle S	Ovicap S	Indet	Total
Skull	1	2	1	3	0	0	76	8	0	91
Horncore	0	9	0	0	0	0	0	0	0	9
Maxilla	0	3	3	1	0	0	0	0	0	7
Mandible	3	11	14	7	3	0	2	1	0	41
Teeth	35	14	25	1	1	0	0	2	0	78
Vertebra	14	1	0	0	0	0	28	0	0	43
Scapula	3	8	0	4	0	1	5	0	0	21
Humerus	0	1	2	3	1	0	12	5	0	24
Radius	1	2	6	1	0	0	2	10	0	22
Ulna	0	0	3	2	0	0	1	4	0	10
Metacarpal	2	5	4	0	0	0	0	1	0	12
Pelvis	4	5	2	1	0	0	18	6	0	36
Femur	3	1	0	0	1	0	0	2	0	7
Tibia	4	2	5	5	1	0	1	8	0	26
Astragalus	2	1	1	1	0	0	0	0	0	5
Calcaneum	2	0	1	0	0	0	1	0	0	4
Metatarsal	6	1	8	0	0	2	0	3	0	20
Metapodial	5	1	0	1	1	0	0	0	0	8
Carpal/tarsal	6	0	0	0	0	0	0	1	0	7
Phalanges	7	17	0	0	0	0	1	1	0	26
Rib frags	0	0	0	0	6	0	72	39	0	117
Long bone	0	0	3	0	0	0	119	107	0	229
Fragment	0	0	0	0	0	0	497	0	90	587
Total	98	84	78	30	14	3	835	198	90	1430

Horse includes one hind leg from AIK
Deer = Red deer scapula and metatarsal, roe deer metatarsal

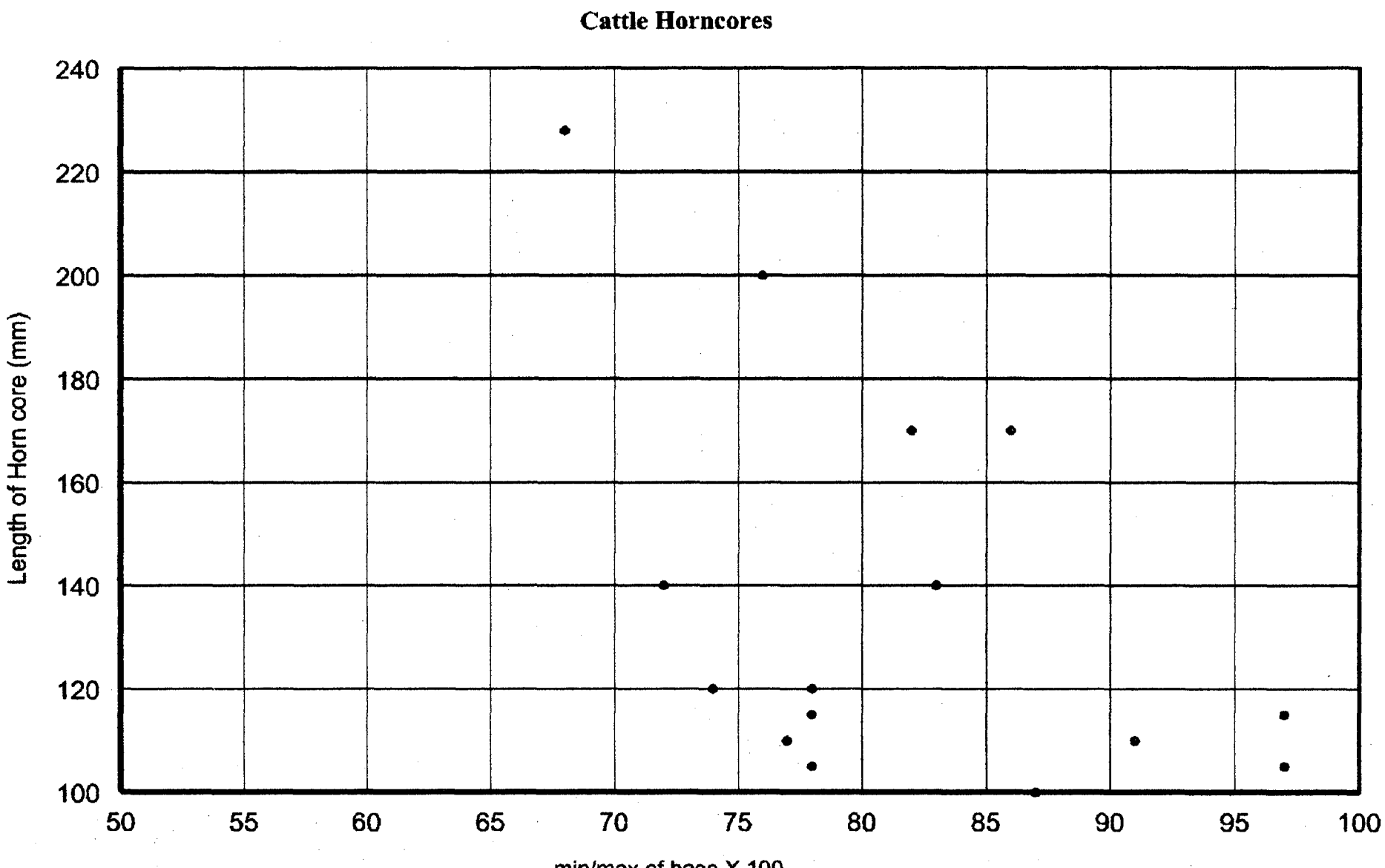


FIG. 99. Graph showing cattle horn cores.

TABLE 53. HOLLOW FILLS FROM OVER SHAFTS, PERIOD 7

	Horse	Cattle	Ovicap	Pig	Dog	Deer	Cattle S	Ovicap S	Indet	Total
Skull	0	2*	2	0	0	0	43	4	0	51
Horn/antler	0	8	1	0	0	1	0	0	0	10
Maxilla	0	1	2	4	0	0	1	0	0	8
Mandible	3	5	15	7	2	0	7	8	0	47
Teeth	7	11	36	4	1	0	1	3	0	63
Vertebra	0	2	0	2	5	0	25	1	0	35
Scapula	1	9	2	4	1	0	5	3	0	25
Humerus	0	7	1	1	4	1	1	3	0	18
Radius	2	3	10	2	4	0	2	1	0	24
Ulna	0	5	2	1	5	0	0	1	0	14
Metacarpal	0	9	2	0	0	0	0	3	0	14
Pelvis	1	1	3	4	0	0	14	2	0	25
Femur	1	3	1	0	1	0	5	4	0	15
Tibia	0	2	3	0	2	0	2	5	0	14
Astragalus	0	1	0	1	0	0	0	0	0	2
Calcaneum	0	3	0	0	0	0	0	0	0	3
Metatarsal	1	5	10	0	0	0	2	0	0	18
Metapodial	0	2	0	2	10	0	1	0	0	15
Carpal/tarsal	1	1	0	0	0	0	0	0	0	2
Phalanges	3	10	3	0	6	0	3	0	0	25
Rib frags	0	1	0	0	4	0	75	28	0	108
Long bone	0	3	0	1	0	0	57	179	0	240
Fragment	0	0	0	0	0	0	41	0	397	438
Total	20	94	93	33	45	2	285	245	397	1214

Cattle * = 2 skulls in ABE
Red deer antler and humerus

the minimum and maximum diameter of the base. In FIGURE 99 the length has been plotted against the minimum divided by the maximum x 100 (after Armitage and Clutton-Brock 1976). A high base index value reflects a circular core (female) and a low value an oval core (male). As shown in the figure, twelve of the seventeen cores are within the 'short horned' group with all but one with a base value between 70 and 90. There is no evidence for clusters indicting cows, oxen and bulls, but it is reasonable to suggest that the three between 90 and 100 are likely to be female. The only 'long horn' is from the ritual shaft CLM mentioned above, the length is estimated due to breakage and the next longest one at 200 mm is from the chalk levelling from the enclosure ditch (BGH). Both of these have a low base index, and may indicate castrates since increased length of the horns can be the result of this process. There is no evidence for disposal for a particular type of horn core, i.e. medium (of which there were only three) or short, being attributable to certain deposits.

AGEING EVIDENCE FROM THE MANDIBLES

All mandibles were aged according to Grant 1982. For cattle there were no ageable fragments from the Iron Age deposits, and only sixteen from the Roman. Many loose teeth were encountered indicating a high level of fragmentation. The ageable mandibles are all shown in FIGURE 100 and despite representing a wide date range within the period justified by their conformity, they have been displayed together. Where a mandible is broken and the estimated level of wear covers a range of values, this is shown by a horizontal across the range, one for each mandible.

It is evident that all the cattle mandibles show a fully erupted tooth row with fourteen at, or older than the suggested 3.5–4-year mark. This is in agreement with the full fusion shown in the post-cranial material, and the mature horn cores. There is no evidence for the consumption of veal either culled to maintain milk production, or as a surplus.

The ovicaprid mandibles provided a larger sample, a small group of six from Iron Age deposits (FIG. 101) and sixty-five from the Roman contexts (FIG. 102). The larger sample reflects the reduced level of fragmentation on these mandibles compared with cattle rather than an increased

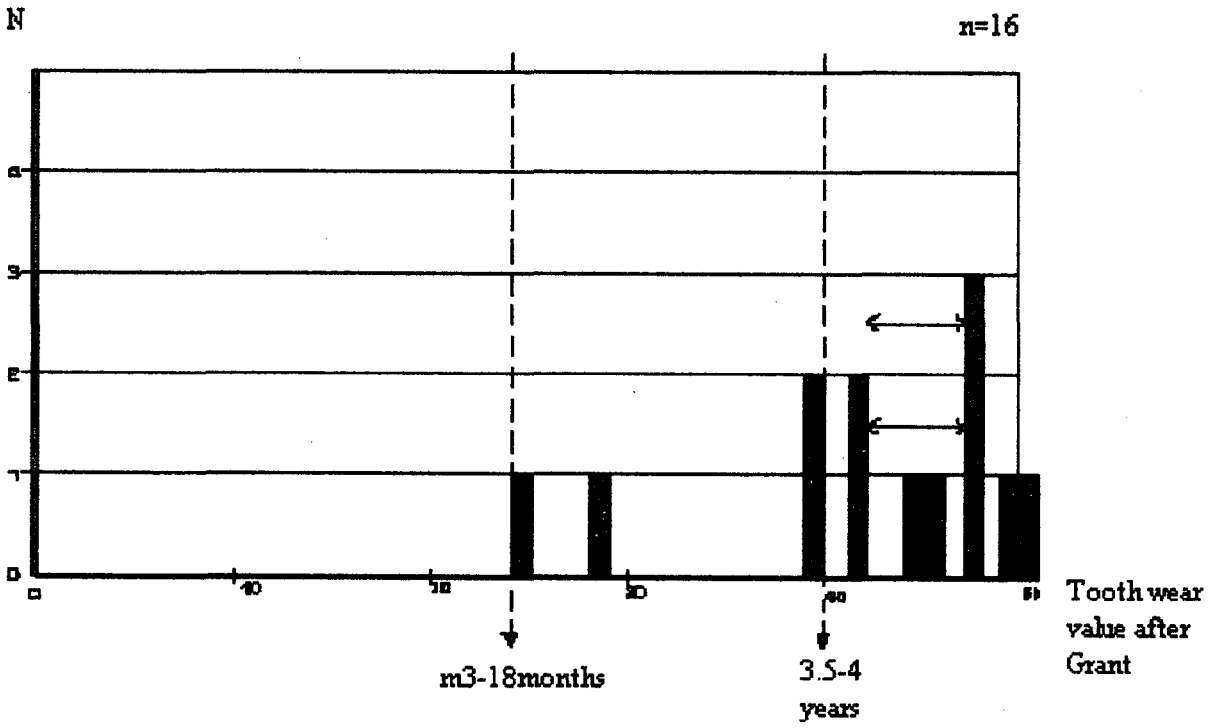


FIG. 100. Cattle mandibles.

importance of sheep. The Iron Age sample suggests animals killed before their first year, or left until after their third–fourth year when they could have already been used for breeding, milk, wool and manuring. The approximate age stages included (after Grant 1975) should only be regarded as a very approximate guide to maturity, particularly since a recent study (Moran and O'Conner 1994) has shown the variability of tooth eruption and wear in skeletons of domestic sheep of known age. The Roman mandibles were initially plotted separately in context groups such as upper and lower enclosure ditch deposits and votive pits. This gave small samples of four, nine and five respectively which showed no particular groupings of age stages. All the Roman mandibles were then plotted together and in FIGURE 102 it can be seen that all stages are present but that almost half have reached '3–4 years' (after Payne 1973, F stage) suggesting wool, breeding and manure were more important than milk and meat.

Ageable pig mandibles were few (FIG. 103) numbering fourteen, all from Roman contexts, but none from the enclosure ditch. No very young piglets were represented, but a range of animals from less than a year to mature adults was evident.

METRICAL DATA

Bones were measured wherever possible, cattle tended to be very fragmentary, the only complete bones from which withers height could be estimated were two metacarpals (after Fock 1966):

127.2 cms (the upper silt of the enclosure ditch BET)
117.5 cms (the Period 3 levelling in the Iron Age ditch CZF)

The smaller is well within the range shown for Gorhambury (Locker 1990) and the larger at the upper limit, though the data are so few that no further comparison can be justified.

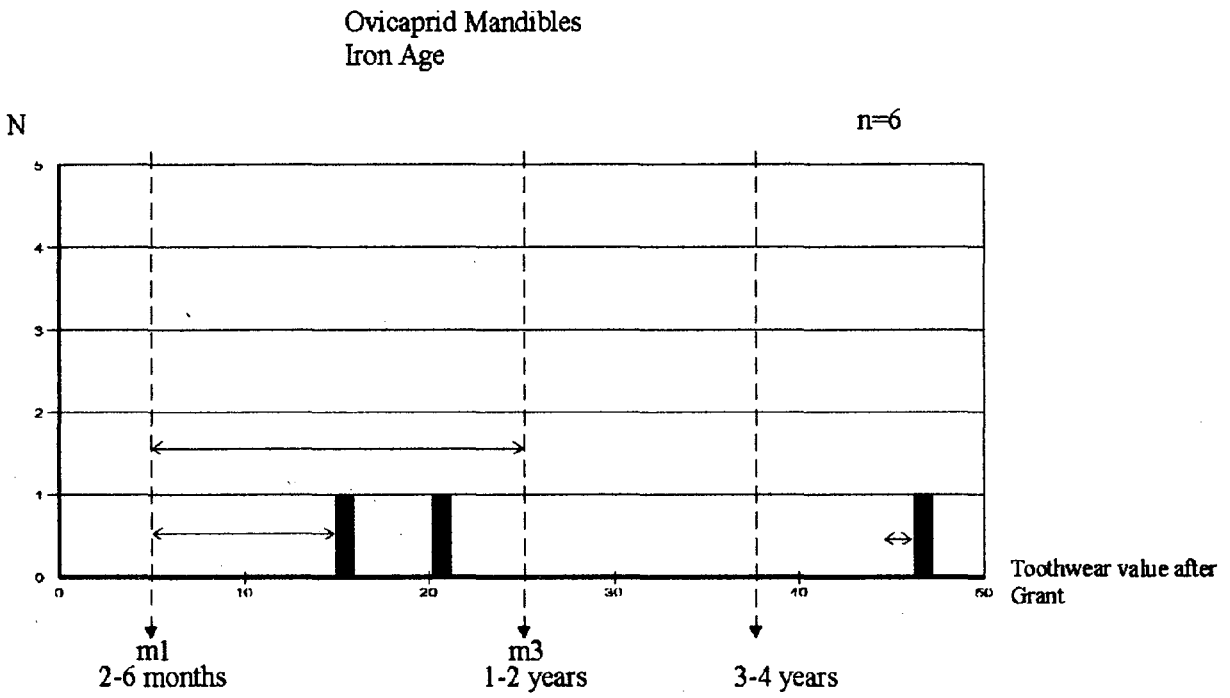


FIG. 101. Ovicaprid mandibles.

Similarly only five distal breadths of tibiae could be measured and ranged between 54.5 mm and 69.0 mm, (mean 60.3 mm). These few fit within the ranges for Gorhambury, Portchester and Magiovinium (ibid.).

There were also few complete ovicaprid bones for estimation of withers heights (after Teichert 1975):

Metacarpals	58.5 cms (fill of cellar AKH)
	61.4 cms (fill of oven 4)
	65.1 cms (upper silt enclosure ditch)
Metatarsals	53.1 cms (Iron Age ditch fill BEW)
	62.6 cms (Iron Age ditch fill BEW)
	64.4 cms (fill of shaft BBS (BDK))

Although the two metatarsals from the Iron Age deposits show a substantial difference in length the rest of the measurements show them to be of similar size as regards proximal and distal breadths and depths, one is longer than the other with a slightly increased mid-shaft diameter. Both of these are at the lowest end of breadth and depth measurements and indicate that any increase in the size of the articular ends of broken bones does not necessarily point to an increase in the size of sheep but a change in robustness. Other small broken articular ends were also found in later deposits. The range is both smaller and larger than that of Gorhambury, though the sample size smaller (56.1 cms–63.8 cms n = 11).

Pig measurements were too few for comment.

Horse bones were generally more complete so that a number of withers heights could be calculated (after Kiesewalter in von den Driesch and Boessneck 1974):

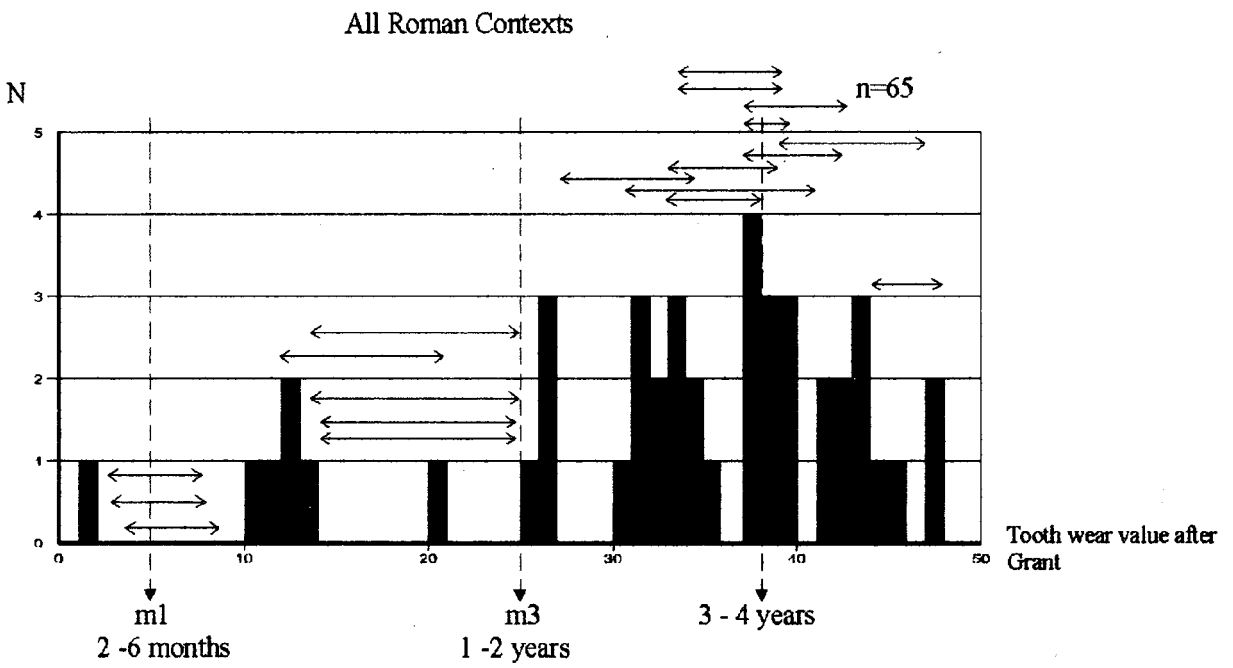


FIG. 102. Ovicaprid mandibles.

Radius	144.9 cms (fill of shaft BBS (BDK))
Metacarpal	129.4 cms (upper silt in main Enclosure Ditch (DDH))
	146.1 cms (upper silt in main Enclosure Ditch (DDH), possible pair)
	146.1 cms (fill of shaft ACG (AIM))
Femur	108.8 cms (sinkage over shaft ABC)
Metatarsal	133.2 cms (sinkage over AGG)
	133.2 cms (sinkage over ABZ)
	127.9 cms (shaft fill ABZ)
	143.0 cms (sinkage over AAB (AAN))
	120.4 cms (fill of cellar AKH)

These are all from ponies, the individual represented in pit ABC is very small, around 10 hh, the rest are all between 12 and 14 hh and compare well with those from Gorhambury (11 hh–15 hh n = 14) and a Roman roadside settlement at Magiovinium (12 hh–15 hh, n = 25) (Locker 1989).

Many dog bones were complete and the shoulder heights calculated (after Harcourt 1974):

Humerus	40.6 cms (fill over quarry CPM)
Humerus/Radius/Femur	34.6 cms (fill of pit CSJ)
Humerus/Radius/Tibia	53.2 cms (sinkage over well ADN)
Radius	42.6 cms (fill over quarry CPM)
Femur	47.0 cms (fill over quarry CPM)
Tibia	38.5 cms (fill of shaft ABZ (AIK))

In the sinkage over quarry CPM part of at least two animals are represented, possibly three,

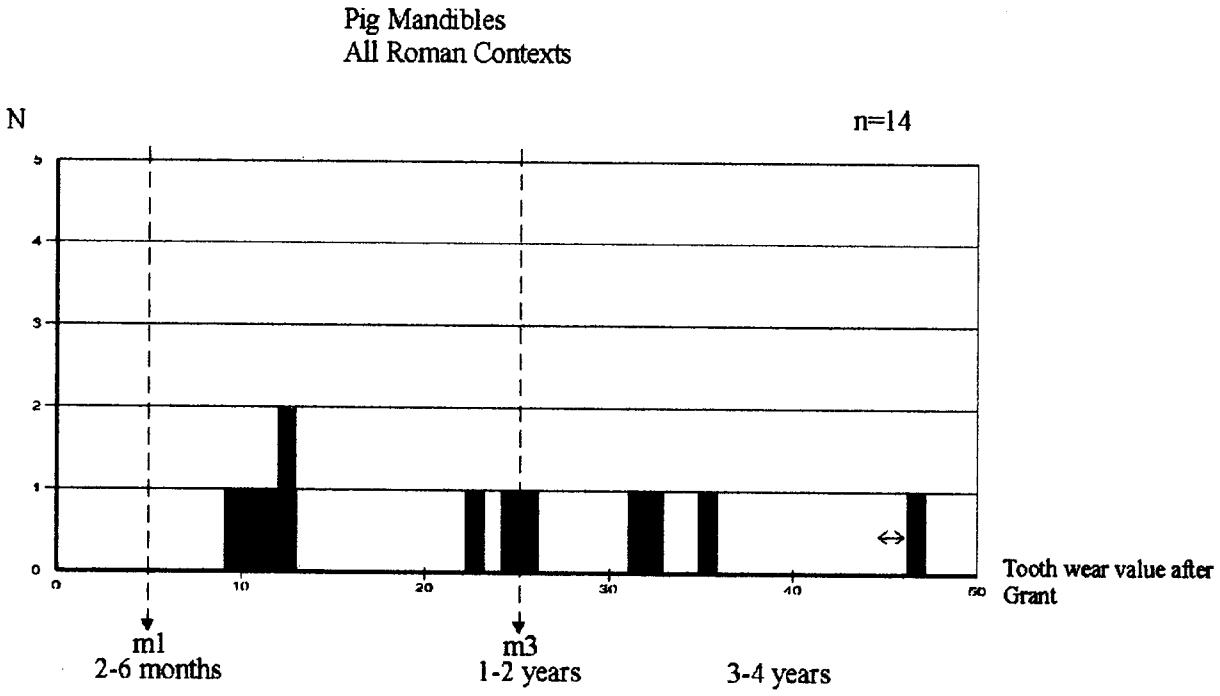


FIG. 103. Pig mandibles.

one of which shows exostoses around the glenoid of the left scapula and proximal articulation of the humerus, probably an aged individual. For the other partial skeletons of immature dogs, such as the two in the bone deposit in shaft AET, the bones were unfused and had not achieved full size and therefore were not measured.

The metrical data for dog is unremarkable within the broad size range of animals accepted for the Roman period.

TABLE 54. THE BIRDS (ALL PERIODS)

	D. Fowl	Goose	Mallard	Pigeon	Thrush	Raven	Rook/ crow	Indet	Total
Period 2	13*	0	0	0	0	0	0	0	13
Ditch & Midden	6	0	0	0	0	0	0	5	11
Periods 5 & 6	7	0	3	0	0	0	6	2	18
Period 7	1	0	0	0	0	1	0	4	6
Bone Pit AET	0	0	0	0	1	0	0	0	1
Shafts	14	0	0	1	0	0	0	5	20
Hollows	3	1	0	0	0	0	0	3	7
Total	44	1	3	1	1	1	6	19	76

* = 1 foot.

TABLE 55. THE FISH (ALL PERIODS).

	Eel	Smelt	Dace	Cyprinid	Cod	Brill	Flatfish	Indet	Total
Period 4 AIJ	15	0	14	1	0	0	0	23	53
Period 4 AIK	6	0	0	0	0	0	0	0	6
Period 4 CRY	18	0	1	1	0	0	0	4	24
Period 4 BAM	0	0	0	0	0	1	0	0	1
Period 5 APF	1	0	0	0	0	0	0	0	1
Period 5 ABE	14	0	0	0	0	0	0	5	19
Period 6 DCH	3	0	0	0	0	0	0	0-	3
Period 6 ADW	0	0	0	0	0	0	0	11	11
Period 6 BCH	0	0	0	0	0	0	0	1	1
Period 6 BEC	0	0	0	0	0	0	1	0	1
Period 6 ARV	26	6	0	1	0	0	0	0	33
Period 7 AEP	0	0	0	0	0	0	0	1	1
Period 7 BFW	0	0	0	0	0	0	0	1	1
Post BBY	0	0	0	0	1	0	0	0	1
Total	94	6	15	3	1	1	1	35	156

DISCUSSION

The small assemblage from the Iron Age ditch which predates any other activity on the site shows a higher relative representation of sheep (ovicaprids) than in any other of the later periods except for a single late pit (ALC), which also contained the only two sheep horn cores from the site and is contemporary with the later buildings. This is slender evidence for a return to a more rural usage of the site after a complex period of religious activity, industrial use and what appears to be out of town dumping of butchered waste.

The votive deposits, which include the enclosure ditch, TABLE 43, and the shaft fills, TABLE 52, appear little different from other deposits in the assemblage, except that the relative quantities of horse are greater and the number of indeterminate fragments is lower, suggesting the bones are less fragmentary. There is no direct correlation with particular species as at the Uley Shrines (Levitan 1993) where sheep, goat (showing an unusually low incidence of butchery) and domestic fowl were clearly associated with offerings to Mercury. However, in the large Uley assemblage of over 200,000 bones subsampled to 108,000, there were still problems of separating votive and non-votive deposits, even though the material was found in 'rooms'. It was the proportion of sheep, goat and domestic fowl which often determined the votive nature of a deposit. The selectivity of the animal bones found in the temple courtyard at Hayling Island (A. King in preparation and pers. comm.) also suggests particular species for votive offerings. A preference for sheep for sacrifice was found in the animal bone assemblage from the Romano-British temple at Harlow in Essex (Legge and Dorrington 1985, 123). There there was little evidence for the sacrifice of whole or part carcases. Mandibles and loose teeth survived well compared to the rest of the skeleton which was attributed to the poor survival of immature bones, as many sheep were in the 3–9 months stage (ibid., 126). Ovicaprid mandibles survived particularly well at Folly Lane in both votive and non-votive deposits as can be seen from the tables. Most had achieved full dentition indicating adult animals, so it seems unlikely that poor survival of the post-cranial skeleton is a factor here.

The assemblages from the enclosure ditch are difficult to attribute to particular activity round the central burial and later the Temple. The horse remains in the recut within the west terminal may be from a single animal and the horn cores are from three individuals of cattle along with some broken skull fragments and eleven vertebrae which together comprise most of the deposit (many of which were stained) and may be associated with the central burial. However, remains of horse, including bones attributable to a single animal, are found in other contexts, as were cattle horn cores. Thirty-two horn cores were measurable from the site, thirteen from the enclosure ditch and two from ?votive pits, the remainder are from a variety of contexts.

The ?ritual shafts have been shown to have a higher proportion of horse in common with the enclosure ditch, compared with other non-votive areas of the site. Dog may be associated with

votive offerings as there are some partial skeletons of both mature and immature animals, but the relative incidence in votive and non-votive deposits is even less predictable than with horse. As discussed above some features, otherwise unrelated to votive activity, had bones within their fills such as the two cattle skulls in pit ABC (TABLE 53) which might suggest an offering, but otherwise conform with the non-ritual markers of comparably low quantities of horse and high quantities of indeterminate fragments.

A unique deposit in this assemblage is the pit containing cattle limbs. Quite distinct from all other features it represents the waste from a ?single event in which cattle limbs, after careful filleting, were reduced to small pieces using an established pattern of butchery. The style of butchery whether filleting marks or a particular way of chopping through the articulations can be identified as individual examples from other contexts, but no other concentrations are found in this assemblage. There are examples from other Roman sites, which have been interpreted in many ways including glue factories and soup kitchens. This deposit filled a pit with a human skull at the base, surrounded by a clean fill and two associated deposits with dog skeletons. The cattle limb debris was deposited in a subsequent unrelated episode.

It would appear likely that many of the later pit fills and ?post-votive fills of some pits are rubbish from the settlement which reflects a Romanized urban pattern of intensive fragmentation based on cattle which compares and contrasts with villa settlements such as Gorhambury, also based on cattle (Locker 1990). There, many more length measurements of limb bones suggests a lower level of fragmentation in a rural situation, which contrasts with the Folly Lane assemblage. King (pers. comm.) has suggested to me that Folly Lane, unlike Uley, Hayling Island and Harlow, is a site where votive activity is not particularly marked by animal sacrifice and consequently it is difficult to separate the associated bones from other contemporary activity.[26]

NOTES to Part Three

1. David Curry, Keeper of natural sciences, St Albans Museum service, commented on the stones.
2. Held at the same angle as this bit would be worn.
3. I am grateful to Dr Ian Stead for pointing this out to me.
4. See Fox 1946, fig. 3, where C and D are reversed mirror images of each other.
5. Verulamium Museum. From the bed of the river Lea, near Harpenden.
6. I am grateful to Su Johnson, Department of Archaeology, Lampeter, for identifying the wood as ash.
7. I am grateful to Dr Fraser Hunter for his comments and references on these objects.
8. Carried out by Philip Carter, Keeper of Conservation for St Albans Museums Service.
9. By Peter Liepens of the X-ray and Imaging Unit of Guys Hospital Medical School in London.
10. Martin Henig provided a note and references for this piece.
11. I am grateful to Mr R. V. Nichols for discussing the Folly Lane fragments with me.
12. There were troops from various countries, though, interestingly, not from Britain.
13. We are indebted to the skill and interest of Peter Liepens of the X-ray and Imaging Services of Guys Hospital Medical School who carried out the projection X-ray work on the Folly Lane, Lexden and Baldock mail fragments.
14. The author is grateful to G. B. Dannell for examining and commenting on the samain from the funerary shaft, and to B. J. Dickinson for identifying the stamps.
15. For a similar nicolo-glass intaglio set in a third-century ring, see Zwierlein-Diehl 1979, no. 961 and for other glass intaglios depicting busts of the god, see Guiraud 1988, no. 18 (from Nice) and Schmidt 1972, no. 3041.
16. On the site of an extension to the Verulamium Museum, at the north corner of insula XIII of the Roman town.
17. The figures are: 43.9 per cent bowls and dishes (open forms), 41.1 per cent jars, 15 per cent others.
18. The figures are: 57.8 per cent jars, 15.1 per cent open forms, 10.8 per cent beakers and 16.3 per cent others.
19. The figures are: 39.7 per cent jars, 8.1 per cent open forms, 18.5 per cent
20. The figures are: 39.3 per cent jars, 28.9 per cent open forms, 3.8 per cent beakers and 28 per cent others.
21. Verulamium Region Kilns where mortaria were being fired are known at Bricket Wood, Brockley

Hill, Radlett and Verulamium, but unless there is evidence to indicate a specific kiln site, the term 'Verulamium region' is used. It should also be remembered that many potters working in this area may have had more than one workshop, for example at Brockley Hill and Radlett, either simultaneously, or at different periods during their activity.

22. Ransome Collection, University Museum of Archaeology and Anthropology, Cambridge.
23. See Dickinson's comment on the Branch Road samian stamps (p. 278 above).
24. For commenting on specific aspects of the material reported here, thanks are due to Jill Cook (cut-marks), Simon Davis (animal bone), and Ian Stead (comparative Romano-British sites). Thanks are also due to Colin Slack for making the replicas of the cut-marked sections of skull vault, and to Malcolm Ward for assistance with the SEM.
25. Radiographic analysis shows the crown formation of maxillary M3 to be complete with little root formation, perhaps suggesting an age in the lower part of this range (White 1991, fig. 16.2).
26. I would like to thank Dr A. King, King Alfred's College, Winchester for discussion of the Hayling Island bone assemblage prior to publication.

PART FOUR

THE ENVIRONMENTAL EVIDENCE

PALYNOLOGICAL ANALYSIS OF FILLING IN THE FUNERARY SHAFT

***by* Patricia E. J. Wiltshire**

In the past, turf provided valuable building material for the construction of features such as burial mounds, walls, and boundaries (see Dimbleby 1985). A section of turf often included (a) the vegetation growing on the surface of the soil (b) the upper organic horizons of the soil profile and varying amounts of the more minerogenic subsoil; the final structure might also receive varying amounts of allochthonous 'dump'. These construction materials may have been obtained from adjacent areas, but could also have been derived from some distance away, depending on local availability.

In any soil, the presence of free oxygen in the matrix can result in spontaneous oxidation of pollen and plant spore walls (Havinga 1964). Preservation also depends on levels of bioactivity (see Brooks *et al.* 1971) which, in turn, depends on hydrology (pF), redox potential (Eh), soil reaction (pH), availability of essential ions, and presence of modifiers such as polyphenolic compounds (Swift *et al.* 1979). Preservation is optimal in anaerobic, oligotrophic conditions such as are found in acidic, waterlogged deposits. Mature soil profiles can vary very greatly in microfabric structure and chemistry, and pollen and plant spores exhibit variable resistance to oxidation and biological attack (Havinga 1984). This can often result in depauperate assemblages dominated by resistant taxa (Tipping *et al.* 1994). Turfs collected from a number of locations, might therefore, have variable palynomorph preservation depending on the physico-chemical conditions prevailing at the collection sites.

Pedogenesis is a continuing process even in 'mature' profiles and, unlike in sediments where decomposition rates are low to negligible (such as peats and waterlogged minerogenic profiles), any palynomorphs accumulating in an active soil will eventually be incorporated into the humus fraction. Some soil profiles are subjected to bioturbation so that older and more decayed palynomorphs are distributed throughout the profile; but even here the highest concentration and species richness of palynomorph taxa might be expected at the surface, with the largest numbers of old, partially decayed, and resistant palynomorphs deeper down. Because in soils the process of microbial mineralization of organic polymers is a continuous one (Swift *et al.* 1979), and polymers of varying resistance will have different residence times within the soil fabric, it is virtually impossible to assign a chronology to a soil profile.

In spite of all the problems associated with palynological analysis of palaeosols, old ground surfaces are useful for providing information on palaeovegetation (see Dimbleby 1985). If the very *surface* of a palaeosol could be located within a profile, one would expect its palynomorph assemblage to represent the vegetation prevailing at the time the surface was buried. Further down the profile of the palaeosol, plant communities which were present previous to burial might be represented, although at varying degrees of resolution. Thus, if a number of coeval buried surfaces are present within a set of turfs, a composite picture may be built up of the archaeological landscape. Soil micromorphological analysis is very valuable in locating old surfaces, as well as degrees of disturbance and/or truncation to which they might have been subjected (Courty *et al.* 1989). Although, in broad terms, there was agreement between the results of the palynological

and micromorphological analyses in the Folly Lane deposits, it proved difficult to relate the pollen and soil data precisely (Macphail *et al.*, this volume). It is possible that there was lateral variation in the cores of sediments so that the horizons sampled for pollen were not strictly homologous with those taken for soil analysis.

The deposits from Folly Lane were obtained from the collapsed fill of a funerary shaft, and the marked stratification of the profile suggested that the shaft had been backfilled, at least partially, with turfs. A large number of block monolith sections collected from the shaft by the excavator were evaluated visually for their potential for palynological analysis. Most were cracked and desiccated, and had lost their stratigraphic integrity, and only one was considered suitable for further investigation. However, a core which had been obtained by pushing plastic drainpipe through the basal deposits, also appeared to offer potential for analysis.

A preliminary assessment on the block monolith yielded promising results (Wiltshire 1993), and it was decided to analyse both this sample and the one from the 'drainpipe' core. There was very obvious banding in both samples with the layers from the drainpipe core being most clearly defined. The various layers were composed mainly of five kinds of microfabric (see Macphail *et al.*, this volume).

METHODS

For convenience, the block monolith and 'drainpipe' section were designated 'Core 1' and 'Core 2' respectively.

Processing

Standard preparation procedures were used (Dimbleby 1985). Wet sediment was measured for 2.0 cm^3 volume displacement (Bonny 1972). Sampling frequency varied according to lithology. Where sampling was contiguous, care was taken to keep within the confines of the sampling depth. Tablets of *Lycopodium* spores (Stockmarr 1972) were added to allow estimates of palynomorph concentration (Benninghof 1962). Samples were lightly stained with 0.5 per cent safranine and mounted in glycerol jelly.

Counting

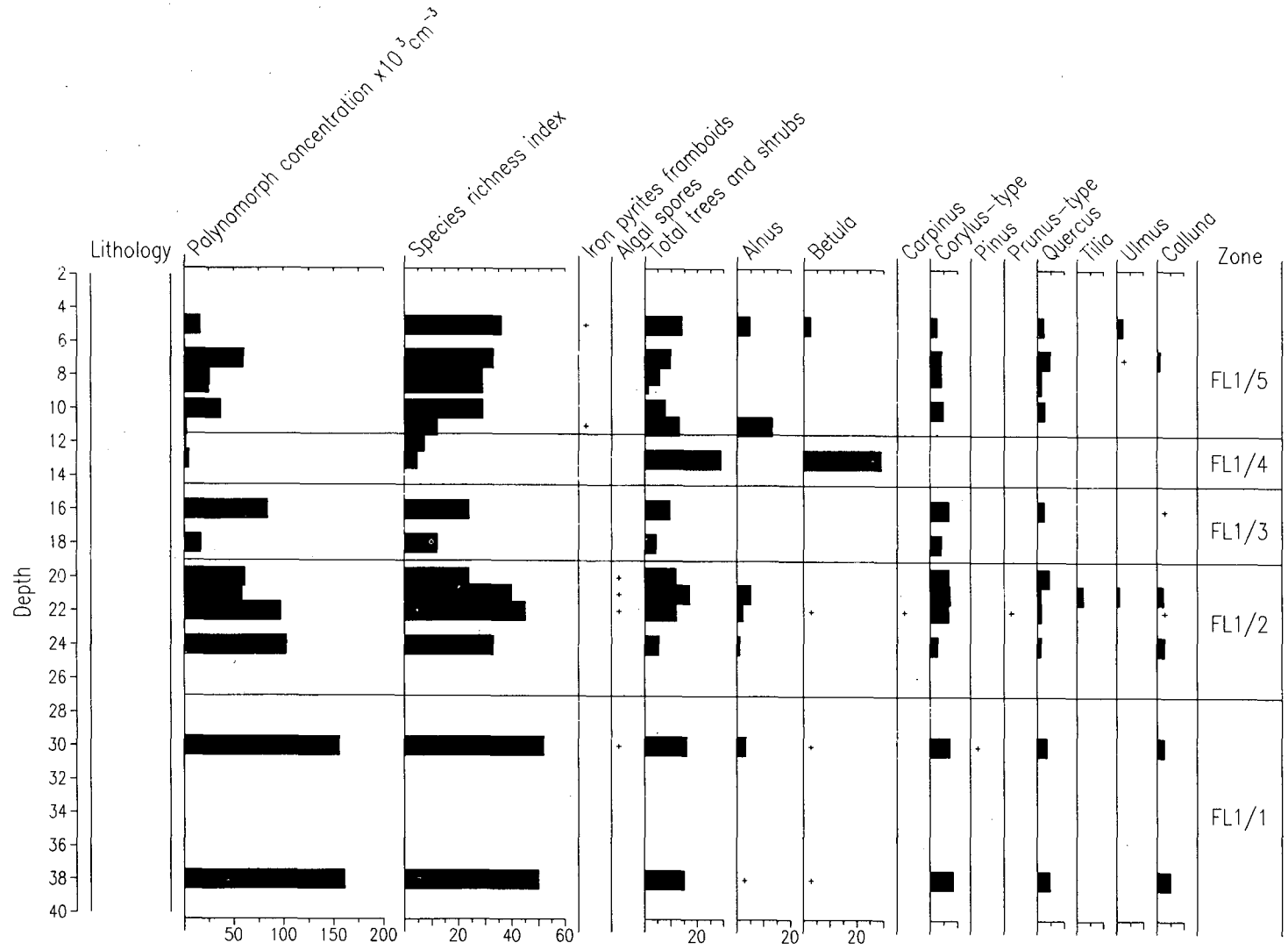
Pollen counting was done with a Zeiss phase contrast microscope at x400 and x1000 magnification. Counts varied according to palynomorph concentration. Some samples contained exceedingly low numbers of palynomorphs and these will be discussed where appropriate. Elsewhere, counts varied between approximately 350 and 500. In Core 2, grains which were too badly corroded for identification were also counted, being classified as 'unidentified'. Identification was made using the key of Moore *et al.* (1991) and modern reference material.

Nomenclature

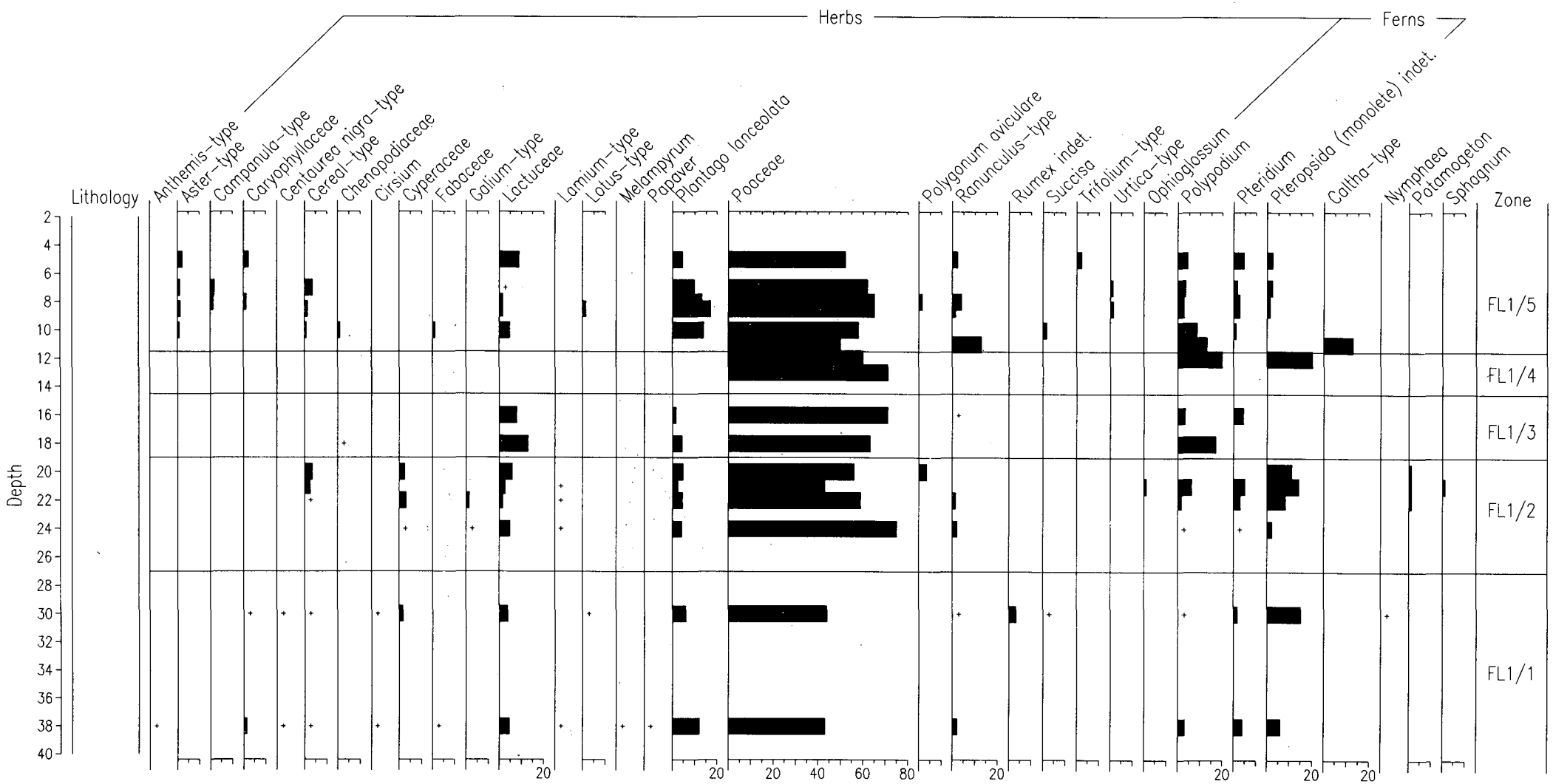
Nomenclature follows that of Bennett *et al.* (1994), Moore *et al.* (1991), Punt and Clarke (1984), Punt *et al.* (1988), and Stace (1991). Cereal-type pollen refers to all grains >40.0 mμ with annulus diameters >8.0 mμ (Anderson 1979; Edwards 1989). Because of variable resolution in palynological identification, the use of English names is often problematical. Some taxa cannot be taken further than the family or tribe while others may be identified to genus or species. Where the taxon is above genus, it is sometimes possible to separate out groups of individuals into 'types'. Each type will contain a number of genera as, for example, *Ranunculus*-type which includes the genera *Ranunculus* (buttercups), *Clematis*, and *Myosurus* (mousetail). Accordingly, it is difficult to assign an English name to this pollen taxon. Where English names are given in the text, they will refer to plants most likely to be represented and, where the naming is particularly difficult, the name will be prefixed by 'e.g.'. In this case, it must be borne in mind that a number of other plants might be included.

No attempt was made to differentiate between *Myrica* (sweet gale) and *Corylus* (hazel). However, the geographical location of St Albans makes it unlikely that sweet gale was growing in the catchment so that all *Corylus*-type pollen was probably of hazel. *Typha angustifolia*-type

FIG. 104. Summary diagram with major woody taxa and wetland indicators.



Land pollen and spores expressed as percentage of land pollen and spores (TLP/S)



Land pollen and spores expressed as percentage of land pollen and spores (TLP/S)
Aquatics expressed as percentage of TLP plus aquatics

includes *Typha angustifolia* (lesser reedmace) and *Sparganium* (bur-reed). Lesser reedmace is rare in Hertfordshire today whereas bur-reed is very common (Dony 1967) and it is assumed here that *T. angustifolia*-type refers to bur-reed.

Pollen diagrams and tables

Pollen diagrams are presented in FIGURES 104–5. Because of the dominance of a few taxa, most remain relatively minor components and, where appropriate, these have been exaggerated scales in diagrams by a factor of two for ease of inspection. These are shown as ' x 2' on the pollen diagrams. Where any taxon achieves a value of less than 1.0 per cent, it is shown as a plus (+). In several horizons in each core, sampling was contiguous with the sediment being taken over a depth of 1.0 cm; but in Core 2 from 5.0–9.5 cm. Sampling was contiguous over depths of 0.5 cm.

Expression of data

Pollen/spore and iron pyrite framboid concentrations were expressed as numbers cm^{-3} of sediment. Percentage pollen data were expressed on the basis of total pollen and plant spores (TLP/S), excluding obligate aquatics and *Sphagnum*. Aquatics were expressed as a percentage of aquatics plus TLP/S, and *Sphagnum* was expressed as percentage of *Sphagnum* plus TLP/S. A simple species richness index for pollen taxa was employed to demonstrate variation throughout the core.

$$\frac{a \times 100}{b}$$

Where a = number of taxa in sample; b = total number of taxa in the profile.

Results

Micromorphological analysis was carried out on part of the sequence of Core 1 and throughout Core 2 (Macphail *et al.*, this volume), and some attempt has been made to relate the palynological data to the soil results. Five 'zones' were recognized in Core 1, and eight in Core 2. These have been designated FL1/1–5 and FL2/1–8 respectively. The results are shown in FIGURES 104–5, and TABLES 56–7 which are pollen diagrams of partial data sets for Core 1 and Core 2 respectively.

In both cores, microscopic charcoal was found in every sample at consistently low levels, and it was not thought worthwhile calculating concentrations. Fungal hyphae and spores were also sparsely present in all samples and, again, it was decided that estimating abundances would not yield useful information. Iron pyrite framboids were found in only two samples in Core 1 and none were found in Core 2.

The palynological profiles in both Core 1 and Core 2 were very complex. Although relatively higher in Core 2, concentrations of palynomorphs were low in both sections of deposits (see FIGS 104–5 and TABLE 56). Concentration also varied considerably throughout each sequence and this was probably due to differential decomposition of palynomorphs, although variation in influx cannot be discounted. Concentrations and species richness may be taken as some indication of turf orientation within the stack although this was exceedingly difficult to do with certainty. In Core 2, the 'unidentified' curve, which consisted of palynomorphs which were too decayed to allow identification to any taxon, gives a crude measure of the degree of preservation in each sample. Again, this might be considered useful in determining orientation of turfs.

Each diagram has been divided into 'zones' but these cannot be considered to be equivalent to the local pollen assemblage zones as defined in standard pollen diagrams. In sequences of sediments where accumulation is continuous (e.g. peat), there is usually a correlation between depth and time, and, with varying degrees of resolution, this can be ascertained by radiocarbon dating. Zonation of pollen diagrams produced from such sediments is acceptable since changes in palynomorph spectra are usually a result of changes in the vegetation within the catchment. In the case of turfs, collected away from the immediate sampling site, the body of sediment is

TABLE 56. MINOR TAXA FROM CORE 1

Depth (cm)	5	7	8	8.5	10	11	12	13	16	18	20	21	22	24	30	38
Microscopic charcoal	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Trees/shrubs																
Carpinus													+			
Pinus															+	
Prunus													+			
Tilia												2.5				
Herbs																
Anthemis type																+
Campanula type		1.8	1.4													
Caryophyllaceae indet.	2.3		1.4												+	1.3
Centaurea nigra-type															+	+
Chenopodiaceae					1				+							
Cirsium															+	+
Cyperaceae											2.4		3	+	1.8	
Fabaceae indet.					1											+
Galium-type													1.5	+		
Lamium-type												+	+	+		+
Lotus-type				1.4											+	
Melampyrum																+
Papaver																+
Polygonum aviculare			1.4								3.5					
Rumex indet.															3.2	
Secale		+														
Succisa					1.9										+	
Trifolium	2.3															
Spore Formers																
Ophioglossum												1.2				
Aquatics/Wet Soil Plants																
Caltha-type					13											
Nyphaea															+	
Potamogeton											1.2	1.2	1.1			

variably allochthonous with inconsistent orientation within it. Here, boundaries drawn between groups of samples may be based on a variety of criteria which are reflected in the pollen spectra, but which need not reflect changing vegetation through time. For example, some samples might represent truncated soil profiles while juxtaposed ones might represent complete profiles, or even mixed, dumped material. Thus, the 'zones' delimited in the pollen diagrams are simply for convenience of description and bear little relation to vegetation sequences.

It was surprising that gross stratigraphy of the deposits did not correlate well with the palynological data, and in both profiles it proved difficult to see how the layers related to one another. It proved virtually impossible to locate precisely the stratigraphic positions of turf lines, and zone boundaries were based largely on changes within the palynomorph spectra. The difficulties encountered here may reflect the complex kinds of surface disturbance of the soils before and after collection (Macphail *et al.*, this volume).

DESCRIPTION AND INTERPRETATION OF CORE 1

Zone FL1/1 (30-38 cm)

Description

Both palynomorph concentration and species richness were higher in this zone than in any other part of the sequence. Total tree/shrub percentages reached 16 per cent with dominant taxa being *Quercus* (oak) and *Corylus*-type (hazel) although *Betula* (birch), *Alnus* (alder), and *Pinus* (pine) were represented. *Calluna* (heather) reached a level of 5.1 per cent in the basal sample and ferns were well represented in both samples. Monolete Pteropsida (undifferentiated ferns) reached a high of 15 per cent while the highest value for *Pteridium* (bracken) was 4 per cent and *Polypodium* (polypody fern) was 3.1 per cent. Algal spores (unidentified but probably of Chlorophyta) were present as well as a single grain of *Nymphaea* (water lily).

Herbs were dominated by Poaceae (grasses), *Plantago lanceolata* (ribwort plantain), and Lactuceae (e.g. dandelion, hawkbit, sow thistle etc.). Species richness was relatively high and

herbs characteristic of a variety of habitats were recorded. Ruderals such as *Rumex* (docks), *Papaver* (poppy), and *Cirsium* (thistle) were present as well as taxa which are generally found in herb-rich grassland, such as *Succisa* (devil's bit scabious), *Ranunculus* (e.g. buttercup), *Lotus*-type (e.g. bird's foot trefoil), and *Centaurea nigra*-type (e.g. knapweed). Cereal-type pollen was present in both samples and herbs which might have been associated with cereal fields were represented, such as Caryophyllaceae (e.g. chickweed), *Anthemis*-type (e.g. yarrow and stinking mayweed), and *Lamium*-type (e.g. white dead nettle). Pollen of Cyperaceae (sedges) was also present in the assemblage.

Interpretation

The relatively high concentration and species richness in this zone is possibly due to compaction and a rapid lowering of redox potential so that aerobic microbial activity was inhibited. However, micromorphological analysis has shown that these samples represent the upper organic horizons of a soil profile (Ah) mixed in with the subsoil (Eb). The surfaces of buried soil profiles are often more polleniferous than the subsoils, as explained above, and it is possible that a considerable fraction of upper soil layers was present in this zone.

The local landscape represented in these basal turfs was overwhelmingly dominated by herb-rich grassland. All the tree and shrub taxa recorded are prolific pollen producers with well-dispersed pollen so it is likely that either trees were growing a considerable distance from the site, or they were present as isolated trees or small stands in the catchment. Heather can be a component of the ground layer in acid woodland if the canopy is open enough, although it may have been growing as tussocks in acid grassland or even heathland.

It is difficult to assign the ferns to any specific plant community. Bracken could have been growing as the ground layer of woodland, or in association with stands of trees. But like heather, it can invade open, acid grassland and may even have been growing on heath. Many ferns are characteristic of woodland although polypody grows easily on earth banks, in hedgerows and on walls, and other ferns could have been growing along banks, in ditches, and any damp hollows.

Cereal growing/processing was probably being carried out locally, but Poaceae (grasses) and *Plantago lanceolata* (ribwort plantain) appear to be have been the most common herbs. The high levels for ribwort plantain might suggest that the grassland was subjected to only light grazing since the flowering heads are readily taken by cattle (Holm *et al.* 1977). Grasses also fail to flower if grazing is very intensive. Other herbs such as knapweed and devil's bit scabious favour old, abandoned pasture (Grime *et al.* 1988) and in spite of the evidence for trampling presented by Macphail *et al.*, the presence of these plants suggests that the grassland soils were not excessively disturbed.

The presence of sedges could indicate that the soils were damp, and the algal spores found at 30 cm might support this contention. However, the find of water lily in the same sample suggests that indicators of wetness or standing water could also have been derived from animal dung. There is certainly no evidence of any standing water at the site (Niblett, pers. comm.) so it is probable that animals were being watered in the valley bottom with their pollen-laden dung being deposited on the pastures of the hill. Of course, with pollen being derived from dung, the assemblage might contain a large allochthonous component and the spectra be quite mixed. Nevertheless, animals are unlikely to be grazed at great distances from the site so the assemblage is still a valid indicator of local habitats. Another possibility is that soil was being taken from wet areas and used in the filling of the shaft and construction of the stack.

Although it has been suggested that weedy pasture dominated the locality, the presence of plants such as docks, thistle, buttercup, bird's foot trefoil, Caryophyllaceae (e.g. chickweed), yarrow or stinking mayweed, and white dead nettle could also all be weeds of open, disturbed ground, path edges, and crop fields. In particular, poppy certainly indicates highly disturbed soils. All these plants could have been growing within crops or at field boundaries and it is virtually impossible to reconstruct the plant communities with greater precision.

Zone FL1/2 (20–24 cm)

Description

Both palynomorph concentrations and species richness were lower in this zone than in FL1/1 and tree/shrub pollen percentages reached a high of 17 per cent at 21 cm. The most abundant woody plant was hazel, with alder and oak being relatively important. *Prunus* (e.g. sloe), *Tilia* (lime), *Ulmus* (elm) and birch were present, and a single grain of *Carpinus* (hornbeam) was found. Heather was present in all samples except at 20 cm and ferns other than bracken and polypody were relatively abundant. Polypody fern and bracken were also present and *Sphagnum* moss was recorded as well as *Ophioglossum* (adder's tongue fern).

Cereal-type pollen was present in all samples except at 24 cm and reached a value of 3.5 per cent at 20 cm. Grasses were the most abundant herbs although ribwort plantain was well represented throughout. The number of herb taxa was lower than in FL1/1 and most were ruderals or grassland plants although they could also represent crop weeds. Sedges were present in all samples except at 21 cm and *Potamogeton* (pondweed) was found in all samples except at 24 cm. Algal spores were also found from 20–22 cm.

Interpretation

In view of the lower palynomorph concentration and species richness values in this zone, it can only be assumed that higher levels of decomposition had been operating in these deposits. Woodland was at a similar low level to that in FL1/1 although it was more species-rich than in FL1/1. It is interesting that lime, *Prunus* e.g. sloe, and hornbeam were present since by virtue of their extremely poor pollen dispersal, a pollen record implies a local presence (Nilsson and Praglowski 1992). They may have been growing as isolated individuals, or in hedgerows where management allowed flowering, but it is also possible that the palynomorphs were relict from earlier local vegetation and had become mixed into the profile.

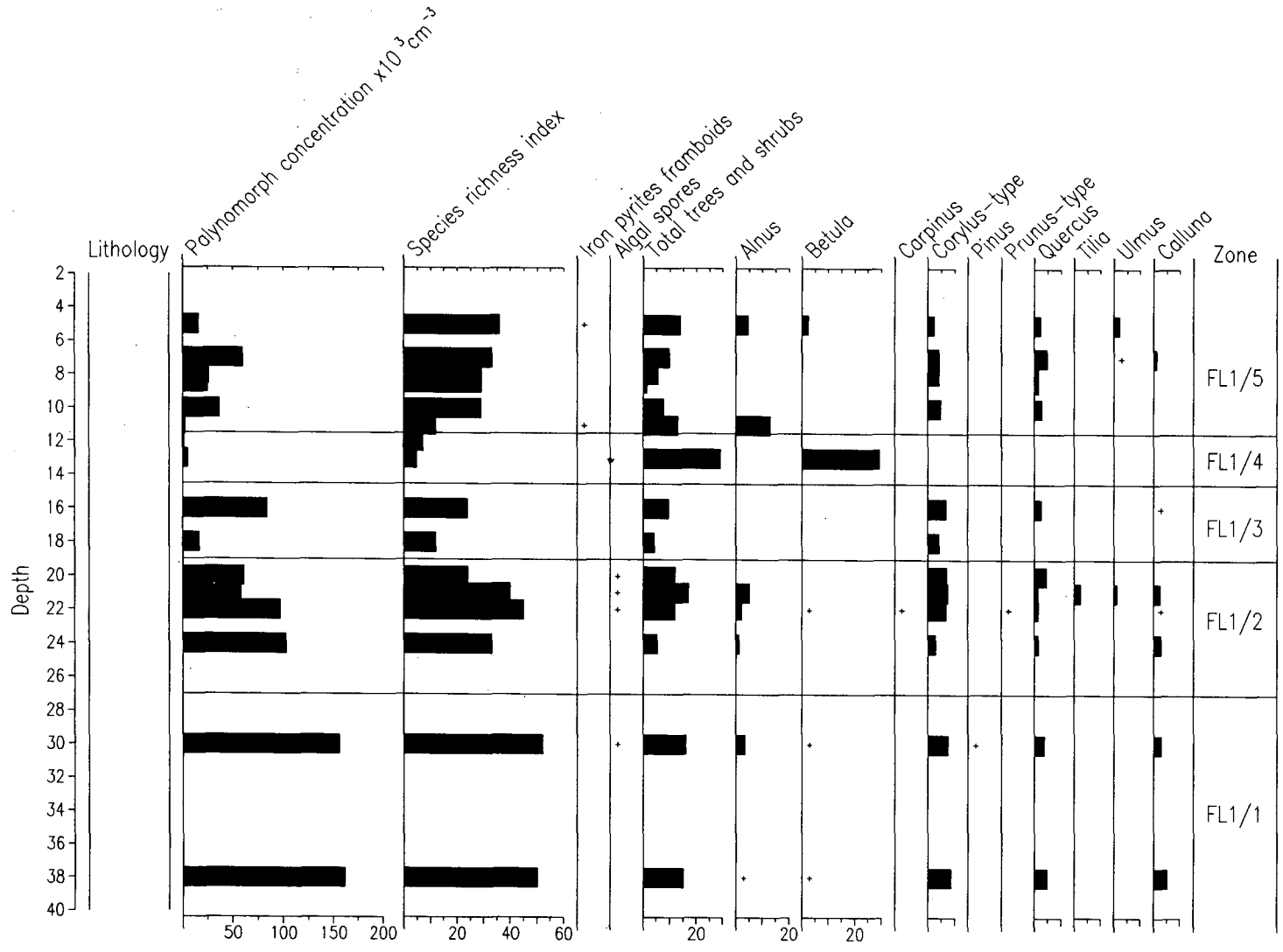
The presence of adder's tongue fern is interesting and the species involved is likely to have been *Ophioglossum vulgatum* (common adder's tongue). Today, this plant is characteristic of damp meadows, scrub, and open woodlands in lowland England (Rose 1989), but it is also found in western upland sheep pastures today (personal observation). A number of the herbs, such as *Galium*- type (bedstraws), Lactuceae (a large number of composite species), and sedges could have been growing in damp meadows but the lack of resolution in pollen identification does not allow confirmation. *Sphagnum* moss spores were also present in this zone and they may have been derived from dung. The fact that pondweed pollen and algal spores were found in three samples suggests that the deposits had received dung from animals watered elsewhere. It is easy to envisage animals taking up pollen of aquatic plants during drinking and, since the moss grows in wet places, stock animals could easily have taken *Sphagnum* spores which had accumulated in the water or on adjacent foliage. The vegetation was still dominated by open weedy grassland with ruderals although there were fewer herbaceous taxa overall. It is also possible that the herbs recorded in this zone might have been weeds associated with arable fields since the value of 3.5 per cent for cereal-type pollen indicates cereal growing/processing in the vicinity.

Description

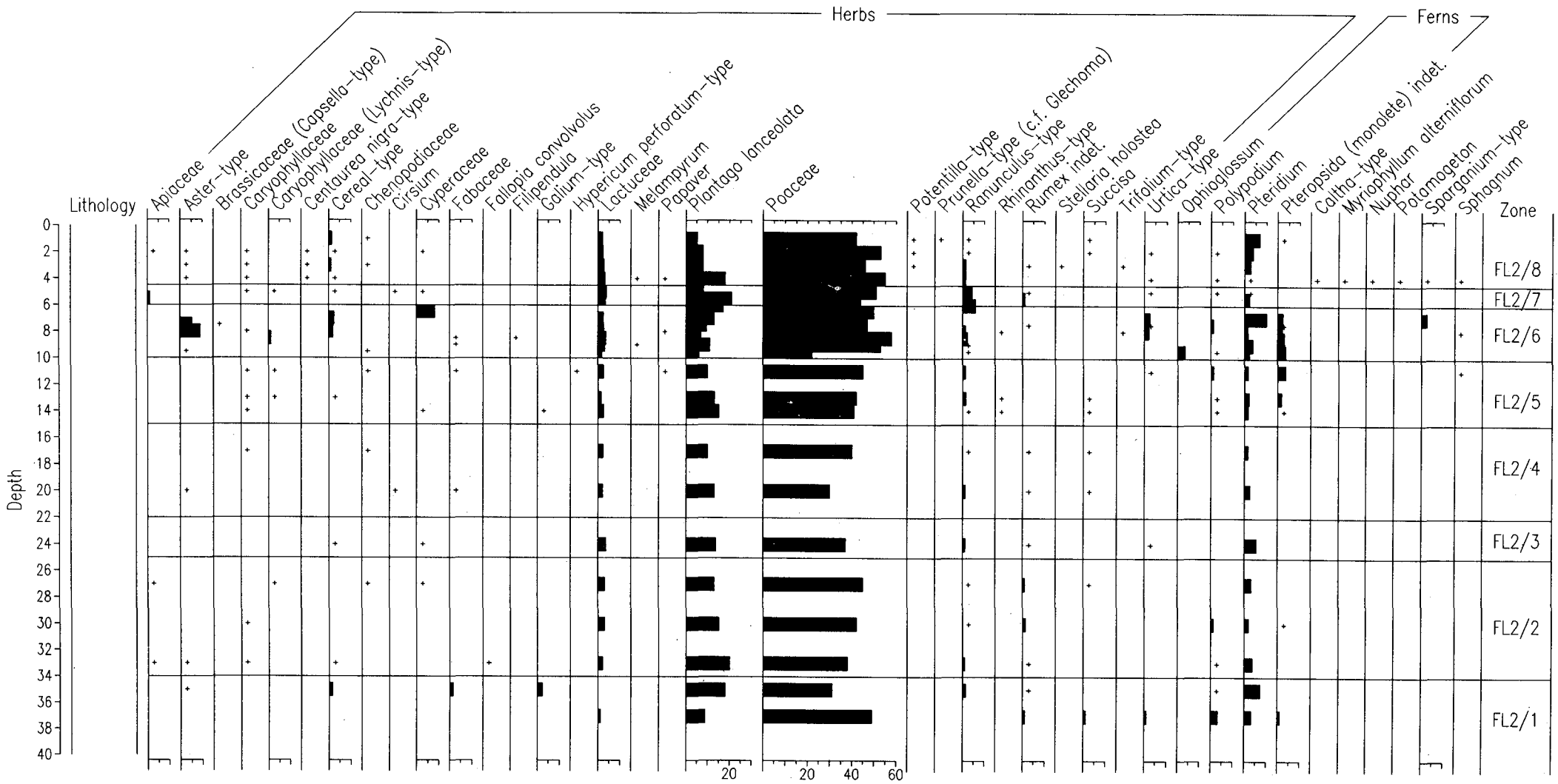
This zone consisted of just two samples. Species richness was much lower than in FL1/1 and FL1/2, and concentration of palynomorphs was particularly low at 18 cm. Tree/shrub pollen was highest at 16 cm, with 9.5 per cent being recorded, but only hazel and oak were present. A low number of heather pollen grains were found at 16 cm while the only ferns represented were polypody and bracken. No algal spores nor pollen of aquatic plants were found, and very few herbs were present in the pollen spectra. Cereal-type pollen was also absent from the record.

Apart from grasses and ribwort plantain, the most abundant herb taxon was Lactuceae. The only other herb taxa recorded were Chenopodiaceae (goose foot) and those in the buttercup family.

FIG. 105. Major spore-formers and herbaceous taxa.



Land pollen and spores expressed as percentage of land pollen and spores (TLP/S)



Expressed as percentage of total land pollen and spores (TLP/S) minus aquatics/emergents
Aquatics/emergents expressed as percentage TLP/S plus aquatics/emergents

Interpretation

It is difficult to know whether this zone represents material from the same source or whether it was mixed. The low concentrations and species richness, and the paucity of taxa vulnerable to decomposition with the abundance of resistant taxa (e.g. polypody fern and Lactuceae) suggest that there had been a very large loss of palynomorphs through differential decomposition (Tipping *et al.* 1994). It is possible that this zone represents the subsoil of a turf with only a remnant of a former, richer assemblage remaining.

Zone FL1/4 (11–13 cm)

Description

Palynomorph concentration and species richness were very low and the pollen spectra were distorted because so few could be found for counting. Birch, bracken, grasses, ribwort plantain, goosefoot and *Caltha*-type (e.g. kingcup) were present. Lactuceae, *Ranunculus*-type (e.g. buttercup), and ferns had exaggerated values. All these had disproportionately high representation. Iron pyrite framboids were present at 11 cm.

Interpretation

The assemblage consisted mostly resistant taxa remaining after most vulnerable ones had gone. The presence of *Caltha*-type (e.g. kingcup) pollen suggests that the material came from a wet place, or again that dung was present in the matrix.

The presence of iron pyrite framboids is interesting. These are formed in organic sediments as a result of microbial reduction of iron and sulphate under conditions of very low redox potential. They are usually formed in waterlogged sediments and at the sediment/water interface in ponds, lakes etc. (Wiltshire *et al.* 1994). Their presence in buried turfs is enigmatic although it is possible that the deposit was collected from waterlogged soils. On the other hand, it is feasible that the framboids had been taken in by animals drinking at watering places and that they had passed through the gut. It is possible that the highly reducing environment of the rumen and gut would allow the framboids to pass through intact although there is no experimental evidence to support this contention. There is certainly some evidence that pollen is differentially broken down in the ruminant's gut (Faegri 1971) (although ingestion by other animals has less impact) and this might account for the poor and biased assemblage.

Zone FL1/5 (5–10 cm)

Description

Both palynomorph concentration and species richness were higher in this zone although concentrations were relatively low when compared with the basal sediment. Iron pyrite framboids were found at 5 cm but neither algal spores nor aquatic taxa were found. Tree/shrub pollen reached the highest value of 14 per cent at 5 cm and oak and hazel were the most well represented taxa. However, the sample at 5 cm also contained alder, birch and *Ulmus* (elm), and elm was also present at 7 cm. Heather was found at 7 cm while polypody, bracken and other ferns were all well represented in most samples.

Cereal-type pollen was present in three samples in the zone and *Secale* (rye) was found at 7 cm. The dominant herb taxa were grasses and ribwort plantain although Lactuceae were consistently present and other herbs were well represented. *Aster*-type (e.g. daisy, ragwort, colt's foot, hemp agrimony) was also conspicuous. Ruderals such as goosefoot, *Urtica* (nettle), and *Polygonum aviculare* (knotweed) were present. These could also have been associated with crop fields or even pasture/weedy grassland along with taxa such as *Trifolium* (clover), bird's foot trefoil, and members of the chickweed and buttercup families. *Campanula*-type (e.g. harebell) and devil's bit scabious were also present.

TABLE 57. MINOR TAXA FROM CORE 2.

Depth (cm)	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	11	13	14	17	20	24	27	30	33	35	37	38
Microscopic charcoal	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Herbs																										
Apiaceae indet.		+				1.1																				
Brassicaceae (Capsella-type)									+																	
Caryophyllaceae (Lychnis-type)					+							1.2			+	+										
Caryophyllaceae indet.		+	+	+	+						+				+	+	+	+				+				
Centaurea nigra-type		+	+	+																						
Chenopodiaceae indet.	+		+											+	+			+			+					
Cirsium					+														+							
Cyperaceae		+			+			8.3									+			+	+					
Fabaceae indet.												+	+		+				+							
Fallopia convolvolus																										
Filipendula												+														
Galium-type																	+									
Hypericum perforatum-type														+												
Melampyrum				+								+														
Papaver				+							+			+												
Potentilla-type	+	+	+																							
Prunella-type (c.f. Glechoma)	+																									
Rhinanthus-type											+					+	+									
Rumex indet.			+	1.1						+								+	+	+	1	1.3				
Stellaria holostea			+																							
Succisa	+	+														+	+	+	+		+					
Trifolium-type			+								+															
Spore-Formers																										
Ophioglossum														3.3												
Aquatics/Plants of wet soil																										
Caltha-type				+																						
Myriophyllum spicatum				+																						
Nuphar				+																						
Potamogeton				+																						
Typha angustifolia-type				+				2.5																		

Interpretation

The low arboreal percentages indicate that trees and shrubs were present only as small stands or individuals locally, or that any woodland was some considerable distance away. The landscape from which the material was collected was dominated by herb-rich grassland and/or wet meadow. The iron pyrite framboids suggest waterlogged conditions (Wiltshire *et al.* 1994). Grasses and plantains dominated the assemblage but other herbs were important, such as *Aster*-type, harebell, and nettle. In spite of evidence for damp meadow, heather and bracken were also present so acidic and possibly drier soils were also available.

Cereal-type pollen was well represented and indicates arable activity in the vicinity; the single grain of *Secale* (rye) might have been merely a weed of other cereal crops. However, although no claim is being made for rye cultivation at the time the stack was constructed, this cereal was certainly grown as a crop in Roman and post-Roman times (Chambers 1989; Behre, 1992).

DESCRIPTION AND INTERPRETATION OF CORE 2

Zone FL2/1 (35–38 cm)

Description

The sample at 38 cm was barren of palynomorphs. Concentrations were very low in the rest of the zone, but state of preservation was moderately good with over 80 per cent of palynomorphs identifiable. Species richness achieved a relative value of 30. The value for total tree and shrub pollen approached 10 per cent with only oak, alder, birch, and hazel being recorded. Hazel was the dominant taxon. Heather was present but did not exceed 5 per cent TLP/S. The herbaceous flora was dominated by grasses and ribwort plantain with other herbs accounting for less than 10 per cent of TLP/S. Cereal-type pollen was found and algal spores reached values up to 5 per cent. Bracken, polypody fern and other ferns were all represented with bracken reaching a high of 7.4 per cent.

Interpretation

The basal deposit was shown by micromorphological analysis to consist of iron pan, and it is not surprising, therefore, that no palynomorphs were found in this sample. Soil analysis suggested that this zone represented an upper subsoil (Eb) horizon, and this contention might be supported by the low palynomorph concentration. There certainly seems to have been a massive loss of pollen and spores, although more than 80 per cent were identifiable. There was probably some distortion in the data due to differential decay although vulnerable palynomorphs were preserved along with the more resistant ones. The presence of algal spores might indicate wet conditions in the soil at some time in its history. Since algae require light for photosynthesis, and they are present in what is described as subsoil, they must represent a relict population which had been incorporated during pedogenesis.

There is little doubt that the soils in these samples were obtained from an area of weedy grassland (either pasture or meadow). In view of the very large percentages of grasses and ribwort plantain, the grassland appears to have been relatively lightly grazed and the presence of devil's bit scabious also suggests damp, unproductive pasture and ungrazed grassland (Grime *et al.* 1988).

The landscape was overwhelmingly open, with trees probably present as isolated individuals, growing in hedgerows, or possibly in woodland some distance away from the site of turf collection. Hazel seems to have been the most common woody plant although oak, alder and birch were growing in the catchment. The presence of heather and bracken might suggest the presence of dry, acidic soil in the area, and possibly even the existence of heath locally. Soil analysis has also shown a degree of phosphate-enrichment in this layer, and the nettle recorded at 37 cm might have been responding to eutrophication of local soils. Cereals were being grown and/or processed in the vicinity, and the ruderal taxa could have been growing in with crops as well as on other disturbed soils.

Zone FL2/2 (27–33 cm)

Description

Palynomorph concentration increased to over 120,000 cm^{-3} while species richness and numbers of unidentified grains remained at approximately the same as in zone FL2/1. Total tree and shrub values were also very similar to the previous zone with only oak, alder, birch and hazel being recorded. Again these were at similar levels to those in the previous zone but heather increased to over 6 per cent TLP/S. No algal spores were found in this zone. As in the rest of the sequence, the herbaceous flora was dominated by grasses and ribwort plantain although there was an increase in Lactuceae, and docks continued to be represented. Other herbs were present at very low level but included other ruderals such as goosefoot and thistle; devil's bit scabious and sedges were also recorded. Bracken was present at less than 5 per cent throughout and other ferns were at very low level. Cereal-type pollen was recorded at 33 cm along with *Fallopia convolvolus* (black bindweed).

Interpretation

The palynomorph spectra in this zone were very similar to those in the previous one although the higher concentration suggests better preservation. There were relatively minor changes in individual spectra, notably an increase in heather, grasses, and herb taxa such as Lactuceae, and a decline in bracken. The presence of black bindweed is interesting since today, it is one of the commonest weeds of corn fields (Hanf 1983), but devil's bit scabious was still present. The latter, coupled with the high levels of pollen from grasses and ribwort plantain, might indicate a dominant vegetation of nutrient-flushed and relatively undisturbed grassland. Some trees were growing in the catchment however, although their density and proximity cannot be ascertained. Soil analysis has shown that the deposits in this zone consisted of the Ah and Eb horizons and it is possible that this zone represents the continuation and upper part of FL2/1.

Zone FL2/3 (24 cm)

Description

This zone is represented by a single sample. Preservation of palynomorphs was a little poorer than in the previous zone although overall concentration and species richness were little changed. The zone is characterized by a drop in heather, grasses, and numbers of herbaceous taxa, and an increase in bracken. Percentages of oak, alder and birch were similar to the previous zone while *Fraxinus* (ash) was recorded. There was a slight decline in hazel. Cereal-type was recorded along with nettle, *Aster*-type, Lactuceae, and *Ranunculus* (e.g. buttercup).

Interpretation

Soil analysis suggested that the deposit here represents an inverted turf but there are too few palynological samples to support or deny this suggestion. Except for a lower value for heather, and a paucity of herb taxa, the pollen assemblage was very similar to that of FL2/1 and FL2/2. If this does, indeed, represent an inverted turf then it was probably collected from the same area as the underlying materials.

Zone FL2/4 (17–20 cm)

Description

There was a marked increase in palynomorph concentration (to 430,000 cm^{-3}) and improvement in preservation although species richness remained unchanged. Total tree and shrub values dropped slightly but heather had markedly increased values and reached a high of 15 per cent TLP/S. Grasses and ribwort plantain dominated the herb spectra as in previous zones although there was a slight decrease in grasses. No cereal-type pollen was found and the sparse herb flora included small numbers of devil's bit scabious, docks, thistle, along with Lactuceae and buttercup family. The only fern represented was bracken.

Interpretation

The marked enhancement in concentration of palynomorphs at 17 cm and improvement of preservation over the sample at 20 cm might tentatively suggest that this material represents a turf with the surface uppermost. However, soil analysis suggests that the deposit was inverted and biologically mixed. Presumably, any mixing would make it exceedingly difficult to determine turf orientation, particularly with so few samples having been analysed. The increase in heather and a decrease in tree and herb pollen and fern spores, indicates a possibility that this material was obtained from a location somewhat removed from the place from which the underlying deposits had been collected

FL2/5 (11–14 cm)

Description

Palynomorph concentrations dropped to as low as 120,000 cm^{-3} in the middle of this zone although species richness increased slightly and preservation was slightly improved. Tree and shrub pollen increased, mostly due to an increase in oak and alder. Ash was present and hazel was slightly lower than in the previous zone. Heather reached a value of 7 per cent at 20 cm but dropped to 1.4 per cent at 17 cm. Algal spores were relatively abundant (up to 14 per cent) and *Sphagnum* moss spores were present. Again, grasses and ribwort plantain were the dominant herbs and Lactuceae and *Ranunculus*-type family were the most common other herb taxa. Cereal-type pollen was found, and minor herb taxa increased over the previous zone and included nettle, devil's bit scabious, poppy, goosefoot, and others. Undifferentiated ferns were the most abundant spore-formers although both bracken and polypody were represented.

Interpretation

The small increase in trees, decline in heather, presence of algal spores and *Sphagnum*, and the representation of ferns (particularly undifferentiated) suggests a different origin for this body of material from the underlying deposits. However, in broad detail, the local landscape from which this was collected was similar to that from which the lower deposits had been taken. It must be noted that this zone is equivalent to the deposits, identified by soil analysis, to have been deposited in water. Certainly, the spores of algae and *Sphagnum* and the increase in alder pollen suggest wetness, and the ferns might indicate damp conditions, but no other indicators of aquatic conditions were found. The close correlation between algal spores and ferns might suggest that the ferns were ones characteristic of wet conditions. If this material represents dumped sediments from a body of water, then that body of water must have been near to areas of dry soil supporting heather and weedy grassland.

Zone FL2/6 (6–9.5 cm)

Description

Palynomorph concentrations were very low and declined progressively upwards. Preservation fluctuated significantly with the highest levels of unidentifiable pollen being found at 9.5 cm. Species richness was as high as in FL2/5 for much of the zone but declined markedly between 6–7 cm. Tree and shrub values were similar to those in the previous zone although the only woody taxon found at 6 cm was hazel. *Typha angustifolia*-type (bur-reed) reached a value of 2.5 per cent at 7 cm and algal spores were present throughout, while *Sphagnum* was found at 8 cm.

As before, the herbaceous flora was dominated by grasses although ribwort plantain was important. However, herbs such as *Aster*-type and nettle were also well represented. Other herbs were present at low levels and were distributed towards the base of the zone. Cereal-type pollen was also found. There was a high value for sedge pollen at 6.5 per cent but it must be remembered that with such low pollen concentrations, the percentages were somewhat distorted. Bracken, undifferentiated ferns and and polypody fern were all present, and adder's tongue fern achieved

a percentage of 3.3 per cent at 9.5 cm. Again, there was a close correlation between algal spores and ferns.

Interpretation

The exceedingly low palynomorph concentrations, the erratic behaviour of the 'unidentified' curve, and the dramatic drop in species richness towards the top of the zone, suggest that there had been a massive loss of palynomorphs. Some taxa such as *Aster*-type and nettle, had elevated values and very few taxa at all were found at all at 6 cm. This has resulted in a high percentage for hazel pollen, with no other trees or shrubs being recorded. These effects were probably a function of differential decomposition. In spite of the paucity of palynomorphs in this zone, it appears that the deposits were obtained from a wet area since bur-reed, *Sphagnum*, and algal spores were present. The good correlation between algal spores and ferns as in the previous zone might be supportive evidence for damp conditions in the soil. Micromorphological analysis indicated that this zone represented Ah/Eb turfs with post-depositional mixing. The very low concentrations would suggest that the Eb horizons were better represented than the Ah here.

Zone FL2/7 (5–5.5 cm)

Description

Pollen concentrations were very much higher in this thin layer of deposit than in the previous zone, reaching a value of 300,000 cm^{-3} at 5 cm. Species richness also increased but the numbers of unidentifiable grains also had higher values. Tree and shrub percentages were very low and the only taxa recorded were oak and hazel. Grasses and ribwort plantain dominated the herbs with Lactuceae and *Ranunculus*-type also being moderately represented. Cereal-type, nettle, and docks were present with occasional grains of other taxa. The only spore-formers present were bracken and polypody fern, and these were at very low level.

Interpretation

This zone was equivalent to a narrow band of darker deposit and it is clear that although palynomorph concentrations were higher, species richness and state of preservation were poorer. In terms of palynological assemblage, the zone is very similar to other parts of the profile. The band was distinguished mainly on it higher numbers of degraded palynomorphs. The dark band was interpreted as being a layer of dung in the micromorphological samples. The palynological evidence does not support this contention although, of course, it is possible that decomposition was exceedingly effective in such a nutrient- and microbially-rich environment so that evidence of indicators has been removed.

FL2/8 (1–4 cm)

Description

Concentrations averaged about 150,000 cm^{-3} and species richness increased significantly in this zone; between 65 and 90 per cent of palynomorphs were identifiable throughout. Tree and shrub pollen ranged between 5–8 per cent and the most abundant taxa were oak, hazel and alder. Birch was present and *Ulmus* (elm) was found for the first time in the sequence. Heather reached percentages up to 2.2 per cent and bracken reached values of 7 per cent while polypody fern was also represented. Grasses dominated the herb taxa while ribwort plantain, Lactuceae and cereal-type were well represented and nettle, *Ranunculus*-type and *Aster*-type were also recorded. Although present in low numbers, grains of a relatively wide range of herb taxa were found. At 4 cm, a range of aquatic plants was represented; *Caltha*-type (e.g. kingcup), *Myriophyllum spicatum* (spiked water milfoil), *Nuphar* (yellow water lily), pondweed, and bur-reed.

Interpretation

In terms of concentration, preservation and palynomorph spectra, this zone is somewhat similar to FL2/3 except that species richness was a little higher and pollen of elm was found. Oak, alder,

birch, elm, ash and hazel were growing in the catchment but the landscape was very open. The consistent presence of cereal-type suggest arable farming locally, although other herbs indicate the importance of herb-rich meadow or pasture. The sample at 4 cm is remarkable in that it contained pollen of five obligate aquatic taxa. *Sphagnum* spores were also found at 3 cm. This suggest that the dung of animals which had probably been watered in the valley had been deposited directly on the turf and become incorporated into its matrix. Indeed, the micromorphological results showed that these deposits consisted of Ah/Eb horizons with dung incorporated into the soil fabric.

DISCUSSION

Summary of the relationship between the component materials

Core 1

The palynological results appear to have neither consistent correlation with gross stratigraphy within sequences, nor uniform patterning within each turf unit (zones). This is probably due, at least in part, to the pre- and post-depositional mixing which was demonstrated by micromorphological analysis (Macphail et al., this volume). The relatively low pollen concentrations throughout both cores suggests that differential decomposition had taken place and this had resulted in a greater or lesser distortion of the pollen spectra. In view of the lack of resolution in the data, and the documented disturbances within the turfs themselves, it would thus be imprudent to attempt a detailed reconstruction of the orientation of individual turf profiles; where orientation is suggested from the palynological data, interpretation is very tentative. Turfs could sometimes be differentiated from the dump material but it was not possible to locate precisely the position of old turf lines.

In spite of the problems presented above, three sections of turf have probably been recognized in Core 1. The assemblage in FL1/1 was broadly similar to that in FL1/2 and it is likely that they had been obtained from the same locality. In zones FL1/3 and FL1/4, there had obviously been a massive loss of palynomorphs and only remnants of former assemblages remained. These zones probably represented subsoils which had lost most of their pollen through decomposition, and it is impossible to relate them directly to adjacent parts of the sequence. Zone FL1/5 certainly appears to represent a turf but it had probably been collected from an area at some (unknown) distance away from the location represented by FL1/1. The presence of nettle, *Aster*-type, and harebell, a marked drop in ferns (other than bracken), and a significant increase in plantain suggests a grassland somewhat different in character from that in FL1/1. The high levels of grass and plantain, and the presence of devil's bit scabious, might suggest even lower levels of grazing than in the turf of FL1/1 and it is possible that the grassland was under a different management regime from that represented by the lower sediments. The presence of nettle implies some soil enrichment with phosphate and, in view of the presence of iron pyrite framboids, it might have been collected from a wetter area. It also seems to have been taken from an area less influenced by heather.

Core 2

The stratigraphy in core 2 was very complex and, again, soil analysis revealed evidence of bioactivity and mixing. Furthermore, the common assumption that darker deposits represent the Ah horizons of old ground surfaces cannot be supported. Soil analysis certainly showed that FL2/1 consisted of subsoil (Eb) and FL2/2 represented the Eb with the upper, organic horizon (Ah). Zone FL2/3 consisted of a single sample and this part of the sequence was interpreted by soil micromorphology to be an inverted turf. The lack of palynological sampling resolution here made it impossible to support or refute this contention, but there were some differences in the pollen spectra between this and adjacent zones, so it is possible that the layer had a distinct origin. Zone FL2/4 also appeared to represent a turf although its orientation was unclear. However, the relatively high levels of heather suggests that the deposit was was not collected immediately adjacent to underlying ones.

The material in Zone FL2/5 seems to have been collected from a wet area, and soil analysis suggested that the deposits were actually water-lain. If this were the case, then weedy grassland and possibly heathy areas were near to the body of water in which the sediments accumulated. The very low palynomorph concentrations in FL2/6 suggested that the materials represented a subsoil although soil analysis indicated the presence of an Ah horizon mixed into the matrix. If so, there had been considerable bioactivity and loss of palynomorphs. The pollen spectra suggested that the amount of upper, organic material (Ah) was minimal. They also indicate wet conditions within the soil. The very narrow band of darker deposit which represented FL2/7 was interpreted by soil micromorphological analysis to be a layer of dung (Macphail *et al.*, this volume). There was no direct palynological evidence for this although the samples did have high concentrations of poorly-preserved pollen and spores which might be typical of ruminant gut action. The material in FL2/8 represents the mixed Ah and Eb horizons of a turf which might have been collected from an area close to where the material in FL2/3 had been obtained. Although micromorphological analysis suggests mixing of the turf soil, there was a single layer into which dung had been incorporated. Pollen of five aquatic plant taxa was present and these might have reached the soil via dung. It is interesting that this sample lay immediately adjacent to the thin layer of FL2/7 which had been suggested to be a dung layer by Macphail *et al.*

RECONSTRUCTION OF THE VEGETATION IN THE ENVIRONS OF THE SITE

All the environments from which the turfs were collected were dominated by open weedy grassland, i.e. pasture and meadow. A pastoral economy seems to have been important although the pollen spectra might imply relatively light grazing in the areas from which the turfs were collected. The very high values for grasses and ribwort plantain show that the plants were allowed to flower profusely, yet in intensively grazed pastures, flowering and pollen production are often low.

Other indicators of damp, relatively undisturbed grassland, such as adder's tongue fern and devil's bit scabious, were also present. A wide range of herb taxa characteristic of pasture and meadow was found both in the palynological and macrofossil analyses (see FIGS 104–5 and TABLES 56–7; also Murphy, p. 388 this volume). Some of them favour nutrient-rich soils and many are also characteristic of disturbed soils, wasteground, and corn fields. Cereals were certainly being grown and/or processed, and pollen of plants which are characteristic weeds of arable crops were recorded (e.g. *Aphanes arvensis* — parsley piert), black bindweed, and knotweed. *Bromus* grasses were found in the macrofossil analyses and a single rye pollen was obtained. Rye could easily have been a crop weed, and the presence of one pollen grain does not imply its cultivation.

Pollen of obligate aquatic plants in some of the samples suggests the incorporation of dung into the turfs, so there is little doubt that animals had access to the grassland from which the turfs were collected. It also confirms the presence of a body of water accessible to stock animals. The pollen spectra further indicate that the water was probably nutrient-enriched, and stagnant or slow-flowing; bur-reed, water lily, yellow water lily, spiked water milfoil, and kingcup all need mesotrophic to eutrophic conditions, while all these, along with pondweed, will tolerate only very gentle or no water flow. The water source was likely to have been a large pond, cut-off river channel, or sluggishly-flowing stream.

There were trees growing in the catchment and oak and hazel seem to be the most abundant, although a number of other trees and shrubs were also recorded. It is difficult to ascertain whether the trees were growing as isolated individuals, in managed hedgerows or small stands, or whether there was woodland growing some distance away from the site.

The woody plants identified in the analysis of charcoal from the cremation (Gale, this volume) reflect the palynological findings. Charred remains of oak, hazel, ash, and cf. sloe were found as well as of *Acer* (maple) and Pomoideae (e.g. hawthorn and apple). Macrofossil analysis (Murphy, this volume) also demonstrated the presence of oak, hazel, hawthorn, apple, *Prunus* species (damson/bullace and sloe), *Sambucus* (elder), and *Rubus* (bramble). Maple, hawthorn/apple, elder, and bramble were not recorded in the palynological data, and this is not surprising in view of their low pollen production and insect-pollination. But, along with sloe, the woody

taxa found in the combined analyses certainly suggest the presence of hedges and/or scrub. The consistent presence of polypody fern in the absence of well-established local woodland might offer additional evidence that hedges and/or banks were available in the vicinity of the sites where turf was collected.

The absence of alder in the charcoal record is interesting since it was certainly growing in the catchment. However, it tends to produce poor charcoal and readily turns to ashes (Gale, pers. comm.). Its absence might simply be due to lack of preservation.

Although the open landscape seems to have been dominated by pasture and meadow, with some soil enrichment, drier and acidic soils were also present and these possibly supported acid grassland colonized by heather and bracken, or even areas of heath. However, these plants might have been growing in association with stands of trees on the more acid soils.

A range of soil types is indicated by the flora recorded in both the palynological and macrofossil analyses. Wet, nutrient-enriched soils, damp meadow soils, soils suitable for arable farming, and acidic, dry, oligotrophic soils were all present. Accordingly, they must have supported their characteristic plant communities although, unfortunately, these can only be considered in very broad terms here in view of problems with taxonomic resolution and variable taphonomy.

The palynological profiles provided by the turfs are very complex, and palynomorphs would have been derived from several sources. The *in situ*, local, extra-local and regional components in the landscape's vegetation are represented in the pollen spectra, as well as allochthonous taxa being added in animal dung. There may also be residual palynomorphs being included in the analysis. The length of time represented by each turf and/or dumped fill is unknown, and palynomorphs from plant communities which had long been removed might still be present in the soils. For example, to be recorded in the pollen spectra, lime and hornbeam trees would need to have been growing very close indeed to the accumulating soil/sediment; both were found in Core 1 and either they represent trees which had been removed long before the turf was cut, or the turfs had been collected from areas where the trees were still growing. However, it is clear that their contribution was minor so an anachronous component would be unlikely to distort the environmental reconstruction significantly.

Whatever period of time is represented by these turfs, it is clear that there was very little evidence for wooded conditions. The pollen spectra from subsoils were very similar to those from the upper layers of the turf profile. Analysis of the turf wall at Birdoswald Roman Fort and adjacent, radiocarbon-dated peat profiles (Wiltshire 1997, 25–40) has shown that relatively shallow acidic soil profiles can contain at least five hundred years of vegetation history. The soils at the burial site were acidic, and the pollen was moderately preserved in the turfs, so one could expect the profiles here to represent a record of several hundred years. It is likely, therefore, that the landscape around the site was cleared of woodland for hundreds of years before the burial. Very few trees were available although there might have been hedges and scrub in the area.

The two cores present very similar pictures of the vegetation in the Verulamium landscape. However, although the upper turfs in both cores are broadly similar, it is clear that the lower materials were collected from different places. Core 1 has marginally more tree/shrub pollen and the grassland appears to have a different community composition. There are also marked differences between relative representations of ferns, certain herb taxa, and heather. A general impression is gained of much of the material of Core 1 being obtained from slightly wetter areas than those in Core 2.

A palynological study of waterlogged deposits in St Michael's (Dimbleby 1978) presents a very interesting contrast to the results obtained from the buried turfs. No chronology was available for the St Michael's deposits but their stratigraphic position made it clear that they predated the Roman fort at Verulamium in A.D. 43/44. The analysis confirms a cleared landscape dominated by open, weedy grassland and arable agriculture. The striking difference between Dimbleby's findings and those presented here is the exceedingly low values he obtained for trees, shrubs, and heather. The same assemblage of woody taxa was found but at very low frequency; and alder was not found at all. This is very surprising considering the valley-bottom location of the pollen site. It is possible that the differences between the two studies were due to location

and taphonomic processes. It is well known that hill tops will receive a larger regional component in the pollen rain than valley bottoms, and the turf on higher ground probably had a larger pollen catchment. It is also likely that heather was growing on drier soils on higher ground since river valleys tend to offer mesotrophic to eutrophic conditions and high water table, both conditions which inhibit the growth of heather. It is also possible that the waterlogged deposits analysed by Dimbleby postdate the turf in the funerary shaft and represent a landscape that supported even fewer trees.

CONCLUSION

In spite of all the difficulties associated with the analysis and interpretation of buried turfs, palynological investigation of such material does appear to be useful for environmental reconstruction, especially when combined with macrofossil and micromorphological analyses. The study here has shown that the landscape around the burial site had probably been cleared of woodland for at least several hundred years before the turfs were laid. Mature, flowering trees were very sparse, and the area was characterized by lightly-grazed, herb-rich, pasture and damp meadow. Hedges and/or scrub were also probably present as well as heath or acid grassland, colonized by heather and possibly bracken. Arable agriculture was being practised, and many of the herbs recorded could have been weeds of agriculture and associated waste land. A source of stagnant to slow- flowing water was available for watering stock (probably in the valley), and pollen from plants growing in the water found their way into the turf soil as dung became incorporated into the profiles. The area involved in turf collection is not known but various locations were exploited including both wet and drier sites.

Analysis of turfs from an archaeological feature has demonstrated that soil pollen analysis is valuable in reconstruction of palaeolandscapes. The pollen assemblages indicate that turfs were collected from outside the immediate environs of the funerary structure and so have given a wider picture of the late Iron Age landscape of St Albans.

SOIL MICROMORPHOLOGY AND DIATOM ANALYSIS OF THIN SECTIONS AND MICROCHEMICAL ANALYSIS OF POLISHED BLOCKS

***by* R. I. Macphail, G. M. Cruise and S. J. Mellalieu, with contributions by S. Bond, I. Dormor, and K. Reeves**

Seven thin sections and polished impregnated soil blocks from the (c. A.D. 55) *'turf filling' of the funerary shaft were analysed employing soil micromorphology, EDXRA, microprobe analysis and diatom investigations. As expected, soils from the local area had been exploited and their characteristics have been described. In addition, it seems likely that the 'turf' material included probable cattle dung, possible trampled soils and enigmatic pond-like sediments. These findings suggest that both natural local soils and soils associated with pasture and animal enclosures/husbandry were employed.*

INTRODUCTION

The needs of the investigation necessitated a methodological progression from a simple soil micromorphological study to one employing complementary microchemical testing and the novel systematic study of diatoms from thin sections. Bulk samples for soil analyses and diatoms were not available (see below) and so the assessed characteristics of the soil thin sections had to be tested by the recovery of detailed soil micromorphological data, including diatom analysis, and the use of SEM/EDXRA and microprobe analysis on polished blocks.

Preliminary study

A preliminary soil micromorphological assessment of two soil columns from the shaft filling suggested that a variety of soil materials could have been used in its construction. In addition to the expected presence of local soils, two possible rather unexpected inclusions were also found. First, given the location of the site (on the upper slope of a hill) it was surprising to find that some of the thin sections contain substantial numbers of diatoms (PL. LV), as these are most

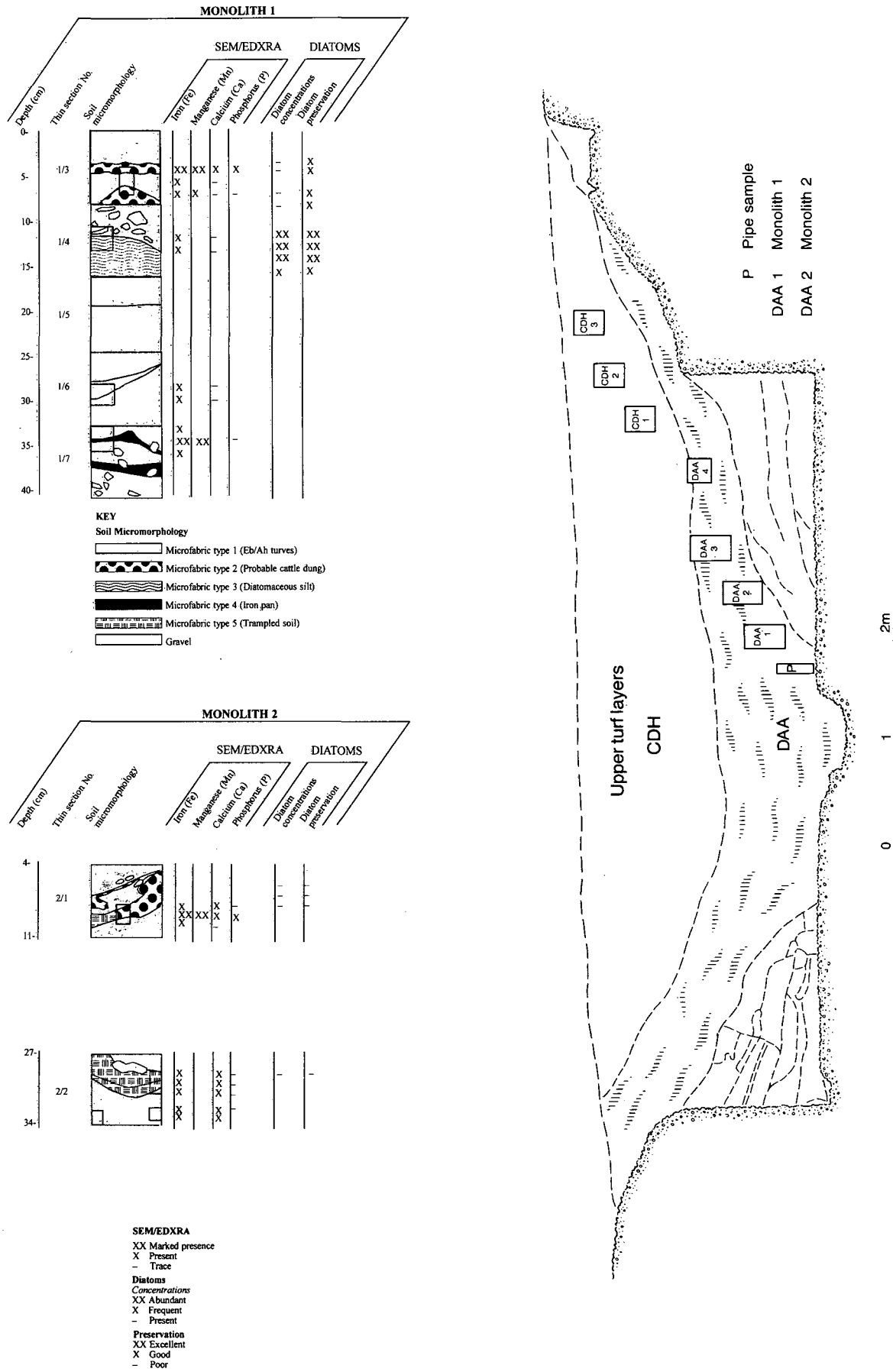


FIG. 106. *a*, Diagramatic sections showing the location of samples (Monolith 1 and 2), schematic diagram of soil micromorphology (Microfabric types 1–5), location (drawn rectangles) of polished block (sampled zones see TABLE 59); *b*, SEM/EDXRA and diatom data.

frequently associated with wet sites (ponds, lakes, moist soil, etc.). Secondly, cattle dung-like material appeared to be present (PL. LVII).

The aim of this present study is to characterize and identify accurately the major components making up this part of the shaft filling. Only thin sections and polished blocks are available to achieve this objective (see below). The findings will then contribute to discussions on the soils and environment of the Folly Lane site. Environmental data on the site are also being contributed by macrobotanical, pollen and wood charcoal studies (Murphy, Wiltshire and Gale, respectively, this volume).

METHODS

Soil micromorphology

Large monolith samples from the central area of the shaft filling were sampled and sent to R. I. Macphail and P. E. J. Wiltshire (this volume) at UCL. These were visually assessed and two 40 cm long monoliths (AG1/G DAA; co-ordinates 257.94/624.19) were selected for laboratory study. The exposed soil in the monoliths was cleaned, described, and after bulk sub-sampling for pollen (Wiltshire, this volume), seven Kubiena samples were selected for soil micromorphological analysis. Unfortunately, all the bulk sampled material was sacrificed to produce sufficient pollen for counting, and none remained for bulk soil analytical studies. Hence, the soil investigation is limited to the study of thin sections and polished blocks.

Optical microscopy

Undisturbed Kubiena samples comprised a continuous sequence of five samples through Monolith 1 and two from the upper and lower halves of Monolith 2 (FIG. 106). Kubiena samples were air-dried, impregnated with a crystic resin mixture and manufactured into 7.5 x 6 cm large thin sections at the University of Stirling (Murphy 1986). Thin sections were described employing Bullock *et al.* (1985) with interpretations based upon Courty *et al.* (1989), and other literature (e.g. Babel 1975; Bal 1982). Thin sections were observed using plane polarized light (PPL), crossed polarized light (XPL), oblique incident light (OIL) and ultra-violet light (UV) illumination employing magnifications of x20–x400. They were also sketched at lower magnifications once the soil microfabrics had been described and logged (FIG. 107 and TABLE 58).

SEM/EDXRA and microprobe studies

Eight areas of interest were selected from the thin sections (FIG. 107). As the thin sections had permanent cover slips, these were located and cut out from the mirror image slices of the remaining blocks. Microfabric zones as identified in both the thin sections and the mirror image slices, were then analysed by energy dispersive X-ray analysis (SEM/EDXRA) after sputter coating with carbon, because SEM/EDXRA cannot measure carbon. Only elements with atomic weights ranging from those of beryllium (= 9) to uranium (= 238) can be detected (Courty *et al.* 1989, 51; Bisdom *et al.* 1990). The technique is also non-quantitative and has difficulty detecting elements in small quantities (<0.1 per cent). In all, thirty-two zones were analysed from eight polished blocks. The data is reported in a qualitative form (FIG. 106*b*). These analyses identified five polished block samples (thin section mirror-image slices) that required more detailed microchemical study. In view of the limitations of SEM/EDXRA (see above) the next step in the microchemical testing programme was made employing a Jeol JXA8600 electron probe micro-analiser, which yields quantitative data. The slices and the zones studied by microprobe, are also located in FIGURE 106. The samples studied are:

2 zones from one block, namely 1/6a and 1/6b, from sample 1/6

3 zones from one block, namely 2/1a, 2/1b and 2/1c, from sample 2/1 and

from sample 2/2, 5 zones from three blocks, namely, 2/2a, 2/2b and 2/2c (uppermost polished block), with 2/2d (lower right polished block) and 2/2e (lower left polished block).

Each zone was studied by a 2 mm square grid of 25 points analysed by a 100 mμ wide microprobe beam. The per cent by weight of the elements present, namely Mg (magnesium),

TABLE 58. SOIL MICROMORPHOLOGY

1a: Monolith 1 (see FIGURE 106)

DEPTH (cm)	MONOLITH NOTES	THIN SECTION	BRIEF SOIL MICROMORPHOLOGY AND SUMMARIZED INTERPRETATION
0.5–4	0–5 cm yellowish brown, (10YR5/4, very faintly mottled.	1/3	*Structure and porosity.* Very dominantly massive. Few meso-and macrovughs. Mineral C/F 10 µm. *Coarse mineral.* Very dominant silt-size (<50 µm) and medium sand-size (200–500 µm) quartz with frequent gravel-size (2–4 mm) quartzite and iron-stained flint. Very few coarse and medium sand-size ferruginous nodules. Scattered diatoms (see Diatoms) and an inclusion of coarse sand sized ferruginous clay. *Coarse organic* Occasional 200 µm size charcoal. Occasional blackened probable fungal spores. *Fine fabric type 1 Mineral* Very pale dusty brown (PPL—Plain Polarised Light); non-birefringent (XPL—Cross Polarised Light) (silasepic); very pale brown (OIL—Oblique Incident Light). *Fine organic* Black, brown and orange (PPL); red/brown (XPL); reddish-brown to orange (OIL). *Pedofeatures Amorphous* (a) Occasional diagonal thin (50 µm) humic bands; (b) many thicker (950 µm) diagonal humic bands associated with porosity. *Fabric* Many humic (1200–2500 µm) inclusions. *Interpretation: Probable Ah/Eb turf(s) which have settled into compacted sloping layers; possible minor post-depositional biological mixing. Partial iron/manganese replacement of the organic matter.* Sharp boundary with above.
4–5	5–6 cm dark grey to black (10YR4/1–2/1) humic	1/3	*Structure and porosity.* major horizontal fissure (600 mm x 2 mm); smaller (600 µm) burrows, chambers and packing voids. *Coarse mineral* Sandy silt loam as above. Scattered diatoms (see Diatoms). *Coarse organic* Very dominant blackened organic matter. *Fine fabric type 2* (See also 2/1). *Mineral* As for Fine fabric type 1. *Organic* Very abundant layered and semi-layered dark brown-black (PPL); dark brown-black and red (XPL); orange and black (OIL). *Pedofeatures Amorphous* Many fine humic bands as in Fine fabric type 1. *Fabric* Abundant humic (200 µm) inclusions. *Excremental* Many very thin, humic enchytraeid-like excrements. *Interpretation: Probable layer of cattle dung with concentration of post-depositional biological activity and partial iron/manganese replacement of the organic matter.* Phosphate present (see SEM/EDXRA).
5–8	6–8 cm yellowish brown (10YR5/4)	1/3	Generally Fine fabric type 1 comprising: A) An upper compacted, silt dominated soil and few fine sand-size charcoal fragments and B) A lower, mixed more humic soil with common burrows (up to 3 cm x 0.5 mm) and chambers. *Coarse mineral* Sand and silt dominated with diatoms (see Diatoms). *Coarse organic* Common dense orange and dark-brown amorphous organic fragments. *Fine Mineral* As for Fine fabric type 1. *Organic* Dark brown and black (PPL and XPL), orange to dark brown and black (OIL). *Pedofeatures Fabric* Very abundant humic inclusions. *Interpretation: Probable Eb/Ah turfs and/or dung with post-depositional biological mixing. Some iron/manganese replacement of organic matter.* Trace of phosphate in B) (see SEM/EDXRA).

DEPTH (cm)	MONOLITH NOTES	THIN SECTION	BRIEF SOIL MICROMORPHOLOGY AND SUMMARIZED INTERPRETATION
9–12 (13)	8–14 cm very dark grey, (10YR3/1), gravel band with iron staining	1/4	Fine fabric type 1. Dominant open packing porosity and coarse burrow close to lower boundary. Common gravel-size flints and frequent sand. Frequent iron-staining of gravel. *Fine* As for Fine fabric type 1 with abundant fine amorphous organic matter with clay and fine charcoal at the junction with fine fabric type 3 (below). *Interpretation: Sandy, silt humic topsoil with gravel (Ah). Possible inverted turf. Some iron/manganese replacement of organic matter.*
12/13–17.5	14–36 cm yellowish brown (10YR5/4)	1/4	Brown (humic) stained upper boundary. *Structure and porosity* Dominantly massive with very few fine macrovughs; also few spongy microfabrics with burrows, chambers and vughs. *Coarse mineral* Very dominant silt with extremely abundant diatoms (see Diatoms). *Coarse organic* Frequent inclusions occurring a) along upper boundary and b) associated with spongy microfabric near base of slide. Fine fabric type 3 *Mineral* Very dominant silt with diatoms. Pale to dark, dusty brown (PPL), very low birefringence (XPL), very pale brown (OIL). *Organic* (a) Pale brown, thin amorphous humic staining, (b) Occasional fine humic bands (950 μm x 30 μm), dark brown (PPL), dark brown to black (XPL), reddish-brown (OIL), (c) fine charcoal. *Interpretation: Possibly waterlain diatomaceous fine silt loam. Minor biological mixing. Some iron/manganese replacement or organic matter.* Phosphate present (see SEM/EDXRA).
17.5–20		1/5	Fine fabric type 1. Sand and silt dominated soil with very few sand-size ferruginous nodeules. Few organic inclusions especially associated with spongy microfabric towards top of slide. *Fine fabric type 1* *Pedofeatures Amorphous* Occasional fine humic layers (4 mm x 30 μm) and rare ferruginous plant pseudomorphs *Interpretation: Upper subsoil (Eb) with biological mixing of humic topsoil (Ah); probable turf.*
20–25.5		1/5	Fine fabric type 1. Silt dominated soil with few humic inclusions (up to 150 mm) in association with a scattered spongy microfabrics. *Interpretation: Possible inverted and biologically mixed turf. Some iron replacement of organic matter.*
26–34		1/6	Fine fabric type 1. Silt dominated soil with frequent humic inclusions. Undulating layer of high humic content at 28–30 cm where ferruginous staining and ferruginous plant pseudomorphs are present. Ferruginous sand-sized pisolitic inclusion present. *Interpretation: Partial biological mixing of humic topsoil (Ah) and subsoil (Eb). Some iron replacement of organic matter.* See microprobe data.
35–35.5/37	36–42 cm Banded, iron-stained, fine to coarse gravel	1/7	Undulating but sharp, lower boundary varying from depth 35.5 cm to 37 cm. Fine fabric type 1. Compacted grey silt and fine sand dominated with few organic inclusions (900 mm). *Interpretation: Upper subsoil (Eb).*

DEPTH (cm)	MONOLITH NOTES	THIN SECTION	BRIEF SOIL MICROMORPHOLOGY AND SUMMARIZED INTERPRETATION
35.5–36/37.5		1/7	Undulating lower boundary varying from depth 36–37.5 cm. Orange and black layers. *Structure and porosity* Few voids; a vertical burrow (1000 μm wide), chambers (900 μm) and channels (30 μm wide). *Coarse mineral* Sand and silt with gravel-size flint. Inclusion of coarse sand-size pisolitic lay soil. *Coarse organic* Rare charcoal. *Fine fabric type 4 Mineral* Orange and black (PPL), black (XPL), orange and black (OIL). *Pedofeatures Amorphous* a) Very abundant black and orange micropans (3 mm wide), b) very abundant strongly impregnated, black aggregated nodules, c) occasional red and black root(?) pseudomorphs, d) occasional black void coatings and loose discontinous void infillings. *Interpretation: Iron pan. Iron and manganese replacement of humic topsoil.* See also SEM/EDXRA.
36–38.5		1/7	Grey layer as for 35–37 cm. As for Fine fabric type 1. Dominantly massive becoming spongy towards upper boundary; few burrows (120 μm wide). Few gravel-size flint and quartzite. Fine fabrics as for fine Fabric type 1. Many amorphous reddened and blackened moderately impregnated aggregate nodules towards upper boundary. *Interpretation: Upper subsoil (Eb).*
38.5–39.5		1/7	Fine fabric type 4. Sloping orange and black layer varying in thickness between 0.5 cm and 1.5 cm thick. *Interpretation: Iron and manganese pan.*
38.5–40		1/7	Fine fabric type 1. Grey layer varying in thickness from 2 mm–1.5 cm. *Interpretation: Upper subsoil (Eb).*
40–42.5		1/7	Highly fragmented and heterogenous layer(s) composed of Fine fabric type 1 and Fine fabric type 4. *Porosity* Common void spaces comprising dominant burrows (up to 6 cm long and 0.5 cm wide). Common grey sand and silt-size soil with few gravel-size flints (Fine fabric type 1). Common Fine fabric type 4 with very abundant amorphous black and reddish brown pedofeatures as in 35–37 cm above. Also orange (9 mm long) pseudomorph of plant residues (possible grass haulms). *Interpretation: Biologically mized Ah and Eb soil, and iron pan formation.*
			Overall interpreation of 1/7: A series of Ah and Eb turfs. Iron pan formation concentrated into zones of high humic content and microbiological activity where organic matter has been replaced by iron and manganese.

1b: Monolith 2 (see FIGURE 106)

DEPTH (cm)	MONOLITH NOTES	THIN SECTION	BRIEF SOIL MICROMORPHOLOGY AND SUMMARIZED INTERPRETATION
4–4.5/7	4–11 cm Large and small stones, common, rounded gravel	2/1	Several sloping brown, black and grey layers present. Sloping brown layer varying in thickness from 0.5 cm to 3 cm. Fine fabric type 1. Generally massive with few chambers (900 μm). Sand and silt with occasional gravel size flints. Frequent brown and black humic soil inclusions, burrow infills and thin (120 μm) humic layers. Rare charcoal. Frequent brown and black organic soil occur as burrow infills, soil inclusions and thin (120 μm) humic layers. *Interpretation: Sandy humic topsoil (Ah). Inverted turf.*
4.5–5/7	Yellowish brown (10YR5/4) with common fine diffuse faint mottles.	2/1	Thin (3 mm thick) black and dark brown sloping layer. *Porosity* Common void spaces with major horizontal burrow (5 cm long x 3 mm wide); loose packing porosity. *Coarse mineral* Sand and silt dominant. Diatoms present (see Diatoms). *Coarse organic* Common brown and blackened organic matter as very finely layered fragments (3 mm) and organo-mineral excrements within void spaces. *Fine fabric type 2* As for layer 7.5–9/10.5 (a) (see below) *Interpretation: Iron and manganese replaced organic matter of cattle dung-like character.*
5–7.5/9	Narrow to broad (2–4 cm), black (10YR2/1) humic layers. Few old iron-stained root channels. Charcoal.	2/1	A very heterogenous layer varying in thickness from 1–1.5 cm. *Structure and porosity* Variable from few vughs (120 μm) to common burrows (0.5 cm) and loose packing porosity. *Coarse mineral* (a) silt and very fine sand with diatoms (sometimes layered) (see Diatoms); (b) coarse and medium sand and silt with gravel size flint. *Coarse organic* Common brown and black organic material occur as (a) black, semi-layered (0.5 cm) fragments similar to layer 7.5–9/10.5 (a) (see below); (b) brown and blackened burrow infills (1 mm); rare coarse charcoal. Fine (a) as for fine fabric type 1; (b) as for fine fabric type 3; (c) as for fine fabric type 2 (see below). *Interpretation: Highly biologically mixed and/or collapsed soil types composed of Ah/Eb turf (a), cattle dung-like organic material (c) and possibly waterlain diatomaceous silt loam (b).* Phosphate present (see SEM/EDXRA).
7.5–9/10.5		2/1	A sloping brown, black and red layer varying in thickness from 1.5 cm to 2 cm. Two microfabric types are present here along this layer (see FIGURE 106). (a) *Structure and porosity* common void spaces with open semi-layered porosity. *Coarse Mineral* Few silt and fine sand. Diatoms present (see Diatoms). *Organic* Dominant black and red, semi-layered organic matter (up to 3 cm x 1.5 cm). *Fine Fine fabric type 2 Organic* Reddish-brown to black (PPL), dark reddish-brown to black (XPL). *Pedofeatures* Occasional reddened and blackened plant pseudomorphs. *Interpretation: Probable cattle dung.* Phosphate present (see SEM/EDXRA).

DEPTH (cm)	MONOLITH NOTES	THIN SECTION	BRIEF SOIL MICROMORPHOLOGY AND SUMMARIZED INTERPRETATION
			(b) *Structure and porosity* Frequent void spaces with spongy structure. *Coarse Mineral* dominant silt and find sand; diatoms and phytoliths present (see Diatoms). *Organic* Frequent blackened humic inclusions (1200 µm). *Fine fabric type 5 Mineral* Finely laminated; brown (PPL); yellowish-brown (XPL), reddish-grey (OIL). *Organic* Brown and yellowish-brown (PPL), dark-brown to black (XPL), pale reddish and yellowish grey. *Pedofeatures Amorphous* Many pale brown 'phosphatic' staining associated with void spaces. *Interpretation: A trampled and humic 'phosphate-stained' clay-rich soil.* Phosphate present (see SEM/EDXRA). See also microprobe data for fine fabric type 5 in sample 2/2.
9–11		2/1	Grey sloping layer varying in thickness from 1 cm to 3 cm. Fine fabric type 1. Compacted, silt dominated *Interpretation: Upper subsoil (Eb).*
27–29	General silty loam. Yellowish brown	2/2	A sloping brown layer varying in thickness from 0.5 cm to 2 cm. Fine fabric type 1. Sandy, silt soil with large gravel-size flint. Abundant fine amorphous organic matter. *Interpretation: Humic sandy topsoil (Ah) turf*
29–30	(10YR5/4) with patches and bands of dark grey to very dark greyish brown	2/2	A brown sloping layer varying in thickness from 1 cm to 2 cm. *Fine fabric type 5.* Common burrows (20 mm x 3 mm), sand and silt with diatoms and phytoliths (see Diatoms). Common fine laminated organic matter and clay. *Interpretation: Trampled (possibly cattle), humic, clay soil.* Phosphate present (see SEM/EDXRA).
30–31.5	(10YR4/1–3/2). Coarse. Bleached sand (A1h) horizons and associated iron staining.	2/2	A pale brown layer varying in thickness from 0.5 cm to 1.5 cm. Fine fabric type 5. Common coarse sand- and gravel-size flints. Frequent blackened humic inclusions (up to 2 mm long). Common fine laminated organic matter. *Pedofeatures Amorphous* Blackened iron and manganese replaced fine organic layers (2000 µm x 120 µm). *Interpretation: Possibly cattle trampled, sandy humic soil.* Phosphate present (see SEM/EDXRA).
31.5–33.5	Bands (2–3 cm) thickness, collapsed soil layers.	2/2	Grey layer varying in thickness from 2.5 cm to 5 cm. Fine fabric type 1. Compacted silt soil with major burrow (3.5 xm x 1.5 cm). Frequent black, humic void infills and occasional coarse charcoal. Occasional pale brown 'phosphatic' void infillings and coatings. *Interpretation: Upper subsoil (Eb) biologically mixed with humic material and phosphate staining.* Phosphate present (see SEM/EDXRA).
33.5–34		2/2	Sloping 0.5 cm thick layer. Black and brown humic material mixed with humic silty soil. Diatoms present (see Diatoms).

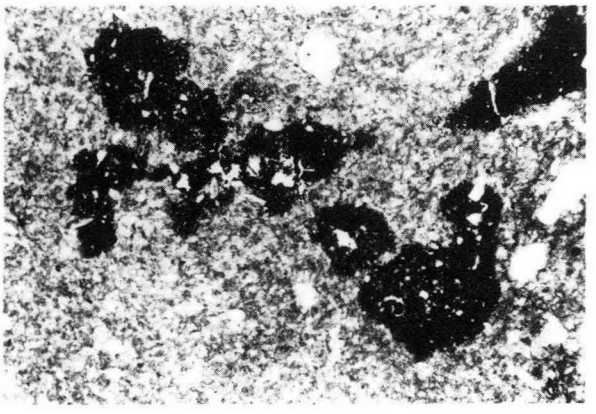


PLATE LIII. Soil microfabric 1.
Photograph: Macphail et al.

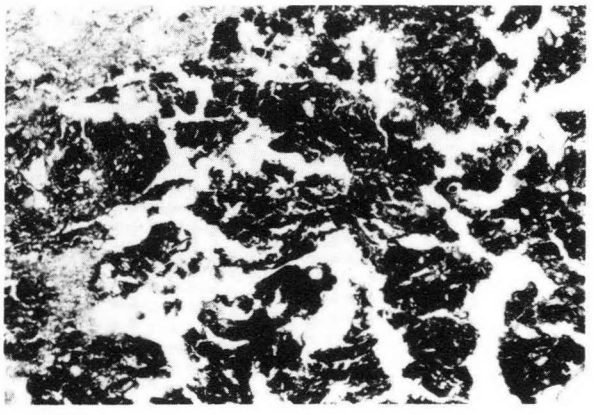


PLATE LIV. Soil microfabric 2.
Photograph: Macphail et al.

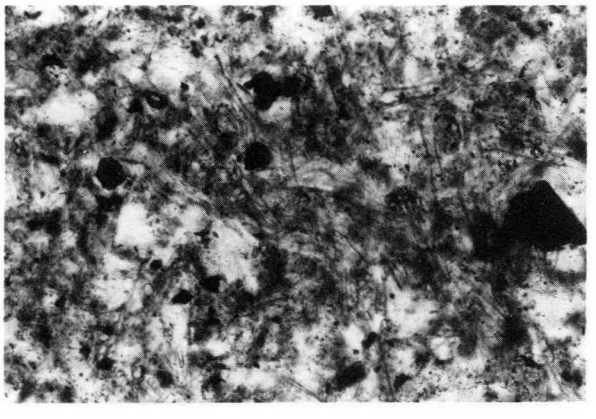


PLATE LV. Concentration of diatoms in soil thin section.
Photograph: Macphail et al.

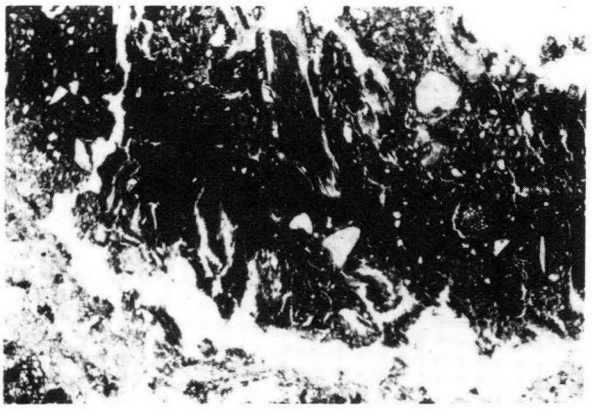


PLATE LVI. Soil macrofabric 4.
Photograph: Macphail et al.

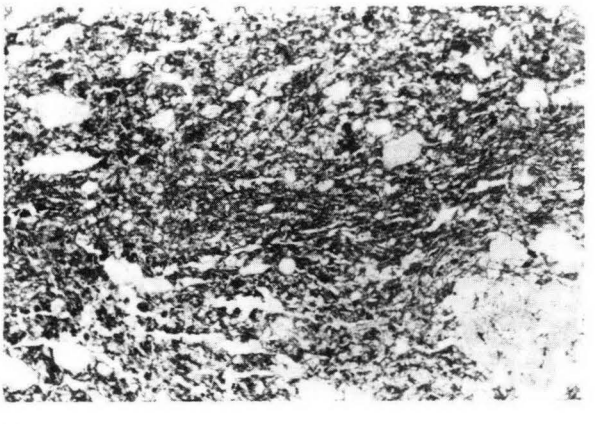


PLATE LVII. Soil microfabric 5.
Photograph: Macphail et al.

Fe (iron), Al (aluminium), Si (silicon), Ti (titanium), S (sulphur), Ca (calcium), Mn (manganese), P (phosphorus) and K (potassium), was measured and averaged (see TABLE 59). In TABLE 59, the samples, zones and microfabrics are also listed.

In addition to this grid pattern analysis of zones, three polished blocks were selected for (vertical) line analysis. These blocks were from sample 1/6 (across two zones), sample 2/1 (across three zones) and from the uppermost polished block from sample 2/2 (three zones: FIG. 106). Between 18 and 27 points were measured in these vertical line analyses. Only the amounts of P, Fe, Mn and Ca are illustrated, because these were the most important elements noted during the original SEM/EDXRA studies (FIGS 107–9). Obviously, with line analysis the chance factor of measuring the chemistry of single detrital minerals, which may give aberrant readings unrelated to the microfabrics under study, has to be considered more carefully than in grid analysis.

Diatoms

Concentrations of diatoms in thin sections 1/3, 1/4, 2/1 and 2/2 had been noted during soil micromorphological analysis (PL. LV). These diatom concentrations were examined and identified using phase contrast microscopy at x1000 magnification. Severe constraints are placed on the identification of diatoms in thin sections due to obscuring by mineral particles and organic matter, and by slide thickness, which limits the resolution with which a valve may be observed (Battarbee 1986). Relative counts have not been employed here for this reason. Instead, a species list from each slide is presented along with a qualitative estimate of each species frequency in the assemblage (see TABLE 60). Diatom valves have been identified previously from thin sections successfully (Cameron in Macphail and Cruise 1996.

RESULTS

Soil micromorphology

Brief soil micromorphological descriptions and the logged presence of the described materials are presented in TABLE 58, together with summarized interpretations. In FIGURE 107 the major soil microfabrics are presented together with the SEM/EDXRA and diatom results.

A series of distinct layers were found within the shaft filling. When examined under high magnification, the fine fabrics (m) of the various layers were found to be composed mainly of five materials with markedly differing characteristics. These are referred to in TABLE 58 as 'fine fabric types' 1, 2, 3, 4 and 5. These fine fabric types *sensu stricto* (Bullock *et al.* 1985, 65 *et seq.*) are also characteristic of the various overall soil microfabrics (referred to below as 'Microfabric types' 1 to 5). These microfabrics in turn, are typical of the variety of soil/sediment materials making up the 'turf' layers.

Microfabric type 1

This is the most commonly occurring soil material, being present in all thin sections but especially in 1/5 and 1/6, where it is more or less pure. It consists of a continuum of soil materials, some of which are compact whereas others are more humic and biologically worked (PL. LIII). In samples 1/5 and 1/6, for example, the soil is frequently massive and compact, while in sample 1/4 it has a dominant open packing porosity with abundant features of biological working and abundant fine amorphous organic matter (Babel 1975; Bal 1981). The mineral components are variable, the soil varying from a sandy silt to a sandy loam soil, sometimes with gravel. Occasional coarse and fine charcoal is ubiquitous. Fine humic bands and humic inclusions also occur.

Microfabric type 2

This occurs as a 1.5 to 2 cm thick layer in 2/1 and also in a more fragmentary form in the same thin section. Similar material also occurs in 1/3. It is comprised of dominant (sensu Bullock *et al.* 1985) blackened and reddened semi-layered, humified and partially mineral-replaced organic matter (PL. LIV). Its semi-layered fabric also has an open or porous character because of burrowing by soil fauna. Occasional ferruginous plant pseudomorphs and diatoms are present.

Microfabric type 3

This occurs as a 5 cm thick layer in 1/4. It is a massive deposit composed mainly of silt, with very abundant, well-preserved diatoms (PL. LV).

Microfabric type 4

This occurs in 1/7 both as distinct (0.5 to 1.5 cm thick) layers and as a highly fragmented layer(s) where it has been fragmented into the main soil matrix. It is characterized by very abundant amorphous pedofeatures comprising Fe (iron) and Mn (manganese) micropans, black aggregated nodules, ferruginized plant pseudomorphs (PL. LVI), and occasional black and orange void coatings and loose discontinuous void infillings. The semi-layered organic matter found in Microfabric type 2 is noticeably absent here.

Microfabric type 5

This microfabric occurs in 2/1 and 2/2. In sample 2/1 it appears to be closely associated with Microfabric type 2. In 2/1 it is composed of finely laminated clay, while in 2/2 laminated clay occurs with sand. Fine laminated organic matter (PL. LVII) is common along with diatoms, phytoliths and what optically appears to be amorphous pale brown, non-ultra violet light auto fluorescent, but 'phosphatic-like' humic staining (cf. Nørnberg and Courty 1985, pl. 7; Courty et al. 1989, 186–9; Courty *et al.*, 1992; Courty, CNRS, Université de Paris, pers. comm. 1992).

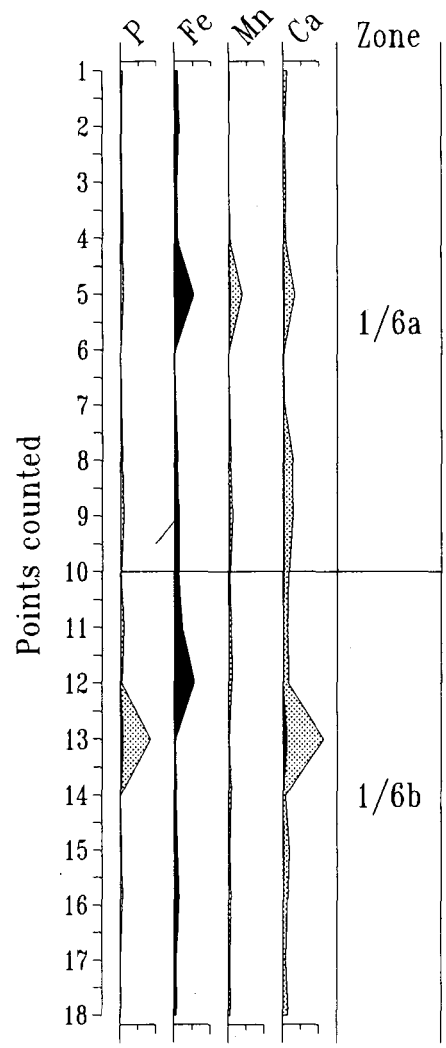
SEM/EDXRA

SEM/EDXRA results provide an indication of the relative concentration of elements present. Attention was focused on the following elements: Fe (iron), Mn (manganese), Ca (calcium) and P (phosphorus) for the general characterization of the microfabric types (FIG. 106). For example, Fe is present throughout the samples but has a marked presence in Microfabric type 4 (1/7) and Microfabric type 2 (1/3, 2/1). A marked presence of manganese tends to be recorded where there is a marked presence of Fe, but it is generally absent elsewhere. Ca is present in (2/2), Microfabric type 2 (1/3, 2/1) and Microfabric type 5 (2/2) and where Microfabric type 1 underlies Microfabric type 5, in thin section 2/2. Trace amounts occur elsewhere.

P is present in Microfabric type 2 (1/3, 2/1). Traces of P also occur in Microfabric type 5 (2/2) and in Microfabric type 1 where it again underlies Microfabric type 5 (2/2). It also occurs

TABLE 59. MICROPROBE ELEMENTAL (%) ANALYSIS OF SELECTED MICROFABRIC TYPES; AVERAGED COUNTS

Sample (zones)	Micro-fabric type	No. of read-ings	Mg	Fe	Al	Si	Ti	S	Ca	Mn	P	K
1/6a	1: (Eb/Ah turfs)	25	0.061	1.35	1.601	22.016	0.146	0.116	0.13	0.065	0.116	0.914
1/6b	1: (Eb/Ah turfs)	25	0.077	0.948	1.29	20.678	0.165	0.129	0.112	0.131	0.061	0.664
2/1a	1: (Eb/Ah turfs)	25	0.101	1.823	1.934	18.146	0.204	0.255	0.362	0.443	0.099	0.95
2/1b	junction 1 and 2	25	0.06	1.021	1.21	19.81	0.904	0.196	0.244	0.22	0.116	0.434
2/1c	2: probable dung	25	0.083	3.106	1.72	14.321	0.55	0.312	0.446	0.404	0.271	0.592
2/1d	1: (Eb/Ah turfs)	25	0.097	1.445	2.056	22.864	0.346	0.101	0.214	0.306	0.08	1.071
2/2a	5: (trampled soil?)	25	0.122	1.385	2.399	17.868	0.278	0.146	0.415	0.01	0.2	1.03
2/2b	5: (trampled soil?)	25	0.071	1.896	1.446	23.025	0.293	0.079	0.22	0.052	0.146	0.627
2/2c	1: (Eb/Ah turfs) below trampled (?) soil	25	1.99	1.49	1.48	18.369	0.165	0.124	0.246	0.199	0.208	1.14
2/2d	1: Eb	25	0.078	1.036	1.973	18.411	0.471	0.181	0.232	0.02	0.088	1.17
2/2e	1: Eb	25	0.15	1.256	2.468	20.068	1.359	0.174	0.219	0.01	0.055	1.072



% by weight (grey areas represent x 10 exaggeration)

FIG. 107. Folly Lane sample 1/6; vertical microprobe line analysis through Microfabric type 1 which is composed of silt and sands (Eb) with humic soil inclusions (Ah). Two 'turf' (Eb/Ah) layers (zones 1/6a and 1/6b) were analysed. Length of line is 15.83 mm.

as a trace in the mixed area at the base of 1/3 and in Microfabric type 4 (1/7). No P was recorded by SEM/EDXRA in the flint gravel and most areas of Microfabric type 1.

Microprobe studies

Results from the microprobe analyses give a more detail chemical characterization of the microfabrics and the microstratigraphy (TABLE 59). For example, the averaged grid analyses show Microfabric type 2 (sample 2/1c) to have the highest amounts of Fe (3.106 per cent), P (0.271 per cent) and Ca (0.446 per cent). Relatively high amounts of P (0.146–0.2 per cent) are also found in Microfabric type 5 (samples 2/2b and 2/2c) in comparison to Microfabric type 1 (e.g. samples 1/6b, 2/1d and 2/2e) where only 0.055–0.08 per cent P may be present. These data can be compared to the amounts of phosphate (P2O5 measured as mgm/100 gms) Avery (1964, table 14) found in modern Batcombe soils. He reports 179 (*c.* 18 per cent), 19 (*c.* 0.02 per cent) and 22–44 (*c.* 0.02-0.04 per cent) units in the humus, A and Eb horizons, respectively, under a woodland vegetation cover. Under modern arable cultivation, the Ap horizon (ploughed topsoil) a Batcombe soil has 227 (*c.* 0.22 per cent) units.

Line analyses provide further detail. Results for P, Fe, Mn and Ca are illustrated in FIGURES 107–9. The percentages (by weight) of these elements are represented by black areas. As some of the values are low compared to Fe and variations are difficult to see, a grey area of x10

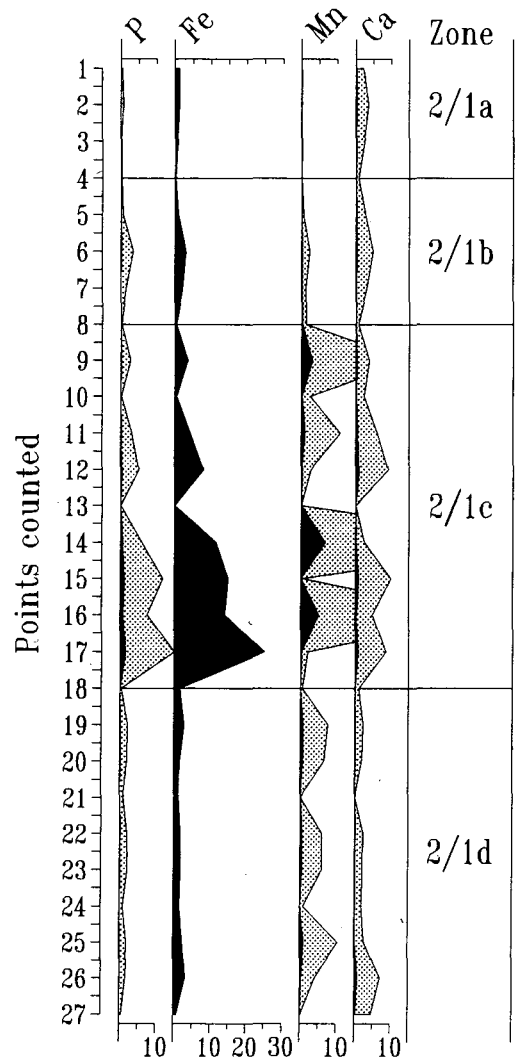


FIG. 108. Sample 2/1; vertical microprobe line analysis through Microfabric type 1 (zone 2/1a), the junction of Microfabrics type 1 and 2 (zone 2/1b), Microfabric type 2 (zone 2/1c), which is composed of partially mineral-replaced semi-layer amorphous organic matter (probably dung), and Microfabric type 1 (zone 2/1d) and underlying 'turf' layer. Length of line is 26.57 mm.

exaggeration has been added. FIGURE 107 shows that the turf layers in sample 1/6 (Microfabric type 1) contain generally little P and Ca, with poor correlation between Fe, Mn, P and Ca. In contrast, FIGURE 108 demonstrates that Microfabric type 2 in sample 2/1 includes high amounts of P, Fe, Mn and Ca, with good correlation between P, Fe and Ca. Of further interest, are the relatively high amounts of P, Fe, Mn and Ca present in the Microfabric type 1 above and below Microfabric type 2. In FIGURE 109, Microfabric type 5 in sample 2/2 is again shown to have higher concentrations of P, Fe, Mn and Ca compared to Microfabric type 1.

Line analysis recorded individual measurements of P as high as 1.49 per cent in Microfabric type 2 (FIG. 108) and 0.88 per cent in Microfabric type 5 (FIG. 109).

Diatoms

A species list is presented in TABLE 60 along with a qualitative estimate of each species frequency. The ecology of the species is considered below (see Discussion). Diatom preservation is best and concentrations are highest in Microfabric type 3 (1/4), where complete diatom frustules and chains/colonies of frustules are present. Diatom concentrations in Microfabric 5 (2/2) are

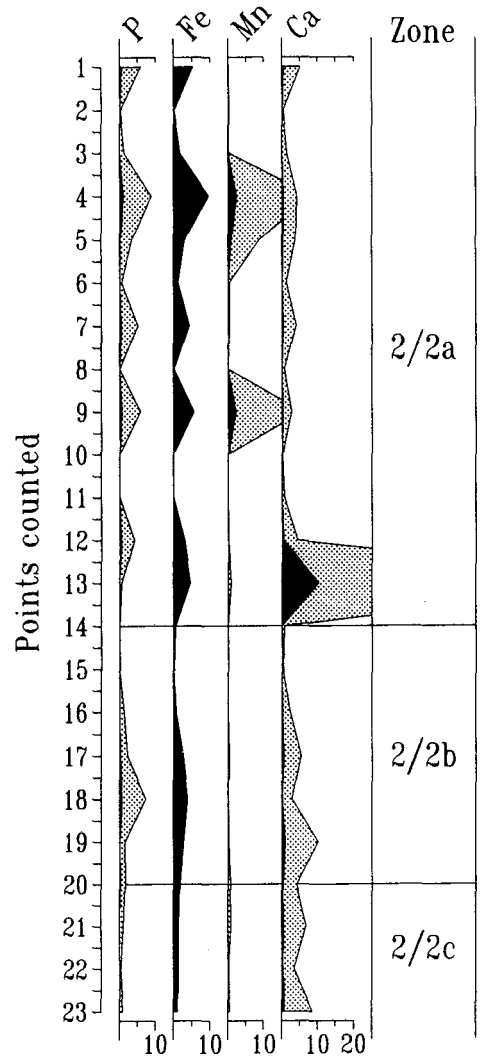


FIG. 109. Sample 2/2; vertical microprobe line analysis through Microfabric type 5 (zones 2/2 and 2/2b), which is composed of finely laminated amorphous organic matter, silt and clay (trampled soil?) and Microfabric type 1 (zone 2/2c), an underlying 'turf' layer. Length of line is 21.31 mm.

low and valves are highly fragmented. Diatom concentrations found in Microfabric 2 (2/1 and 1/3) and the mixed area at the base of 1/3 are also low, but preservation differs between the slides. Complete frustules occur in 1/3 but are highly fragmented in 2/1.

DISCUSSION

Present day soils of the area

The Folly Lane site lies within an area mapped as belonging to the Batcombe soil association (Jarvis *et al.* 1983). A major component of this is the Batcombe series, which comprises stagnogleyic paleo-argillic brown earths, developed in the Plateau Drift and Clay-with-Flints cover of the Chilterns plateau (Jarvis *et al.* 1984; Avery 1990). The following description of characteristic Batcombe soil horizons is based on Avery (1964). The surface, humic (Ah) horizon is typically a flinty silt loam which at the edges of the Chilterns becomes more sandy and pebbly than the adjoining plateau soils. This is underlain by a clay-depleted upper subsoil horizon (Eb) and a lower subsoil of clay enrichment (Bt). Although present day soils of the Batcombe Series are mapped as a single soil series, a number of variants are recognized and these depend on

TABLE 60. DIATOM SPECIES IDENTIFIED

+ + Abundant. + Frequent. – Present.

3a: Slide 1/3

Microfabric types	**2 (Dung)**	**2 (Dung)**	**1/2 (Soil/dung)**	**1/2 Soil/dung)**
Species				
Fragilaria consturns var. venter (Ehrenberg) Grunow			–	
Diponeis ovalis (Hilse) Cleve	–		–	
Pinnularia viridis (Nitzsch) Ehrenberg			–	
Hantzschia amphioxys (Ehrenberg) Grunow	–	–	–	
Pinnularia spp. (fragments)	–			–

3b: Slide 1/4

Microfabric types	**1/3 (Soil/ 'silt')**	**3 (Silt/+ diatoms)**	**3 (Silt + diatoms)**	**3 (Silt + diatoms)**
Species				
Fragilaris brevistriata Grunow				+
Fragilaria construens var. venter	–	–	–	++
Fragilaria leptostauron (Ehrenberg) Hustedt	+	+	+	+
Fragiliaria pinnata Ehrenberg	–	–	+	++
Fragilaria sp.	++	++	++	++
Cocconeis placentula var. euglypta Ehrenberg		–		
Navicula elegensis (Gregory) Ralfs		–		
Caloneis cf. *pulchra* Messikommer				–
Diploneis ovalis		–	–	
Pinnularia microstauron var. brebissonii (Kutzing) Mayer	+	++	+	+
Pinnularia sudetica (Hilse) Peragallo		+	++	–
Pinnularia viridis	–	–	+	–
Gomphonema angustatum Kutzing	–			
Gomphonema acuminatum Kutzing	–			
Amphora ovalis (Kutzing) Kutzing	–	–	++	–
Amphora ovalis var. lybica (Ehrenberg) Cleve		–	–	
Rhopalodia gibba var. gibba (Ehrenberg) O. Muller		–	+	
Hantzschia amphioxys (Ehrenberg) Grunow	+	++	+	+
Cymbella spp.	–	–		–
Eunotia sp.		–	–	
Synedra sp. (fragments)	–	–	–	–

3c: Slide 2/1

Microfabric type	**1/2/3**	**1/2/3**	**1/2/3**	**1/2/3**	**1/2/3**	**3 (Dung)**
Species						
Fragilaria brevistriata					–	
Fragilaria construens var. venter					++	+
Fragilaria leptostauron					–	
Fragilaria pinnata					–	
Pinnularia viridis	–	–		–		–

Microfabric type	1/2/3	1/2/3	1/2/3	1/2/3	1/2/3	3 (Dung)
Diploneis ovalis		–				
Amphora ovalis					–	
Hantzschia amphioxys						–
Synedra sp. (fragments)		–	–		+	
Pinnularia spp. (fragments)		–	+	–	+	
Cymbella sp.					–	

3d: Slide 2/2

Microfabric types	5 (Trampled soil)	5	5	5	5	5
Species	**1i**	**1ii**	**1iii**	**1iv**	**3i**	**3ii**
Achnanthes brevipes (Kutzing) Cleve	–					
Diploneis ovalis	–		–			
Hantzschia amphioxys	+	+		–	+	+
Pinnularia spp. (fragments)	+	–	–	–	–	–

vegetation or land-use, or on variations in parent material and relief (Avery 1964). For example, under mull-forming vegetation, the Ah horizon can have a friable crumb structure and because earthworms are present, the Eb horizon is also friable and crumbly. This contrasts with soils developed under acid-forming vegetation in which there is little mixing of the horizons and subsoils are compact and structureless, with bleached patches typical of incipient podzolization (pH's are around 4.4–5.0 (Avery 1990)). In the present day Chilterns, both variants are found under woodland and grass-heath communities. Under cultivation Batcombe soils tend to be unstable, clods are easily broken down by heavy rain causing the soil to slake and form cappings on the surface. At the same time fine particles are easily eroded leaving behind a stony surface soil (Avery 1964).

Folly Lane soils

The thin sections from Folly Lane show a sequence of highly biologically-worked humic horizons and compact clay-depleted horizons which correspond to the Ah and Eb horizons (PL. LIII) of the present-day local Batcombe soils (see Microfabric type 1). The frequent occurrence of biological activity and integrated amorphous organic matter suggest mull-forming vegetation (Babel 1975) on some of the soils, while on others, thin humic layers might suggest the presence of an acid-producing plant litter (Murphy, this volume) and/or humified organic matter from another source (see below). It is therefore worth noting that Wiltshire (this volume) found soil pollen indicating open woodland and heathland to be represented.

Comparison with studies of brickearth (drift material of similar composition to the parent materials at Folly Lane) soils dating to the first century A.D. at Lloyds Bank and the Guildhall Yard East, London, suggest that the soils at Folly Lane would also have had well developed Bt (clay-enriched) lower subsoils (Macphail 1980; Macphail and Cruise 1993). In Roman London these similar brickearth soils were used for constructional purposes, but there, the part of the natural soil profile typically used for brickearth clay walls was the clay-enriched (Bt) horizon (Macphail 1994). This occurred during the first century A.D. when the funerary chamber at Folly Lane was constructed. On the other hand, soil from the Ah and Eb horizons were most typically used for constructional purposes during the Middle Saxon period at Jubilee Hall and Bruce House, and the Norman period at Guildhall (Macphail 1993; Macphail and Cruise 1994, 1995b). At Folly Lane the major constructional material used for the shaft filling (and the stack over it) was 'turf' derived from the upper part of the brown earth soil profile. In prehistory turf is the predominant material employed in barrow construction. For example, both turf from brown earth soils and podzols has been used (e.g. Dimbleby 1962; Scaife and Macphail 1983;

Macphail 1987, 338-43, 344–7; Macphail 1990). It seems clear that at Folly Lane, 'turf' was employed alongside all kinds of local 'topsoil' material as convenient to the site (see below).

Post-burial modifications

Sloping 'turfs' and some fragmentation probably result from minor slumping and collapse. Nevertheless there does not appear to be any evidence of soil structure collapse. For example, fine soil/clay movement which might be expected from soil disturbance such as digging, transportation, construction and collapse of the burial mound is not present (cf. Strathallan Mound, Perthshire; Romans and Robertson 1983). It seems more likely that the major post-burial modification was a) through biological activity, b) the transformation of organic matter into ferruginous compounds and c) the mobilization and deposition of iron and manganese. The last probably dated to the period after the filling within the shaft (see below).

A recent study of the taphonomy of turf bank material constructed from brown soils at Overton Down demonstrated that even on a well drained chalk substrate (as at Folly Lane), buried soils may develop iron and manganese nodules (Bell *et al.* 1996; Crowther *et al.* 1996). At Overton Down this was assumed to be a reflection of periodic waterlogging and associated formation of anaerobic micro-sites within the buried soil. At Hazelton, Gloucestershire, large amounts of iron were available from the Oolitic Limestone parent material and the buried soils there had developed iron and manganese pans as well as ferruginous replacement of roots and amorphous organic matter (Macphail 1990). Under the conditions of burial at Folly Lane, organic matter has also been replaced/coated by iron and manganese compounds, which have preserved pseudomorphically (PL. LVI) some of the original organic matter and the biological fabrics associated with it (Murphy, this volume). This process of ferruginization and iron panning has been particularly pronounced at the base of the shaft fill (sample 1/7, Microfabric Type 4). Iron and manganese replacement/coating has also preserved organic fabrics (probable dung) in samples 1/3 and 2/1 (see below). SEM/EDXRA and microprobe analyses confirm the presence of enhanced values of iron and manganese at all these levels. This enhancement has occurred because presumably, under periodic anaerobic conditions of burial, iron and manganese have been mobilized and then redeposited down profile where it has complexed with organic matter in zones with active populations of micro-organisms (cf. Duchaufour 1982, chapter 3, fig. 10.9; Bell *et al.* 1996).

At Folly Lane biological fabrics are pronounced in areas of high organic content, attesting to an active soil fauna in Ah horizons at the time of burial. Results from Overton Down suggest that, at least on brown soils, buried soil fauna can survive for a period and that post-burial biological mixing of the turfs can occur (Crowther *et al.* 1996). At Folly Lane it seems likely that in addition to some distortion caused by subsidance, post-burial mixing could account for the intensely mixed and fragmented soil fabrics found in samples 1/3, 1/7 and 2/1. Nevertheless, although some humic soil inclusions and burrow fills are encountered in otherwise Eb type soil fabrics (PL. LIII), the turfs at Folly Lane do not appear to have undergone the same degree of biological mixing as that found at Overton Down. Presumably earthworms were fewer and under the more acidic conditions of the Batcombe soils (pH 4.4–5; Avery 1990), this population would have disappeared more rapidly than at Overton Down, leading to the better survival of the major soil fabric types at Folly Lane.

Compaction is certainly an effect of burial but it seems likely that the clay-depleted Eb soil horizons at Folly Lane were already of a compact character before burial. For example, local Batcombe soils are often unstable and become compacted especially when subjected to cultivation or grazing (Avery 1964; see below). In addition, there is little evidence of the soft organic tissues present at Folly Lane being totally compacted (cf. Silbury Hill, Wiltshire; Macphail *et al.* 1987, fig. 11).

Cattle dung

Probable iron and manganese impregnated cattle dung (Microfabric type 2) is present (PL. LIV). The blackened, highly humified and partially mineral-replaced semi-layered organic matter here,

is highly comparable to reference cattle dung under study from Butser Ancient Farm, Hampshire (e.g. Reynolds 1981; Courty *et al.* 1992). It is also highly morphologically similar to presumed cattle dung found in thin sections from semi-waterlogged Norman levels at the Guildhall Yard East where it was widely used as a constructional material (Macphail and Cruise 1995). At Folly Lane, both SEM/EDXRA and microprobe studies (TABLE 59; FIGS 107, 109) suggest a concentration of P, possibly alongside enhanced quantities of Ca, in the presumed dung layers identified in samples 2/1 and 1/3. In contrast, much less P appears to be present in the ironpans (Microfabric 4) and natural soil materials (Microfabric 1; FIG. 108). It may be worth explaining the large difference in the measured P values of Microfabric type 2 as measured by the averaged grid analysis (0.271 per cent) and the peak value of 1.49 per cent recorded by line analysis. This variation may well relate to the porous nature of Microfabric type 2, with many points on the grid finding little or no P. The value of using both grid and line measurements is therefore well demonstrated.

The associated presence of diatoms (TABLE 59) is also highly consistent with the material being dung (Courty *et al.* 1989, 1992; Macphail 1994, 1996), as cattle can ingest diatoms during drinking (aquatic diatoms) and grazing (soil diatoms). Unfortunately, the presence of diatoms in dung has not yet been studied systematically (Nigel Cameron, UCL, pers. comm. 1996). Nevertheless, Wiltshire (this volume) found pollen of aquatic plants as a further indication of animals drinking pond water.

The high P values found in Microfabric type 2 indicate, alongside the high values of Fe, that organic decomposition and partial mineral replacement had taken place. In fact, the semi-layered nature of this fabric may be reflected in the vertical distribution of P, Fe and Ca (PL. LIV, FIG. 109). Mn is also present, but its distribution is more patchy and does not always mirror the amounts of Fe present. Partially mineral-replaced amorphous organic matter is also present in burrow infills and as thin layers between 'turfs' in Microfabric type 1, and it is not at all improbable that some of this material could have had a dung origin.

It is interesting to note that Wiltshire (this volume) found no relic pollen in the probable cattle dung layer in sample 2/1, but did find pollen that indicated a dung input in the soil overlying this specific layer (FIG. 109). In thin section it was noted that small soil animals burrowed this probable dung layer, mixing some of it with the surrounding soil. Probably these trapped soil fauna were active immediately after the filling of the shaft (cf. Crowther *et al.* 1996). It seems likely that mineral replacement/coating of organic matter became the dominant taphonomic process once the infilled funerary shaft became a poorly drained environment, holes in the ground generally becoming foci for local soil water drainage (e.g. Veneman *et al.* 1984). Pollen may have been destroyed at this time by microbiological activity under alternating aerobic–anaerobic conditions being concentrated in this formerly organic layer.

Other soil microfabrics, possibly also suggesting the effects of animal husbandry, are discussed below.

Pasture soils and animal husbandry

Investigations of cattle dung from ethnological studies, archaeological sites and continuing experimental studies at Butser Experimental Farm (Courty 1990; Courty *et al.* 1992; Macphail and Goldberg 1996, pl. 3) have shown that laminated soil fabrics similar to those found in Microfabric type 5 (PL. LVII) are typical of relic dung deposits and sometimes phosphate-rich crusts associated with trampling in cattle stabling enclosures. Phosphatic solutions associated with animal trampling can penetrate into underlying compacted soil surfaces (Macphail and Goldberg 1996, pl. 4, table 2) and at Folly Lane it was noted that enhanced amounts of phosphorus and calcium are present in natural soil material immediately underlying laminated Microfabric type 5 material (FIG. 109). FIGURE 109 illustrates the presence of small concentrations of P (maximum of 0.88 per cent), Fe and possibly Ca, that are consistent with the laminated microfabric (PL. LVII). At Butser, layered stabling crust material and underlying stained soil is highly autofluorescent under ultra violet light, because of its likely calcium phosphate (apatite) character (line microprobe analysis and XRD data in Cruise and Macphail

in preparation). At Folly Lane, P is associated with Ca in Microfabrics 2 and 5, but these are not UV autofluorescent, possibly because of masking by Fe. Alternatively, an apatite-like crystal form has not been produced.

Experimental results, such as those from Butser are at an early stage, however, and the micromorphological effects of animal trampling are still not well documented in the literature (Courty *et al.* 1994). It is more certain though, that the collapse of soil aggregates and the compaction of soil, are features associated with trampling and cattle poaching (Beckman and Smith 1974; Patto *et al.* 1974; Scholefield and Hall 1985). The inherent instability of the Batcombe soils are likely to be a factor here. Avery maintains that 'this structural instability, characteristic of non-calcareous, silty and fine sandy soils, is further shown by a tendency, particularly evident under grazed leys, for the surface and sub-surface layers to become laminated or brick-like, with few visible pores or fissures' (1964, 63). It seems likely therefore that there is a strong possibility that these soils could have undergone some trampling. The presence of highly fragmented diatoms in samples 2/1 and 2/2 is probably consistent with trampling and their transport on the hooves of animals (TABLE 59).

The close association of this possibly trampled soil with probable cattle dung in sample 2/1 suggests that some of the turfs from the burial mound could have been removed from pasture soils or animal enclosures where cattle dung may have been incorporated with trampled soils (Wiltshire, this volume). At late Roman Deansway, Worcestershire, possible herbivore dung made up of plant fragments, amorphous organic matter, silt, diatoms and phytoliths was observed in thin sections and this suggested the use of the site for open stabling/animal penning during the late Roman period (Macphail 1994).

At Folly Lane, therefore, both probable cattle dung and soils possibly associated with animal husbandry were employed in the shaft filling.

A standing body of water

The enigmatic sediment found in sample 1/4 (Microfabric type 3) consists of an approximately 50 mm thick layer of diatomaceous silt (PL. LVI). The combination of a very finely sorted deposit with abundant diatoms suggests a slowly infilling standing body of water. It is noted that at Folly Lane, Wiltshire (this volume) found wetland and aquatic pollen types, whilst Murphy (this volume) has noted the presence of wetland/damp grassland plant macrofossil species. In thin section, humic staining on the upper boundary and fine humic bands within the deposit could be derived from organic matter/plant fragments associated with such a wet sedimentary environment. The presence of this type of material within the shaft filling at Folly Lane which is located on the upper slope of a hill requires some explanation.

Diatom concentrations in sample 1/4 are far higher and the preservation superior to those found on other slides, suggesting that the assemblage is autochthonous and represents the immediate depositional environment of the sediment in which they are found. All of the species identified occur in a range of conditions spanning fully aquatic to wet subaerial and a pH range spanning circumneutral to slightly alkaline (Denys 1991). The majority of species are benthic (deep water) and include those that live on higher plants (e.g. *Cocconeis plancentula var. euglypta*, *Rhopalodia gibba* and *Synedra* sp.). An interpretation of the diatom assemblage would be a standing freshwater body, of approximately neutral pH, with aquatic vegetation. The high frequency of *Hantzschia amphioxys* may indicate that the water body was also periodic, i.e. it suffered shrinkage and drying phases, as this species will also tolerate dry subaerial conditions (Denys 1991). It can be noted here that there is no sedimentary evidence that these diatom-rich layers occured through the shaft acting as an open pond. On the contrary it is clear that the shaft became entirely filled in by the putative turf mound.

Pollen analysis, however, suggests that only wetland plants were present rather than full aquatics (Wiltshire, this volume). This ecology could be interpreted as a wet trampled deposit, but this view is inconsistent with both the good preservation of the diatoms and the nature of the microfabric. Accumulation of a waterlogged deposit in the ditch surrounding the site must be considered as another possible source. This does not seem to be very likely as it appears to

be rather too humic, too well sorted and too diatom-rich to be a ditchfill formed on the chalk (e.g. Maiden Castle, Macphail 1991, table 14; Overton Down, Macphail and Cruise 1996). Moreover, the floor of the ditch was 'unsilted' (Niblett, this volume). Two other possible sources can be considered here. Deposits from the floodplain of the River Ver would have been one such source and these could have been transported to the site possibly for constructional purposes. The second is suggested by the combination of a sediment from a slowly infilling, standing body of water, probable cattle dung, possible trampled soil and the presence of the diatom species (*Hantzschia amphioxys*) which can tolerate periodic drying out. Together these features may be indicative of a watering hole, but on the other hand, cattle trampling would again have led to poorly sorted sediments being present (John Crowther, pers. comm.). Wiltshire has also tried to interpret this deposit from the pollen evidence, but as here, the exact origins of Microfabric type 3 must remain enigmatic (Wiltshire, this volume). Still, this material is likely to have been a local sediment which was excavated and transported to the burial site to act as 'turf'. Another example of a local diatomaceous silt being used as a 'turf' building material can be cited from Iron Age Denmark (Nørnberg and Courty 1985).

CONCLUSIONS

Turfs from local Batcombe soils provided much of the material used in the funerary shaft. Sloping turf layers may relate to slumping or to settling of the turfs after being laid down. The major post-depositional effect on the turfs has been the partial replacement/coating of organic matter by iron and manganese. This process also resulted in the pseudomorphic preservation of organic fabrics enabling the authors to identify probable cattle dung as part of the shaft filling. The presence of possible cattle-trampled soils, together with this probable cattle dung suggest the use of 'turfs' from pasture/cattle stocking areas. It has also been proposed that some of the deposits used in construction of the burial have a pond-like origin. The soil findings were augmented by the novel systematic study of diatoms from the thin sections and are overall clearly in accord with results gained from the pollen and macrofossil studies (Murphy and Wiltshire, this volume). Although no bulk soil samples were available for standard analyses of pH, phosphate, etc., the use of SEM/EDXRA and microprobe studies on selected polished blocks allowed detailed microchemical characterization that strongly augmented results from the soil micromorphological investigation. This combined method produced chemical and soil micromorphological signatures consistent with dung and stocking areas studied from both experimental and archaeological sites.[1]

PLANT MACROFOSSILS
by Peter Murphy and Val Fryer

Charred plant macrofossils associated with the burial comprised cereal chaff and a few grains, fruits/seeds of grassland and weed plants, pinnules of bracken, grass culm nodes, rhizomatous material, remains of sloe and hazel, buds and thorns. This assemblage appears to represent charred residues of fuel/kindling with remains of vegetation charred in situ *beneath the pyre. Mineral replaced plant material from the burial pit and funerary shaft included structural wood and monocotyledonous leaf tissue, but identification was not possible. Samples from ditches and gullies predating the burial included charred cereal remains, fruits/seeds of weed and grassland plants (notably abundant Poaceae fruits), perhaps related to burning of weedy grassland vegetation prior to construction of the funerary complex. Other contexts included macrofossils preserved by phosphatic mineral replacement and charring.*

INTRODUCTION

Deposits at the site were well drained and aerated. Plant macrofossils were preserved by charring and mineral replacement. Quantitative analysis was undertaken on samples from the fills of the burial pit (DAB 134 and DAC 135) and three associated contexts. A further group of fifteen samples from features of first- to second-century A.D. date not directly associated with the burial

or funerary shaft were included in the analysis in the post-assessment period. These included the fills of wells, pits, ditches, gullies, a hearth and oven.

METHODS

Samples from the burial pit were processed by manual water flotation/washover, collecting the flots, and wet-sieving the residues, on 500 micron meshes. Despite the large volume of the samples, manual processing was necessary to minimize damage to associated artefacts (fragments of ivory, fused metallic globules and chain mail) and cremated bone fragments. The flots from the remaining samples were collected in a 300 micron mesh sieve. The dried flots were sorted under a binocular microscope at low power. Macrofossils extracted were identified by comparison with modern reference specimens and are listed on TABLES 61–4.

Samples of mineral replaced wood and other plant tissues from the burial pit and funerary shaft, collected by hand during excavation or during artefact conservation and cleaning were first inspected by low-power light microscopy. Subsequently selected samples were examined by scanning electron microscopy.

Assessment of the samples from the funerary shaft showed that charred, uncharred and mineral replaced plant macrofossils were present. The uncharred material included some undoubted modern contaminants: fibrous roots, seeds/fruits (especially of *Atriplex* sp., *Fumaria* sp. and *Polygonum aviculare*), stem and leaf fragments and arthropods. In addition the samples contained uncharred fragments of acorn testa (*Quercus* sp.) and fruitstones of sloe (*Prunus spinosa*) with rodent teeth-marks. It was thought probable that these had been introduced by small mammals. However, there remained the possibility that high concentrations of metal ions from metallic grave goods might have inhibited microbial activity (as in the case of wood from the burial pit) and that these macrofossils were contemporary with the burial. An accelerator radiocarbon date of 775 ± 50 B.P. (OxA–5212) on acorn testa fragments demonstrated that this was not so. Consequently, uncharred plant material which was not mineral replaced has been disregarded.

MACROFOSSILS FROM THE FUNERARY SHAFT AND BURIAL PIT

Charred macrofossils from soil samples (TABLE 61)

Cereal remains, predominantly chaff with a few grains, were present in all but sample CQF. Taxa included *Avena* sp. (wild or cultivated oat), *Hordeum* sp. (barley), *Triticum* sp. (wheat), *T. aestivum/compactum* (bread wheat type), *T. diccocum* (emmer) and *T. spelta* (spelt).

Seeds/fruits of weeds and grassland herbs were recovered from all samples. These comprised *Aphanes arvensis* (parsley-piert), *Brassica* sp. (cabbage/rape/turnip), *Bromus* sp. (brome), *Fallopia convolvulus* (black bindweed), *Galium* sp. (goosegrass), *Malva* sp. (mallow), *Medicago/Trifolium/Lotus* sp. (medick/clover/trefoil), *Papaver argemone* (long prickly-headed poppy), *Plantago lanceolata* (ribwort plantain), indeterminate grasses, *Polygonum aviculare* (knotgrass), *Potentilla* sp. (cinquefoil), *Ranunculus acris/repens/bulbosus* (meadow/creeping/bulbous buttercup), *Rumex* sp. (dock), *R. acetosella* (sheep's sorrel), *Sherardia arvensis* (field madder), *Stellaria* sp. (chickweed), *Tripleurospermum maritimum* (scentless mayweed), *Valerianella dentata* (corn-salad) and *Vicia/Lathyrus* sp. (vetch/vetchling). Wetland/damp grassland species were also present and included *Carex* sp. (sedge), *Eleocharis* sp. (spike-rush), *Mentha* sp. (mint) and *Montia fontana* (blinks).

Nutshell and fruitstone fragments of *Corylus avellana* (hazel) and *Prunus spinosa* (sloe) were also noted. Other plant macrofossils included charcoal, charred roots and rhizomatous material, culm nodes, pinnule fragments of *Pteridium aquilinum* (bracken) and indeterminate buds, seeds and thorns. The soil samples also included black, porous 'cokey' material, possibly the residue of the partial combustion of organic material at a high temperature, unburnt and burnt bone fragments, metallic residues and fragments of burnt/fired clay, coal and mineralized concretions.

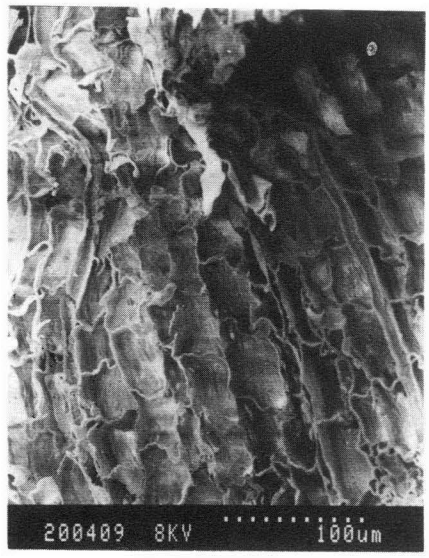


PLATE LVIII. Mineral replaced wood in TS. From planks in the base of the main burial pit (DAC 57). *Photograph: P. Murphy*

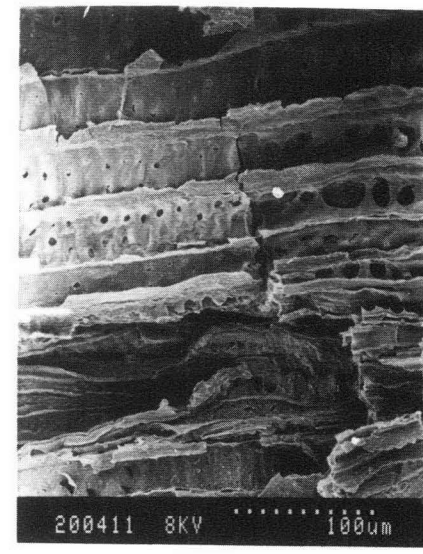


PLATE LIX. Mineral replaced wood in LS. From planks in the base of the main burial pit (DAC 57.)

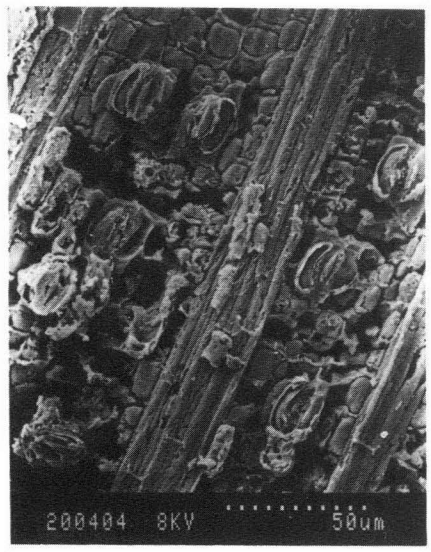


PLATE LX. Mineral replaced tissue, showing parenchyma, sclerenchyma and stomata. (From the surface of samian platter on the floor of the funerary shaft). *Photograph: P. Murphy*

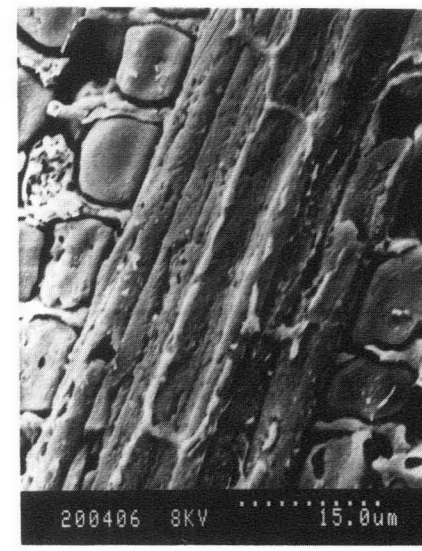


PLATE LXI. Mineral replaced tissue, showing parenchyma, sclerenchyma and stomata. (From the surface of samian platter on the floor of the funerary shaft). *Photograph: P. Murphy*

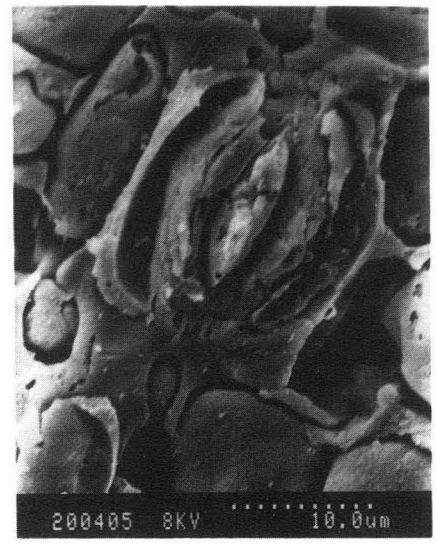


PLATE LXII. Mineral replaced tissue, showing parenchyma, sclerenchyma and stomata. (From the surface of samian platter on the floor of the funerary shaft). *Photograph: P. Murphy*

Mineral replaced plant material

DAC 57 and 90 (planks from base of burial pit).

These two samples comprised very thin strips of brown replaced wood, (maximum thickness *c.* 3 mm), associated with a yellowish brown to brown clay matrix. Blueish flecks, probably of vivianite, were noted. Cell structure was badly disrupted, but wood from DAC 57 was somewhat better preserved. Most of it had been consolidated with PVA, but a small untreated sample was suitable for examination by scanning electron microscopy. The micrographs (PLS LVIII–LIX) show that the wood had undergone considerable degradation before mineral replacement. In transverse section parenchymatous and ray tissue is discernable, but the cell walls are much thinned and sinuous, resembling wood illustrated by Schweingruber (1982, 193), where degradation primarily by fungi had resulted in survival of the middle lamella only. In longitudinal section, cavities in the surviving cell walls are clearly visible. There appear to be no surviving features on which to base an identification.

DAR (wood from south revetment)

Samples from this structure comprised wood from planks A–H, a horizontal east–west timber on the south face of the pit, and two vertical timbers. Replaced wood was preserved within mineral concretions. These comprised an amorphous black, reddish or brown to pale brown matrix, usually with cemented sand grains and small pebbles. It is probable that iron and manganese compounds are the main components of the concretions. Replaced wood was brown in colour and showed some remnant cell structure, including vascular and ray tissue, particularly on radial longitudinal fractured surfaces. However, the definition of cell replacement was poor, and it proved impossible to obtain fractured transverse sections. The material was not thought to be identifiable.

DJE 1 (wood from possible post in the funerary shaft)

This sample comprised reddish-brown to buff coloured wood, mostly soft and crumbling, but more indurated next to a 5 mm thick black 'pan'. In transverse section, the wood was clearly ring-porous, but due to its very friable character it was not possible to prepare clear sections for scanning electron microscopy.

DAG 138 (replaced material on surface of samian platter)

The sample, removed during cleaning and conservation, included several components. Scraps of brown replaced wood, up to 12 mm, were present, together with fragments of epidermal tissue, up to 5 mm. The latter were translucent and flexible, and were therefore thought to be derived from modern intrusive roots. Small fragments, up to 2 mm, of other mineral replaced tissue were also noted (PLS LX–LXII). The micrographs show clear parallel veins of fibrous/vascular tissue, roughly rectangular isodiametric parenchymatous/epidermal cells and well defined stomata. The material clearly represents leaf fragments from a monocotyledonous plant, but close identification is not thought possible.

CHARRED AND MINERAL REPLACED MACROFOSSILS FROM OTHER CONTEXTS

Charred cereal grains and chaff including oats, barley, bread wheat, emmer and spelt were moderately common in the ditch and gully fills (BEW 133, BQH 55, 56 and 57 and CKY 84) but rare elsewhere, occurring at a very low density in pit fills ARV 25 and CRY 108 and shaft fills AIJ and AIK. Seeds/fruits of weed and grassland plants were present: taxa included *Aphanes arvensis*, *Atriplex* sp. (orache), *Brassica* sp., *Bromus mollis/secalinus* (lop-grass/rye-brome), *Chenopodium album* (fat hen), *Euphrasia/Odontites* sp. (eyebright/red bartsia), indeterminate large and small legumes, *Fallopia convolvulus*, *Fumaria* sp., *Galium* sp. (bedstraw type), *Geranium* sp. (cranesbill), *Malva* sp., *Medicago/Trifolium/Lotus* sp., *Plantago lanceolata*, indeterminate grasses, *Polygonum aviculare*, *Prunella vulgaris* (self-heal), *Ranunculus acris/repens/bulbosus*, *Raphanus*

raphanistrum (wild radish), *Rumex* sp., *R. acetosella*, *Sherardia arvensis*, *Stellaria graminea* (lesser stitchwort), *Stellaria media* (chickweed), *Tripleurospermum maritimum*, *Valerianella* sp., *Veronica hederifolia* (ivy-leaved speedwell) and *Vicia/Lathyrus* sp. Wetland/damp grassland species included *Carex* sp., *Eleocharis* sp. and *Montia fontana*. Charred hazel nutshell was noted in one sample.

Macrofossils of *Crataegus* sp. (hawthorn), *Malus* sp. (apple), *Prunus* sp. (damson/bullace), *Rubus* sp. (bramble) and *Sambucus nigra* (elderberry) were preserved by phosphatic mineral replacement in the pit fills (ABE 16, ADW, ARV 25 and CRY 108) and the fills of shafts AIJ and DCH 121. Other plant macrofossils included charcoal, charred root, rhizome and stem and indeterminate buds and seeds. Other material included black, porous 'cokey' material, mineral replaced arthropods and mineralized/faecal concretions.

CONCLUSIONS

Charred plant macrofossils associated with the cremation comprised cereal chaff and occasional grains, fruits and seeds of grassland and weed plants, pinnules of bracken, grass culm nodes, indeterminate rhizomatous material, fragments of sloe fruitstone and hazel nutshell, buds and thorns. Comparably mixed assemblages have come from cremation/pyre sites of Late Iron Age date at Baldock, Hertfordshire (Murphy 1990) and Stanway, Essex (Murphy 1992). These assemblages are interpreted as charred residues from fuel or kindling, mixed with remains of vegetation charred *in situ* beneath the pyre.

Wood and other plant materials within the funerary shaft and burial pit were preserved by a complex process of mineral replacement. It appears that plant material provided a substrate for re-precipitation of translocated iron and manganese and, probably, ions derived by corrosion of metallic grave goods. Unfortunately, it has not proved possible to identify mineral replaced material from the burial. However, its survival at all does demonstrate that mineral replacement in these circumstances was a relatively rapid process, which occurred before plant tissue was totally disrupted by microbial degradation.

The fills of the ditches and gullies predating the ritual enclosure contained charred assemblages comprising relatively abundant grass fruits, fruits and seeds of grassland herbs and weeds, some charred cereal remains and a few scraps of hazel nutshell. These assemblages are likely to include material from more than one source, though it is possible (as suggested by the excavator) that burning of weedy grassland vegetation and backfilling of these features prior to construction of the burial complex may be represented.

Samples from second- to third-century pits and wells included mineral replaced fruitstones and other macrofossils. Material of this type typically occurs in latrine deposits and other layers rich in organic material, where high concentrations of biogenic phosphates and calcium (either from groundwater or from lime used as a sterilizing agent) result in phosphatic replacement (Green 1979). The presence of such material relates to the disuse fills of the features and may not indicate their original function. Charred macrofossils were exceedingly sparse in these features and are uninterpretable.

REPORT ON CHARCOAL SAMPLES FROM THE BURIAL PIT AND FUNERARY SHAFT

***by* Rowena Gale**

Four samples of charcoal from the burial pit and one from the funerary shaft were examined and identified to *genus* level. Three samples were thought to have been artefactual in origin (p. 271 above): tool marks were clearly visible on one sample but the remaining two were more conjectural.

MATERIALS AND METHODS

The charcoal was well preserved and very firm. The fragments were prepared for examination by fracturing to expose flat surfaces in the transverse, tangential longitudinal and radial

TABLE 61. MACROFOSSILS FROM THE BURIAL PIT AND ASSOCIATED DEPOSITS. PERIOD 3

Key: Taxa are represented by charred fruits/seeds except where indicated. coty = cotyledon. fg = fragment.
+ = present. ++ = common. +++ = abundant
N.B. Separation of *Sherardia arvensis* and *Plantago lanceolata* proved difficult due to deformation during charring.

Sample No.	**CQF**	**DAB134**	**DAC135**	**DAC <17>**	**DAC <52>**
Trees/Shrubs					
Corylus avellana L.		1cf	2cf		
Prunus sp.					2fg
P. spinosa L.			2+3fg		
Herbs					
Aphanes arvensis L.		8	8	1+1cf	12
Apiaceae indet.		2			
Brassica sp.			2		
Bromus sp.		1	2		1
Caryophyllaceae indet.		2	2		1
Fallopia convolvulus (L.) A. Love		3cf	3+3fg		
Galium sp.			2cf fg		
Lamiaceae indet.			2		1
Malva sp.		1			
Medicago/Trifolium/Lotus sp.		10+9cf	11+5cf		2
Papaver sp.			2		
P. argemone L.				2	4
Plantago lanceolata L.	1cf				7
Large Poaceae indet.		11	15	1	
Small Poaceae indet.	1cf	15	20		2
Polygonum aviculare L.		28	49	1	17
Polygonaceae indet.	1	9	10		6
Potentilla sp.			1cf		1cf
Ranunculus sp.				1cf	
R. acris/repens/bulbosus			5		
Rumex sp.	1		7	1	
R. acetosella L.		6	10	1cf	4
Sherardia arvensis L.	12	56	87		18
Stellaria sp.		9	10	1	8
Tripleurospermum maritimum (L.) Koch					1cf
Valerianella dentata (L.) Pollich		31	48	5	20
Vicia/Lathyrus sp.		5+5 coty	5+2 coty		
Wetland/Aquatic plants					
Carex sp.		5	3		
Eleocharis sp.	1	5+1fg	3+2cf		3
Mentha sp.			2cf		
Montia fontana L.			1		
Cereals					
Avena sp. (caryopses)			1		
Hordeum sp. (caryopses)		1			
(rachis nodes)		7	3		1cf
Triticum sp. (glume bases)		8	13	2	5
(glume fgs.)			+		
(spikelet bases)		1	5	1	
(rachis internodes)			4		
Triticum aestivum/compactum (rachis nodes)			2		1
T. dicoccum Schubl (glume bases)			3		1
(spikelet bases)		2	4		1
(spikelet forks)			1		
T. spelta L. (glume bases)		16	25	1	6
(spikelet bases)			2		

Sample No.	CQF	DAB134	DAC135	DAC <17>	DAC <52>
Cereal indet. (caryopses)		2	1		
(rachis internodes)		3	2		1
Other Plant Macrofossils					
Charcoal		++	++	++	++
Charred root/rhizome/stem		++	++	++	++
Culm nodes			2		1
Indet. buds		3	6		
Indet. seeds		17	30	4	15
Indet. thorns			1		
Pteridium aquilinum (L.) Kuhn (pinnules)		1	1		1
Other Material					
Black, porous 'cokey' material		+		+	+
Bone		+	+	+	
Burnt/fired clay		++	+++	++ +	
Metallic residues		+	+	+	+
Mineral concretions				++	
Small coal fgs.		+	+		
Sample volume (litres)	2	63.5	104.5	0.3	3
% flot sorted	100%	25%	25%	100%	100%

TABLE 62. MACROFOSSILS FROM THE IRON AGE DITCH AND PERIOD 2 GULLIES

Key: Taxa are represented by charred fruits or seeds, except where indicated.
coty = cotyledon. fg = fragments. m = mineral replaced. + = present. +++ = abundant.

Sample No.	BEW133	BQH55	BQH56	BQH57	CKY84
Trees/Shrubs					
Corylus avellana L.	3fg				
Herbs					
Atriplex sp.					1fg
Bromus sp.	4+9fg		3+4fg	9fg	14
Chenopodium album L.	1				
Chenopodiaceae indet.					2
Euphrasia/Odontites sp.					1
Large Fabaceae indet.	1				
Small Fabaceae indet.					1+2coty
Fallopia convolvulus (L.) A. Love			1fg		2+2fg
Galium sp. (bedstraw)					1
Geranium sp.					1cf
Medicago/Trifolium/Lotus sp.	1			1cf	2cf
Plantago lanceolata L.	1				2
Large Poaceae indet.	65	4	36	25	51
Small Poaceae indet.	16	2	3		10
Polygonum aviculare L.					10
Polygonaceae indet.			1	1	1
Prunella vulgaris L.					2cf
Ranunculus acris/repens/bulbosus					1fg cf
Raphanus raphanistrum L.		1			
Rumex sp.				3	13
R. acetosella L.	1cf			5	2
Sherardia arvensis L.			1cf		1cf
Stellaria sp.			1	2	
S. graminea L.					1

Sample No.	BEW133	BQH55	BOH56	BQH57	CKY84
S. media (L.) Villars					1
Valerianella sp.	1cf	2	1		1cf
Veronica hederifolia L.				2 fg	
Vicia/Lathyrus sp.	2+1cfm			1 coty	
Wetland/Aquatic Plants					
Eleocharis sp.		1m	1+2fg	4fg cf	3+5fg
Montia fontana L.			1	1	
Cereals					
Avena sp. (caryopses)	1cf				
Hordeum sp. (caryopses)	3			1	
(rachis internodes)	1cf				
Triticum sp. (caryopses)	1			3	5
(glume bases)	1		4	8	1
(spikelet bases)	1				1
(rachis internodes)				1	1
Triticum aestivum/compactum (rachis nodes)					2
T. dicoccum Schubl. (glume bases)	1				
T. spelta L. (glume bases)	8	1	16	14	18
(glume fgs.)					+
Cereal indet. (caryopses)	22	2	2	14	16
(rachis internodes)					5
Other Plant Macrofossils					
Charcoal	+	+		+	+
Charred root/rhizome/stem	+		+	+	+
Indet. seeds		1	3	8	11
Indet. buds			1	1	
Other Material					
Black, porous, 'cokey' material	+			+	+++
Sample volume (litres)	2.5	1	3	5	3.5
% flot sorted	100%	100%	100%	100%	100%

TABLE 63. MACROFOSSILS FROM THE PITS AND SHAFT ON THE LOWER SLOPE. PERIOD 4–6

Key: Taxa are represented by charred fruits/seeds except where indicated
fg = fragments. m = mineral replaced. + = present

Sample No.	ABE16	ADW	ARV25	CRY108
Trees/Shrubs				
Malus sp.			2cf fgm	
Prunus sp.	1+14fgm	30+56fgm	2cfm+4fgm	4+8fg
cf. *Prunus* sp.	3m	3fgm		
Rubus sp.	13m	10m	3+2cf m	17m
Herbs				
Stellaria sp.		1m		
Cereals				
Hordeum sp. (caryopses)				1
T. spelta L. (glume bases)			2	

Sample No.	ABE16	ADW	ARV25	CRY108
Other Plant Macrofossils				
Charcoal			+	
Indet. seeds		10m		10m
Other Material				
Mineral/faecal concretions				+
Sample volume (litres)	1	11	3	3.5
% flot sorted	100%	100%	100%	100%

TABLE 64. MACROFOSSILS FROM THE WELLS, HEARTH AND OVEN ON THE LOWER SLOPE. PERIOD 5–7

Key: Taxa are represented by charred fruits/seeds except where indicated
fg = fragments. m = mineral replaced. + = present. ++ = common

Sample No.	AIJ	AIK	APF27	BVC59	DCH121
Trees/Shrubs					
Crataegus sp.	1cfm				
Malus sp.	4fg cfm				
Prunus sp.	15+7cfm				3+13fg cfm
Rubus sp.	12m	8m			12m
Sambucus nigra L.					1cfm
Herbs					
Aphanes arvensis L.				1cf	
Asteraceae indet.		1		1	
Brassica sp.			1		
Brassicaceae indet.			1		
Bromus mollis/secalinus					1
Fumaria sp.	1m				
Lamiaceae indet.					1m
Malva sp.					1m
Large Poaceae indet.	5m		2		1+1m
Small Poaceae indet.		1		4	
Poaceae indet. (spike fg.)					1m
Polygonum aviculare L.				1	
Rumex sp.			2		
Tripleurospermum maritimum (L.) Koch				1	
Veronica hederifolia L.				3	
Wetland/Aquatic Plants					
Carex sp.			1cf		
Cereals					
Cereal indet. (caryopses)	1+1m	1			
Other Plant Macrofossils					
Charcoal					+
Charred root/rhizome/stem				++	
Indet. seeds	5		2		
Other Material					
Mineral replaced arthropods					+
Sample volume (litres)	4	4	3	6	4
% flot sorted	100%	100%	100%	100%	100%

longitudinal planes and supported in sand. These were examined using an incident-light microscope at magnifications of up to x400. The anatomical structure was matched to reference slides.

RESULTS

Context DAB, sample 23

Several fragments: three *Fraxinus* sp., ash; one *Corylus* sp., hazel; one *Quercus* sp., oak

Context DAB, sample 24

One (?) worked fragment: *Fraxinus* sp., ash (see above, p. 271).

Context DAB, sample 25

One worked fragment: Pomoideae (see above, p. 271).

Context DAC, sample 89

Several fragments: thirteen *Fraxinus* sp., ash, including some heartwood; eleven *Quercus* sp., oak, including some twiggy fragments (charred diameter 3 mm); eleven *Corylus* sp., hazel; seven cf. *P. spinosa* sp., blackthorn, including some narrow twiggy pieces (charred diameter 3 mm); three bark, unidentified; three fragments with very collapsed and distorted structure, unidentified.

Context DAC, sample 93

? Worked wood: *Corylus* sp., hazel, roundwood. Tool marks were present on one transverse surface (see above, p. 271).

CHARCOAL FROM THE FLOOR OF THE FUNERARY SHAFT

Context DAS, sample 137

Two fragments: two *Acer* sp., maple.

Notes to Part Four

1. The authors gratefully acknowledge English Heritage for funding this research. Sandra Bond and Kevin Reeves are thanked for their SEM/EDXRA and microprobe data. Ian Dormor thanked for helping with the production of FIGURE 106. John Crowther (St David's University College, Lampeter) and two anonymous referees are gratefully acknowledged for critically reviewing earlier drafts of this paper.

PART FIVE

DISCUSSION AND CONCLUSIONS

THE FOLLY LANE BURIAL RITE

The Folly Lane rite was made up of a number of elaborate rituals, some of which may also be reflected in rather earlier burial rites among the aristocracy in northern France and Luxembourg. So far, in Britain, the only traces of the Folly Lane rite have been found in the territories of the Trinovantes and Catuvellauni. There are indications that the rite may have been associated with exposure and/or excarnation practices, in which the dead were kept in sunken mortuary pits, in ditches or in above ground mortuary houses (as at St Stephens and Baldock). However, together with the practice of burning offerings on the pyre and burying a small proportion of the debris, these rituals were confined to a section of the population only; the basis on which the section was selected is still far from clear.

THE CHARACTERISTIC FEATURES

Folly Lane lies in an area particularly well provided with wealthy late Iron Age burials: Welwyn, Welwyn Garden City, Hertford Heath, Harpenden and Standfordbury all lie within 30 kilometres of Folly Lane (Stead 1968). However, setting aside the obvious similarities in date of the burials, the wealth of their equipment, and the presence of exotic imports from the Roman world, there are significant differences between the Folly Lane burial and the other wealthy late Iron Age graves in the area, the principal differences being:

1. The provision of a sunken funerary chamber.
2. The careful destruction of everything connected with the funerary rituals.
3. The inclusion of a token amount of cremated bone in the funerary shaft, while the main burial was placed in a separate pit.
4. The subsequent marking of the pyre site.

Less distinctive, but nevertheless unusual features at this date and place, are the presence of body armour and cart fittings, and the provision of shoes in the burial pit. Of all these features, however, the separate funerary chamber is the most remarkable and implies a protracted and elaborate funerary ritual. Since it is unlikely that such a ritual was adopted for a single occasion (however momentous) it is worth considering its possible origins and its relation to other burial rituals, both in the Verulamium region and elsewhere.

OTHER EXAMPLES OF THE FOLLY LANE RITE

Unlike the early and middle La Tène burial chambers on the Continent, the structure in the Folly Lane shaft was not a burial chamber; indeed care seems to have been taken to keep the cremated remains largely separate from the chamber. It had, however, been constructed with great care, implying that it played an important part in the rites, and could have stood for many years. Since the shaft was deliberately destroyed at the time of the cremation, both it and the mortuary chamber must necessarily have been used during an earlier phase of the funerary rites, and possibly, even before the death of the individual for whom it was ultimately used. In seeking parallels therefore, it is necessary to find structures where there is evidence for pre-funerary rites. The question is made more difficult by the consideration that burial chambers, i.e.

chambers that contained the actual cremation (or inhumation), could also have been used for pre-funerary rites. For instance, the chamber at Clemency, which shares several features with Folly Lane, could perfectly well have been used as a pre-funeral mortuary chamber, as well as a burial chamber.

The closest analogies for the Folly Lane rites are to be found, not in the local, 'Welwyn' burials but 80 km north-east, at Stanway and Lexden, on the outskirts of Colchester.

Stanway

At Stanway, 5 km south-west of Roman Colchester, Philip Crummy has excavated five ditched enclosures on the west side of the pre-Roman *oppidum*. The enclosures were roughly half the size of the Folly Lane enclosure, but four of them contained timber-lined pits, similar to, but smaller and simpler than, the shaft at Folly Lane. No mounds survived over the pits, but, as at Folly Lane, these may well have been destroyed by ploughing. Like Folly Lane, the Stanway pits contained no burials, although small quantities of cremated bone and pottery had been scattered on the floors and in the fill; in one pit remains of twenty-four vessels were found. The excavator has suggested that the pottery represents debris from funerary rites, and that the pits were used as mortuary chambers where the deceased was kept for an unknown period of time, prior to the actual funeral itself (Crummy 1992, 1997, 22–8; also pers. comm.; Sealey 1996, 57–8). Rich, satellite burials were also found in two of the enclosures.

Lexden tumulus

The Lexden tumulus lies 3 km east of Stanway and was excavated by H. E. Laver in 1924 (Laver 1927). Laver's techniques were well in advance of his time, and using his records, Jennifer Foster has been able to retrieve and publish evidence which is particularly relevant to Folly Lane (Foster 1986). In 1924 the barrow still stood over 2 m high, and originally it had been approximately 30 m in diameter and had been surrounded by a oval ditch. Beneath it was a large shaft, 2.15 m deep and possibly 8 m square. Foster's analysis of Laver's notes enabled her to suggest the presence of a rectangular timber chamber, approximately 5 m by 7.5 m on the floor of the shaft, and towards its north-east side. Remains of pottery, amphorae, fragments of furniture, metalwork (bronze, silver and gold), iron mail, and exotic imports were found within the area of the suggested chamber, where they appear to have been arranged around the walls, leaving a relatively clear space in the centre, an arrangement that echoes the distribution of sherds and metal fragments on the floor of the shaft at Folly Lane (FIGS 27–9). As at Folly Lane the material on the floor of the Lexden shaft was broken but unburnt, and in several cases it was incomplete. Amphorae sherds were numerous, and Foster suggests that the amphorae were broken up outside the shaft, and the pieces incorporated at different levels in the backfilling. Unlike Folly Lane, however, there is no sign of a separate burial pit for the cremated remains. Small heaps of cremated bone were found on the floor of the shaft, amounting to more than 300 g and so considerably more than the 196 g recovered from both shaft and burial pit at Folly Lane (see above, p. 310). The date of the Lexden tumulus is likely to be late first century B.C. to early first century A.D.; a *terminus post quem* of B.C. 17 is provided by a denarius of Augustus. The Lexden tumulus had certainly been dug into in the past, and Laver (followed by Foster) considered that the grave had also been robbed fairly soon after the original burial had taken place. This deduction was based to a large extent on the broken and incomplete nature of the objects in the pit, although Foster pointed out that if the objects had been broken and partly removed by early grave robbers, this presupposed that the robbers had tunnelled into a chamber that was still standing beneath the mound. In view of the broken and incomplete nature of the material from Folly Lane and Stanway however, it now seems likely that, at Lexden also, the chamber and contents were demolished prior to the construction of the mound. It is worth noting in this context that (as noted by Foster) the Holborough Barrow (Kent) overlay a wooden mortuary chamber, which appears to have been deliberately destroyed prior to the construction of the barrow (Foster 1986, 169–70; Jessup 1954). Several minor features underline the similarity

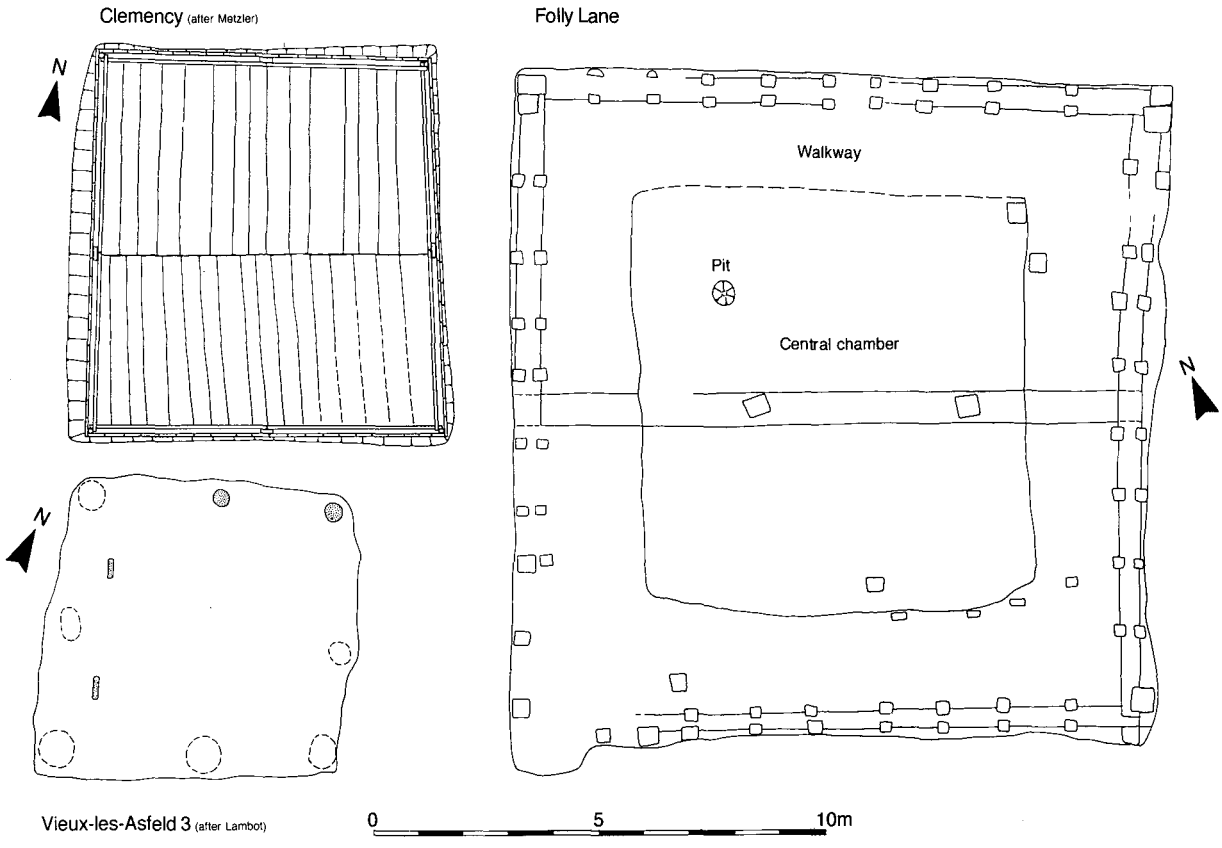


FIG. 110. Funerary shafts at Clemency (after Metzler 1989), Vieux-les-Asfeld 3 (after Lambot 1994) and Folly Lane.

between the Lexden remains and those from Folly Lane. In spite of the wealth of the material, there was no sign in either of weapons. Presumably the dead man's weapons were disposed of in some other way. They may have been handed on to the heirs, or they may have been deposited as votive offerings in rivers or at religious shrines such as that recently discovered at Essenden 15 km north-east of Folly Lane where swords, spears and chapes were apparently deposited in a ditched enclosure (information from V. Rigby). Remains of grass or hay were found on the floor of the Lexden chamber, and grass impressions were preserved on vessels on the floor of the Folly Lane shaft.

The five Colchester examples therefore provide clear evidence for funerary rites similar to those at Folly Lane; all share at least three of the four main criteria listed above (p. 394). No enclosure was found at Lexden, but in 1924 the site already lay within a private garden, in a suburb of Colchester, and an enclosure ditch may lie beneath houses and gardens outside the excavated area.

No doubt further examples of the Folly Lane/Stanway funerary rite will be found in the future. Burleigh has suggested that a chalk-floored structure at Baldock, adjacent to a 33 m square ditched enclosure, was used as a mortuary chamber. Burleigh also suggests that a high status cremation burial at the centre of the ditched enclosure reflects rites similar to those at Folly Lane and Stanway. The Baldock burial consisted of a small pit containing cremated human and animal remains, fragments of bronze, one of which had been gilded, and fragments of iron mail; immediately south of this deposit was a deeper pit, which contained the bronze binding for a bucket, as well as pottery and amphorae sherds. This material, however, had not been burnt on the pyre, and so may be comparable to the rich satellite burials found at Stanway rather than to the Folly Lane burial itself (Burleigh 1995, 105).

Clemency

So far, in Britain, the Folly Lane rite appears to be confined to Hertfordshire and Essex, but

there are indications of similar rituals in late La Tène and Augustan period burials in north Gaul. Clemency (Luxembourg) excavated in 1988 (Metzler *et al.* 1991), shared a number of features with Folly Lane (FIG. 110). A timber burial chamber in a large, rectangular pit, 4.2 m by 4.3 m and nearly 1 m deep, contained remains of high status pottery and metalwork that had been placed near the walls of the chamber, with a largely empty space in the centre. The pottery vessels had been broken, and pieces removed, although substantial parts remained in the chamber. The site was waterlogged and the chamber well preserved, enabling details of its construction to be recorded. The chamber was a simple rectangular structure resting on cill beams, with double walls strikingly similar to those suggested for the Folly Lane chamber, even though the wall packing was absent at Clemency. The planked floor and central cill beam at Folly Lane were also paralleled in the Clemency chamber. At Clemency the chamber had not been destroyed with the thoroughness evident at Folly Lane, although the flat roof of the chamber had been deliberately broken. The excavators suggested that this took place shortly after the burial, and was the work of grave robbers who were also responsible for breaking the pottery and other material in the chamber, and removing parts of it. In the light of Folly Lane, however, it seems possible that this destruction was part of the funerary ritual; it is difficult to understand why grave robbers should remove parts of broken vessels, even if the material had become smashed as a result of their activities. At Clemency traces of a pyre site were found, 3–4 m north-east of the chamber. Between the pyre site and the chamber were five postholes, arranged in a trapezoidal pattern over an area 4 m by 2.6 m by 2 m. The postholes were themselves sealed by a 'pavement' made up of over 1300 amphorae sherds, nearly half of them burnt, and showing signs of having been trampled into the underlying clay. The excavators suggested that the postholes had supported a structure used to expose the body before cremation (Metzler *et al.* 1991, pl. 39), and that the 'pavement' had been laid after the cremation had taken place, and used as a surface for the funeral procession, or for a funeral feast. Subsequently the enclosure ditch was dug, cutting off the site of the pyre from the chamber which was then covered by a low mound. There are therefore obvious similarities between the Clemency and Folly Lane rituals (exposure prior to cremation, feasting, processing or dancing), although there are also clear differences. At Clemency, for instance, the site of the pyre was cut off from the burial area by the enclosure ditch, and there was no indication that the pyre site was marked or venerated in any way. By contrast at Folly Lane the pyre site became an integral part of the ritual area. Another major difference was the 2000 g of cremated human bone which had been carefully collected and deposited in a heap at the centre of the north side of the Clemency chamber in contrast to the mere 196 g scattered in the Folly Lane burial pit (see above p. 310).

Vieux-les-Asfeld

Similar rites may have been practised at Vieux-les-Asfeld in the Ardennes. Here three circular enclosures, each with a central, timber-lined shaft, were excavated by B. Lambot in 1991. The shafts contained the fragmentary remains of pottery and metalwork, dating from the first century B.C. Shafts 3 and 5 contained small quantities of cremated human bone scattered on the floor and in the fill, but no human remains at all were found in shaft 1 (Lambot *et al.* 1994, 208). Shaft 3 also contained traces of an internal structure, which the excavator suggested were the remains of a raised platform at one end of the shaft floor, and on which the body had been exhibited before cremation (FIG. 110). However, the remains could equally well have been part of an inner structure, similar to the free-standing chamber in the base of the Folly Lane shaft; in either case the similarity between Vieux-les-Asfeld 5 and Folly Lane is very striking. As at Clemency, the excavator suggested that the fragmentary condition of the material in all three of the Vieux-les-Asfeld shafts had been caused by grave robbers who broke into intact chambers shortly after the burials had taken place. However, it is difficult to see indications of subsequent disturbance in the published section of shaft 3 (Lambot 1994, fig. 113, 211–27), and in the light of the evidence from Folly Lane, it seems possible that here again the destruction was the result of deliberate actions at the time of the funeral.

Timber-lined shafts with rich burials are known from a number of sites in the Champagne/

Ardennes area, notably at Wederath and Goeblingen-Nospelt in Luxembourg. At Wederath a few, single, high status burials in rectilinear enclosures dated to the end of the La Tène period, and of these one or two were in timber-lined shafts. Weapons and horse equipment were occasionally burnt and the remains placed in the burial along with cremated human remains. Most of the burials in rectilinear enclosures dated from the early Roman (Augustan) period (Roymans 1990, 244; Thill 1966). At Goeblingen-Nospelt, five rich shaft graves (graves A–D) lined with timber and marked by low mounds dated from the late La Tène and early Roman periods (Roymans 1990, 244; Haffner 1971, 1974, 1978). Further south at Antran (Vienne) a timber-lined shaft grave with rich metalwork lay within a 'sanctuary' dating to the later first century B.C. (Pautreau 1991). However, in all these instances, the high status equipment had been arranged in the grave unburnt and largely intact, and in none is there clear evidence for a 'two-stage' burial ritual of exposure and later cremation. Consequently, although sharing certain features with Folly Lane, the rite reflected in these burials is fundamentally different, and is more comparable to the Welwyn 'chieftains" burials, some of which (as at Welwyn Garden City) were contained in shafts.

There is some evidence for the 'two-stage' funerary rite in the Aisne valley in the Champagne/ Ardennes area of north Gaul. Lambot has suggested that the small quantity of human bone in many cremations was due to the exposure and excarnation of bodies, and the possible 'loss' of some bones prior to cremation (1994, 200–1). A similar explanation has been used for cremation burials at La Madeleine, Titelberg (Metzler, pers. comm.). At Acy-Romance, Thugny-Trugny, Bourcy le Long, Ménil-Annelles, Guigancourt 'L'Homme Mort' and Tatigny (Picardy) rectilinear enclosures have been found containing cremation burials (sometimes including pyre debris and burnt pyre goods) which were associated with postholes and cill beams supporting square structures. These have been interpreted as tower-like monuments marking the site of the burials and used as *foci* for commemorative offerings to the dead after the funeral had taken place (Lambot 1994, fig. 73, 131–43). This may well be the case, but it seems possible to the

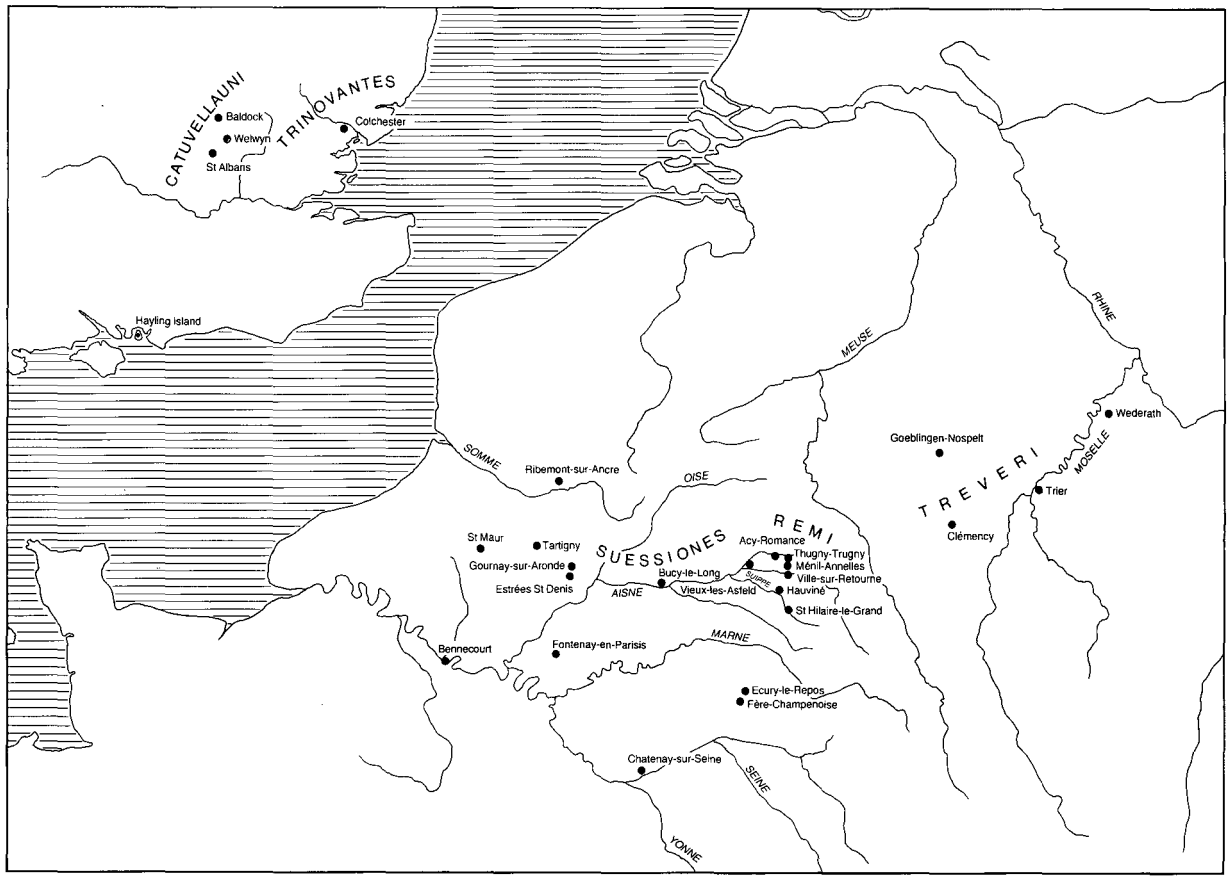


FIG. 111. Gaulish sites mentioned in the text.

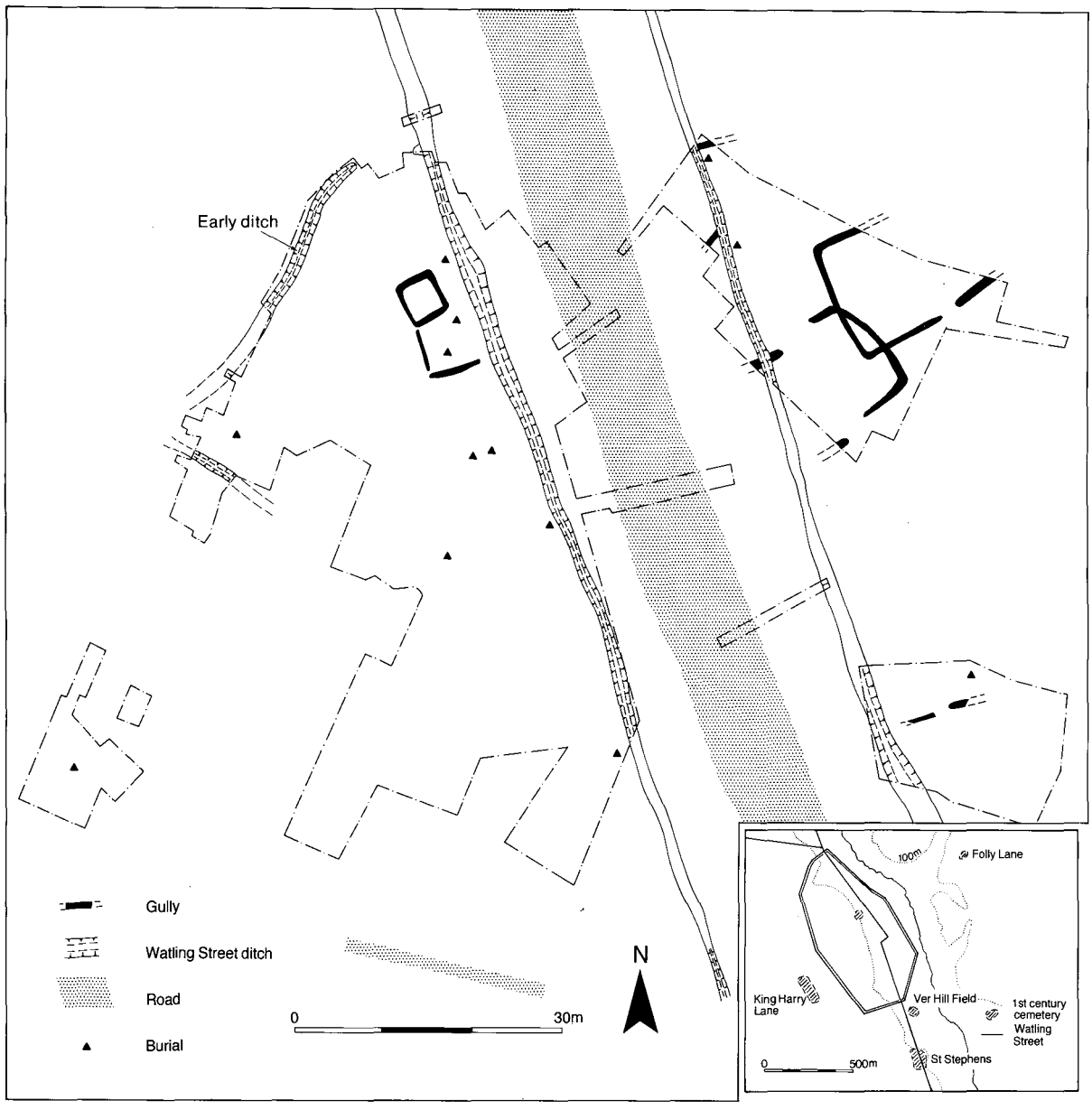


FIG. 112. First-century burials in St Stephen's Cemetery, Verulamium.

writer that these structures may have predated the shafts and were also used for the storage or exposure of the body prior to the cremation (Lambot 1994, 136, fig. 75).

The location of the Gaulish sites is shown on FIGURE 111. From this it is apparent that, in the present state of knowledge, cremations associated with above ground, post-built structures are concentrated in the Aisne, mainly in the territory of the Remi and Suessiones, whereas Clemency and Wederath lie further north, in the territory of the Treveri. The provision of low mounds over the graves also seems to be more characteristic of the Treveri than the Remi and Suessiones (Metzler 1991, 151).

The possible mortuary chambers in northern Gaul, however, are all considerably earlier than Folly Lane; Vieux-les-Asfeld 1 is dated to the early first century B.C., Clemency and Vieux-les-Asfeld 3 to the second quarter of the first century B.C., Vieux-les-Asfeld 5 is not precisely dated, but is similar to Vieux-les-Asfeld 1. It is interesting to note the similarity between the curvilinear ditch round the Lexden tumulus and the circular enclosure ditches at Vieux-les-Asfeld 3. It may be that this was an early characteristic, and that the more elaborate ritual evident at Folly Lane was a later development of a rite that in Gaul did not survive the Augustan period. In any event, the rite at Folly Lane probably incorporated a number of different elements drawn

from at least two areas in northern Gaul (the Aisne valley and the Ardennes) but also including local traditions and developments that were adopted in the course of the early first century A.D.

PRE-CONQUEST BURIALS IN THE VERULAMIUM REGION

So far only six clear examples of the Folly Lane burial rite have been excavated (four enclosures with timber-lined pits at Stanway, the Lexden tumulus, and Folly Lane itself). This, combined with the wealth of the associated material, indicates that it was a rite that was confined to a small, high status group within society. In most cases it has not been possible to determine the age or sex of the individual represented, due to the small amount of bone deposited. At Folly Lane the remains appear to be those of a single adult; at Lexden they were probably those of an adult male, and just possibly a female as well (Foster 1986, 138–9).

If it is correct to assume that the full Folly Lane rite itself was reserved for a social élite, it is worth considering whether a similar but 'watered down' version was practised by less elevated groups in society. At the time of writing, the Stanway burials have not produced evidence for such wealth as is apparent at Lexden and Folly Lane, and this, combined with the smaller sizes of the Stanway enclosures and funerary pits, may indicate a slightly lower status than those on the other two sites. It would be unwise, however, to place much reliance on this evidence; so far the Stanway material comprises satellite burials and fragments from the fill of the funerary pits; at Folly Lane it was the remains of the pyre offerings, found in the burial pit, that provided much of the evidence of high status.

At the time of the Roman conquest the practice of cremation burial within a square or rectangular enclosure was well established locally. At King Harry Lane, barely a kilometre south-west of the Folly Lane site, Ian Stead's excavations in the 1960s recovered over 175 cremation burials dating from the first half of the first century A.D., and many of which lay within rectilinear ditched enclosures (Stead and Rigby 1989; Millett 1993; Haselgrove and Millett 1996). Two more enclosures were found during the subsequent building operations.[1] Another ditched cremation enclosure, containing twenty-one cremations dating from *c.* A.D. 10–50, was excavated in 1963–4 immediately outside the south gate of Verulamium (Anthony 1968, 10–18). In 1989 the author excavated two further ditched cremation enclosures were excavated in the St Stephens Roman cemetery, 500 m south-east of Roman Verulamium. Both these enclosures predated the construction of Watling Street (FIG. 112). Cremations within rectilinear enclosures have also been excavated at Mucking (Lavender 1991, 209), North Shoebury (Wymer and Brown 1995, 34–5, fig. 27) and Maldon Hall Farm (Lavender 1991) (all in Essex) and are widespread in northern France at the end of the pre-Roman Iron Age (e.g. at Ville-sur Retoure and Ménil-Annelles, Champagne, Flouest and Stead 1986).

The burials within the King Harry Lane enclosures for the most part were 'normal' cremation burials, in which cremated ashes were either contained in a jar or piled up on the floor of a small burial pit and accompanied by grave goods, of which pottery vessels and brooches were the commonest types. None of the burials were covered by mounds, nor was there any sign that their position had been marked. Certainly there were no indications of pyre sites, let alone their deliberate marking and veneration. Other elements in the Folly Lane ritual, however, can be detected in a number of local burials. Central to the rites at Stanway and Folly Lane was the storage of the body, and/or funerary goods, in the funerary pits for a period before the final funeral. Although no such pits have been detected so far in more conventional late Iron Age cemeteries in Hertfordshire and Essex, this does not exclude the possibility of the existence of funerary structures, either permanent, or semi-permanent, which were used by a number of individuals, families or groups whenever occasion demanded. This is the implied position at Baldock where, what may have been a mortuary structure adjacent to the enclosure ditch around burial B, appears to have been used for at least fifty years (Burleigh 1995, 105). Rather later is a curious structure excavated in 1985 in the St Stephen's cemetery, just outside Verulamium. Here a square structure, delimited by eaves drip gullies, stood slightly off-centre in a ditched enclosure, on the south side of Watling Street, within a predominantly cremation cemetery dating from *c.* A.D. 35–230 (FIG. 112).[2] The structure was open on the west and in many ways resembled

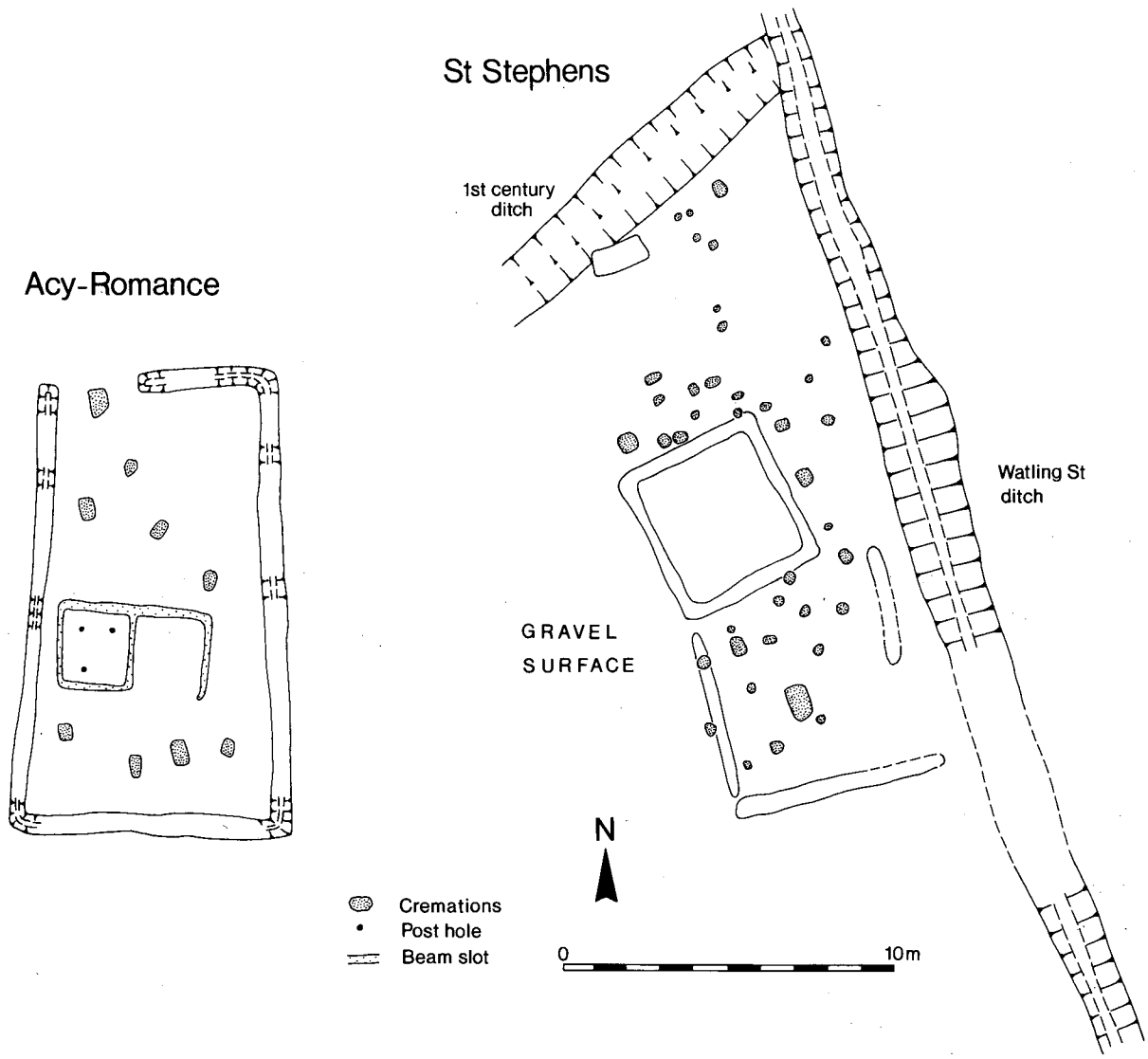


FIG. 113. Cemetery structures at Acy Romance (after Lambot 1994) and St Stephen's.

a mortuary chamber at Acy-Romance 'La Noue Mauroy' in the Ardennes (FIG. 113) (Lambot 1994, fig. 45, 77–81). Neither structure contained any burials, but both were close to small clusters of cremations, those at La Noue Mauroy dated from the second quarter of the first century B.C., those from St Stephen's from the late first and early second centuries A.D. For both these structures, a use as a mortuary chamber connected with rites similar to those suggested for the Folly Lane/Stanway pit seems eminently possible. The St Stephen's cemetery was in no way exceptional as far as the wealth of the grave offerings was concerned, and assuming that the structure here was indeed a mortuary chamber, it implies that the custom of exposure was not invariably confined to high status groups.

The second element in the Folly Lane rite — the wholesale destruction of the grave goods — was a particularly striking feature of the Folly Lane burial. Pyre debris was not generally included in burials at Verulam Hills or St Stephen's although it did occasionally exist. Martin Millett has drawn attention to the fact that a number of burials from King Harry Lane contained 'molten metal' or remains of other objects, pottery, glass, and occasionally pottery, that showed signs of burning, presumably from having been placed on the funeral pyre (Millett 1993, 266). Millett was doubtful whether there were sufficient numbers of burials with burnt objects in them to allow conclusions to be drawn as to their distribution spatially, or their range chronologically; they made up only just over 8 per cent of the pre-Flavian burials from the cemetery (Stead and Rigby's phases 1–3) (Stead and Rigby 1989). Nevertheless, if the burials containing burnt objects

FIG. 114. Graves with burnt pyre goods and inhumation graves at King Harry Lane (after Stead and Rigby 1989).

are plotted on to a plan, it is immediately apparent that they tend to occupy central positions within enclosures, or clusters of burials. Of the twenty-four graves from the cemetery that are recorded as having fire-damaged objects half were in central positions within enclosures or were close to clusters of burials. Perhaps more significant is the fact that all of the eight enclosures had 'burnt offering' burials in central positions, while two further 'burnt offering' burials lay midway between neighbouring enclosures (FIG. 114). It has to be admitted that in many cases the quantity of molten metal at King Harry Lane was very small, sometimes not more than might be produced by the destruction of a single brooch. There are, however, two relevant points. Firstly, the destroyed metalwork found in the Folly Lane burial pit only represented a tiny proportion of what must originally have existed; for instance, a fire dog was merely represented by one horn, and the couch or chair by a few fragments of iron bars and an ivory knob (see above, pp. 133–75). Consequently, it is highly likely that the 'burnt offerings' in the King Harry Lane graves also only represent a small proportion of the original whole, although, as Millett pointed out, where recognizable, the burnt material included objects of unusual quality, such as a bronze wine strainer (Millett 1993, 265). Secondly, it was *only* in the graves shown on FIGURE 114 that any burnt offerings were found; thus, however small the quantity of molten metal, its presence alone suggests that the burials containing it reflect a rite that was confined to a section of society. This section tended to be accompanied on the pyre by high quality objects, and to have been buried in central positions in the burial enclosures.

The evidence from King Harry Lane therefore suggests that the destruction of certain high quality goods, and the burial of parts of them with the cremated ashes of the dead was a rite that while not confined to the aristocracy, was nevertheless accorded to people occupying a special position within a particular group. In this way an apparently modest burial could occupy a central 'burnt offering' grave in a cemetery like King Harry Lane, while a richer satellite burial (for instance at Stanway) would not merit the 'burnt offering' rite. Unfortunately there is as yet insufficient evidence to tell us what the status of 'burnt offering' burials was; that they were those of the founders of families is ruled out by burial 15 at King Harry Lane which contained the remains of an adolescent and pieces of molten metal (Stead and Rigby 1989).

A third element in the Folly Lane rite was the separation of the cremated remains from the destroyed, but unburnt material relating to the pre-funeral phase of the ceremonies, although

token amounts of cremated bone were scattered in the funerary pits. In many burials the urn (or bag or box) in which the ashes were contained may have been deemed sufficient to provide the necessary separation. It is noteworthy that at King Harry Lane burnt material was normally found in a heap on one side of the burial pit; it is possible that originally this was held in a textile, wooden or leather container, and that this substituted for digging a separate pit.

A recurrent feature of the early cemeteries at Verulamium is the occurrence of inhumations in the ditches of the enclosures or on the margins of burial clusters. At King Harry Lane seventeen such inhumations were recorded, only one of which was of Roman date; at St Stephen's at least one inhumation was placed in a ditch adjacent to the later of what appear to be two early cremation enclosures, and at Verulam Hills eight inhumations had been placed in the ditch on the south-west side of the enclosure (Anthony 1968, 18–32). Further afield, at Braughing, fourteen pre-Roman inhumations were recorded in an enclosure ditch; the enclosure itself could not be fully excavated, but it may well have been a cremation cemetery (Partridge 1979, 31). The three inhumations on the east side of the entrance in the Folly Lane enclosure probably reflect the same tradition. The practice was not confined to Hertfordshire as inhumations have been recorded in the ditch of a late Iron Age cremation cemetery at Mucking (Lavender 1991, 209), nevertheless it seems to have been commonest in the Verulamium area. The inhumations were normally without grave goods, although a cattle leg bone was associated with burial 3 at Folly Lane, and burial 88 at King Harry Lane was accompanied by four pots. The marked contrast between the inhumations and the cremation burials within the enclosure may be an indication of differences in social class, with the ditch burials being those of poorer retainers of the individuals buried within the enclosures. The possibility cannot be discounted, however, that the remains in the ditches represent the first stage in an excarnation rite. It may be that bodies were placed in ditches surrounding cremation cemeteries until decomposed, and were only then retrieved and cremated.[3] The surviving inhumations may simply be bones that had never been 'retrieved' for cremations, either because the practice declined after the conquest, or because the family or group to which the individuals had belonged, themselves died out or were dispersed. It is worth noting in this context pit BJE, in the western terminal of the Folly Lane enclosure ditch. The pit cut through the rapid silt in the ditch and contained an isolated human femur. It is conceivable that originally there was a fourth inhumation here, but unlike the three on the east side of the entrance, this one was later retrieved and cremated.

CONTINUATION OF THE FOLLY LANE FUNERARY RITE INTO THE ROMAN PERIOD

The Folly Lane rite was clearly established in the Verulamium region at the time of the conquest; consequently its persistence or otherwise into the Roman period could well throw valuable light on the whole process of 'Romanization' in the area. The problem is made difficult by the fact that the rite seems to have been evolving in the century before the Roman conquest, and so probably would have continued to change thereafter, even without increased Roman influence.

Mortuary structures in the Roman period

The identification of what may have been a mortuary structure at St Stephen's in the early second century has already been mentioned. Nevertheless, if the Folly Lane/Stanway rites were most marked in aristocratic funerals, it is in aristocratic cemeteries, rather than the more run-of-the-mill town cemeteries, that we should be looking for evidence of their continuation into the Roman period. In Hertfordshire, the wealthiest graves are found in rural rather than urban contexts; presumably the aristocracy chose to be buried close to, or on, their estates.

Wood Lane End

Wood Lane End lies 4 km west of Verulamium. A substantial temple mausoleum and an associated bath block were built here, probably in the early Hadrianic period. Like Folly Lane, Wood Lane End occupied a prominent position, on the edge of the clay-with-flints plateau, overlooking the Roman road linking the Verulamium Chester Gate with Akeman Street. In the context of this discussion, the important point about Wood Lane End is that the *cella* included

a sunken pit or chamber, 4.4 m by 2.65 m (Neal 1986, 195). The pit's purpose is unknown, but it seems possible that it fulfilled a similar function to the funerary shaft at Folly Lane. The dead person could have been exposed in the sunken chamber, before being finally cremated, after which the remains were buried elsewhere, or stored in the tower-like superstructure of the mausoleum. It is interesting to compare the tower-like reconstruction of the Wood Lane End mausoleum, with the tower like buildings postulated at Thugny-Trugny and interpreted as shrines over the graves (Neal 1984, 198, fig. 3; Black 1986, 206–9; Lambot *et al.* 1994, 135–41).

Bancroft

Bancroft villa lies 2 km north of Watling Street, 37 km north-west of Verulamium and was associated with a temple mausoleum (Williams and Zeepvat 1994). Here the entire *cella* was sunk 1.3 m into the subsoil, forming a semi-basement room and scars for three sarcophagi were found on its floor. It is possible that at Bancroft, rather being buried, bodies were stored, or exposed in the sunken *cella* in rituals similar to those of Folly Lane. A rather similar structure was excavated at the Lullingstone villa (Meates 1979, 122–32; Henig 1984, 196, fig. 97).

Exposure rites during the Roman period

The presence of bath blocks at both Wood Lane End and Bancroft indicates that purification rituals played an important part in the ceremonies. At Folly Lane the Branch Road bath house suggests that here too purification rites were carried out, while it is possible that the strigils in a wealthy late first-century burial at King Harry Lane (Niblett and Reeves 1992) and in the disturbed burial 27 (see above, p. 118) reflect the same ritual. One scenario for a Romano-British version of the Folly Lane ritual is that the deceased, laid on a couch (or chair), was kept for a time in a mortuary chamber, which was sometimes below ground level. Retainers, relatives or dignitaries assembled and partook of a funerary feast and ritual washing. Finally the remains were cremated and the ashes placed in a mausoleum.

Although it is not uncommon to find stray human bones in rubbish deposits in both late Iron Age and Romano-British contexts, at Folly Lane the number of such bones, particularly limb bones, is slightly above average. These were found on the lower part of the site, south and east of the late Iron Age ditch, and in contexts dating from the early second to late third centuries; at least one bone showed signs of gnawing by animals. The bones are discussed above (p. 323, TABLE 41), here it will suffice to remark that of the eighteen stray adult limb bones found in period 4–7 contexts, ten were in the filling of ritual shafts, or the sinkages over them, and six from the upper silt in the main enclosure ditch. It is possible that the 'stray' bones represent a continuation of exposure rites, and that during the Roman period the Folly Lane shafts to some extent replaced the enclosure ditch as places where bodies were exposed. The defleshed skull in the base of shaft AET had been carefully preserved, and perhaps displayed on a pole, before being buried in the shaft, and may be further evidence for a tradition of the exposure and display of the dead.

CONCLUSIONS

Although equivocal, there is a certain amount of evidence to suggest a continuation of the Folly Lane rites of exposure, at least into the second century. As in the pre-Roman period, however, it was only a section of the community that carried out these rites. For instance, there no indication of the practice in the Flavian mausoleum at Rothampstead 7 km north-west of Folly Lane, while the inhumations found in the ditch surrounding the mausoleum at Welwyn Hall are late or sub-Roman in date, and may not be related to the earlier mausoleum at all.[4]

FOLLY LANE AND PRE-ROMAN VERLAMION

Since the Wheelers' excavations in the 1930s the existence of an important pre-Roman oppidum south-west of the modern city of St Albans, has been generally accepted. In this report the name Verlamion is used for the pre-Roman settlement; the name Verulamium is reserved for the Roman town. 'Verlamio' (presumed to be the locative form of 'Verlamion') appears on coins

of Tasciovanus, while 'Verulamium' is the name given to the *municipium* by Tacitus (*Annals*, XIV, 33). The name is given as Verolami, Verolamio and Verolamo in different routes of the Antonine Itinerary (Jackson 1970, 80–1).

THE VERLAMION DISTRICT IN THE FIRST HALF OF THE FIRST CENTURY A.D.

Little is known of late Iron Age settlement patterns in the Ver valley prior to the end of the first century B.C. Occasional finds of middle Iron Age pottery have been recorded south of Verlamion, while the double ditched hill fort at the Aubreys, Redbourn, 6 km upstream probably also dates from the middle Iron Age. Small-scale excavations by the St Albans Museums Service in the interior and over the south-east ditches, however, have not produced any dating evidence.[5]

Scatters of flint-gritted pottery are frequently encountered alongside later material on local sites occupied in the immediately pre-conquest period. It is likely that this material is residual

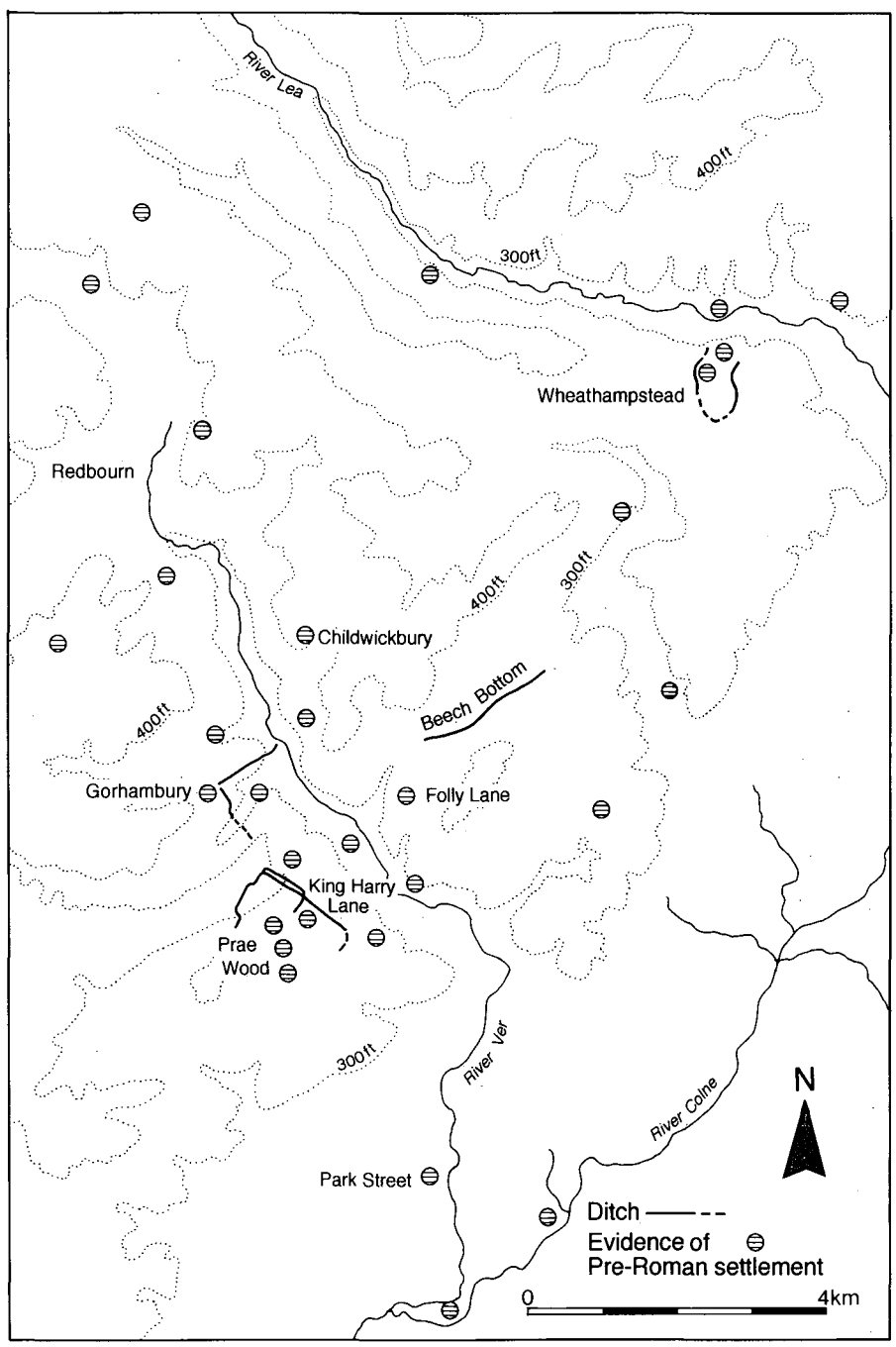


FIG. 115. Late pre-Roman Iron Age occupation in the Verlamion area.
(Note CG = Chester Gate cemetery, KHL = King Harry Lane cemetery, VH = Verulam Hill Field cemetery).

from earlier phases of occupation not otherwise identifiable. For the most part, the late pre-Roman Iron Age community in the Ver valley only becomes visible archaeologically at the very end of the first century B.C. with the adoption of grog-tempered pottery, and the appearance of imports from northern Gaul (Thompson 1982, 865–945; Stead and Rigby 1989, 112–218). At the time of writing there are twenty-one sites in the Ver valley, between its confluence with the Colne at Park Street and its source at Flamstead, that are known to have been occupied in the first half of the first century A.D. (FIG. 115). These show a marked concentration around Verlamion (Niblett 1993, 81, fig. 3), although to some extent this is probably due to inequalities in fieldwork and excavation. Environmental evidence, particularly pollen evidence, shows that by the mid-first century A.D. the upper valley of the Ver had already been largely cleared of forest for a considerable period (Wiltshire, this volume, p. 365), and that the landscape was dominated by pasture and arable land (Dimbleby 1978, 114). This implies a sizeable population in the area. Remnant woodland survived, but in view of the reliance on wood for building and fuel, this was likely to have been carefully managed. Occupation sites typically consisted of rectangular or sub-rectangular (and less frequently curvilinear) ditched enclosures, covering between 0.13 ha (Redbourn, SMR6001) and 1.38 ha (Gorhambury) (Neal *et al.* 1990, 11–14; Hunn 1993). The Folly Lane enclosure, covering 1.68 ha was therefore the largest such enclosure in the immediate area.

In the early 1930s, the then Dr Wheeler drew attention to the complex system of earthworks south and west of St Albans, and in particular to those in Prae Wood (Wheeler and Wheeler 1936, 10–16). Since then further earthworks have been recognized through a combination of fieldwork and aerial surveys, and these have been surveyed and mapped by Saunders (Saunders and Havercroft 1982) and Hunn (1993). Some of these earthworks were very substantial, notably the New Dyke and the Devil's Ditch with depths of 3.6 m and 9 m respectively. With the exception of the Wheeler ditch, which ran along the north edge of the clay-with-flints plateau, the majority of the dykes simply defined estates, droveways and stock kraals, but they testify to the importance of land divisions, and less certainly of land ownership, at the end of the Iron Age.

North of the river, the largest earthwork in the area, the Beech Bottom Dyke, ran for nearly 2 kms, 1 km north-east of Folly Lane, and must have formed a major territorial boundary. The surviving stretch is a massive earthwork, with banks on either side of a ditch, which in places is still 30 m wide and 10 m deep; it is possible that the late Iron Age ditch, that ran across the upper slope of the Folly Lane site, represents a continuation of the dyke, in a much attenuated form. Four kilometres north-east of the north end of the Beech Bottom Dyke, the Devil's Dyke at Wheathampstead, may represent a further element in the same boundary with the intervening stretch marked by hedges or areas of woodland.

Verlamion was therefore the focus of a complex of dykes, and it is unfortunate that dating evidence for them is still sparse. The dating for the Beech Bottom Dyke rests on a hoard of Hadrianic denarii discovered in 1932, and which demonstrates that considerable quantities of silt had already accumulated in the ditch by the mid-second century (Wheeler and Wheeler 1936, 18). Neal has suggested that the New Dyke was constructed after the establishment of the late Iron Age farmstead at Gorhambury (Neal *et al.* 1990, 34), although this has been questioned by Haselgrove and Millett who prefer a slightly earlier date (Haselgrove and Millett 1997). The Wheeler Dyke, and the occupation south-west of it in Prae Wood, date from the first half of the first century A.D. (Thompson 1982, 930; Haselgrove and Millett 1997, 287). Thus, in spite of the paucity of the evidence, it is likely that the main dykes in the Verlamion area were in existence by the second quarter of the first century A.D.

The plan (FIG. 116) brings together the diverse evidence for Verlamion in the first half of the first century A.D. It demonstrates that there were at least seven major occupation sites in the immediate vicinity of the Roman town. In the present state of knowledge these appear to be concentrated on the south side of the river, with sites at Bedmond, Mayne Avenue, Pond Field, Prae Wood, Gorhambury (Hunn 1993, 52–7)[6] and a ditched enclosure beneath the Roman Forum in the centre of St Michaels village (Frere 1983, 193). By contrast, the period 2 occupation at Folly Lane is the only occupation site so far known north of the river, although

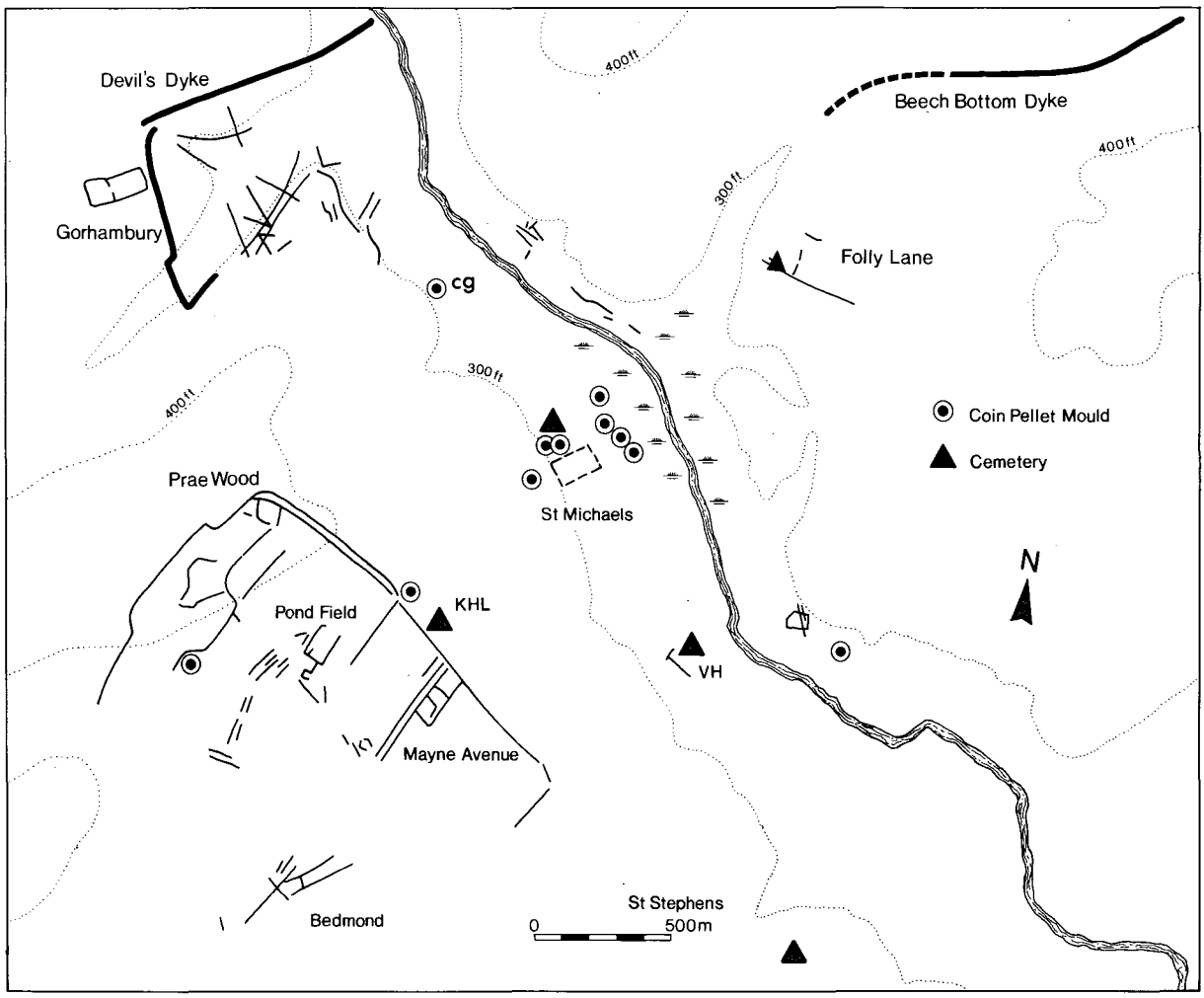


FIG. 116. Pre-conquest Verlamion.
Note: CG = Chester Gate cemetery, KHL = King Harry Lane cemetery, VH = Verulam Hill Field cemetery.

ditches, scatters of pottery and a fragment of a coin pellet mould on sites south of the Abbey, probably mask a further site here. Slightly further afield late Iron Age enclosures are known or suspected beneath the Childwickbury villa (2 km north of the Roman town), Beaumont Hall Farm (4 km to the north-west) and Redbourn 1 (2 km to the south-west). With the exception of the St Michaels enclosure, these are all between 95–125 m O.D., and are on the edge of the clay-with-flints plateau. This siting was probably in order to exploit differences in soils — combining the more easily worked, but poorer soils of the valley sides, with the heavy soils of the plateau top. On the other hand it is noticeable that the enclosures closest to Verlamion itself are on the further (i.e. plateau) side of the Wheeler, Folly Lane and New Dykes which apparently cut them off from the valley floor. The position of the St Michaels enclosure on a low gravel terrace on the south side of the flood plain of the Ver is clearly exceptional, and as will be discussed below, may reflect its special status.

The period 2 occupation at Folly Lane, sited on the edge of the plateau and separated from the lower slope by a linear ditch, therefore falls within the general pattern of settlement in the Verlamion oppidum in the half century before the conquest, while there is little direct evidence in the excavated material to suggest that it had an exceptional status at this stage. The pottery deposited in the gullies and ditches does not include any of the luxury goods or exotic imports detected at the same phase at Gorhambury, while the Folly Lane ditch itself is not as impressive a feature as the Gorhambury ditches. Four considerations, however, warn against dismissing the Folly Lane site as a 'normal' farmstead:

1. Only a very small proportion of the site was excavated; it is quite possible that its main focus lay elsewhere, and that the area excavated in 1991/2 was only the outer fringe of a more extensive site.
2. Fragments of at least two large, triangular loomweights were found, and it has been suggested that loomweights were characteristic of high status sites at the end of the pre-Roman Iron Age (Gregory 1991, 191).
3. The Folly Lane site was so denuded that only the bases of features survived; it is possible that buildings comparable to those from the undoubtedly high status site at Gorhambury once existed, but have been destroyed by erosion and agriculture. Cill beams could well have vanished without trace.
4. Faint traces of structures survived on the crest of the hill, in an area later overlain by the edge of the mound, but these had been largely destroyed by the construction of the funerary shaft. Whether they were domestic buildings, is uncertain. It is possible that even at this date these were non-functional, ritual buildings, while the large tree holes in the same area may represent a pre-conquest sacred grove, similar to those suggested at Fisons Lane, Thetford (Gregory 1991) and Acy-Romance (Lambot *et al.* 1994, 135–41).

FOLLY LANE AND VERLAMION IN THE CONQUEST PERIOD

By the middle of the first century A.D. therefore, the area beneath and within 1 km of the later Roman town was characterized by a complex system of dykes, compounds and droveways. There is growing evidence that by the time of the Roman conquest there was considerable 'zoning' within this area. Most burials lay within, or adjacent to, ditched cemeteries, and as noted by Haselgrove and Millett, the King Harry Lane cemetery was too extensive to have been used solely by the inhabitants of Prae Wood, suggesting that the dead were brought here for burial from a number of different farmsteads (Haselgrove and Millett 1996). Apart from metalworking debris, evidence for industry is, as yet, confined to occupation sites, sited on the plateau edge. Loomweights have been found at Folly Lane and Prae Wood (see above p. 122; Wheeler and Wheeler 1936, 178), and pottery kilns at Prae Wood (Wheeler and Wheeler 1936, pl. LXXVI; Swann 1984). By contrast, metalworking was concentrated in the valley floor, and especially in the vicinity of the St Michaels enclosure. Approximately 3 kg of broken coin pellet moulds are known from Verlamion, and these show a decided concentration west of the St Michaels enclosure and in St Michaels village, a distribution which cannot be entirely put down to the distribution of fieldwork. Fragments of crucible have also been recovered on two sites in the valley floor, and remains interpreted as a pre-Roman metal workshop were excavated on the edge of the flood plain, beneath *insula* XVII of the Roman town (Frere 1983, 102).

The St Michaels enclosure therefore differs from the late Iron Age farmsteads, not only in its position, but also in the concentration of metalworking debris surrounding it, and the absence of other signs of industry. Comparatively few area excavations have been carried out on the earliest levels within and beneath the Roman town, largely due to the very considerable depths involved. Nevertheless, references in excavation reports to ploughsoil and possible field ditches underlying pre-Boudiccan layers in *insulae* VII (Wheeler archive, Verulamium Museum), XIV (Frere 1972, 13), XVII (Richardson 1944, 82), XIX (excavations in 1987, report forthcoming, Niblett, *Herts Archaeology*, vol. 14) and XXVIII (Frere 1983, 130 and 273) all near the centre of Verlamion, suggest that originally the St Michaels enclosure was surrounded by fields and paddocks. There are also hints suggesting that by the Claudian period previously cultivated land was already being built over. In *insula* XIV, the ploughsoil was sealed by a gravel floor, which itself was overlain by two successive floors, the last of which belonged to a building burnt down in the Boudiccan revolt (Frere 1972, 13, layers 42–4). In *insula* XIII, excavations in 1986-7 revealed traces of pre-Flavian occupation, destroyed by fire, presumably during the Boudiccan revolt (Frere 1988, 455), beneath which were two earlier surfaces suggesting that here also occupation started in the Claudian period, if not before. This assumption is supported by the presence of a Gallo-Belgic coin and grog-tempered pottery. Occupation of similarly early date was recorded beneath the *macellum* in *insula* XVII.[7] One hundred metres north of the St Michaels

enclosure, in *insula* XVII, two successive timber structures underlay a Neronian building; the earliest of these was associated with grog-tempered pottery and a coin of Cunobelin (Frere 1983, 102–3). Admittedly, the volume of evidence is small, but it would not be stretching it too far to suggest that while the St Michaels enclosure occupied a fairly isolated position in the first third of the first century A.D., by the time of the conquest occupation was already spreading across the surrounding area. In view of the fragmentary nature of the excavated evidence, the character of this occupation is extremely difficult to define. Nevertheless there are indications that the principal role of the area was as a metalworking zone, and as a focus for ritual activities.

The concentration of high status metalworking debris in St Michaels has already been remarked upon and the construction of the block of metalworkers' shops in *insula* XIV in the 50s, may simply represent the continuation of an established industry.

Evidence for the ceremonial or religious importance of the area is less tangible. However, both of the two Romano-Celtic temples excavated in the centre of the Roman town, the triangular temple in *insula* VII and the theatre temple in *insula* XVI, have produced concentrations of early brooches and pre-Roman coins, suggesting they may already have been religious foci in the Claudian period if not before (Niblett 1993, fig. 7; Haselgrove and Millett 1997, p. 284). Sixty metres east of the *insula* XVI temple, building 4 (*insula* XXVIII) overlay three large pits, one of them, over 3 m deep (Frere 1983, 273–4, fig. 116). When excavated these were interpreted as quarry pits, but it now seems more likely that the deeper ones at least, had a ritual purpose.

Perhaps the most convincing evidence for the religious importance of the area, however, is provided by the name, Verlamion, of which one possible meaning is 'the settlement over [or by] the marsh' (Rivet and Smith 1979, 498–9; Jackson 1970, 80–1). The importance of rivers, marshes and lakes in Celtic religious practice is well attested, both by Classical writers and from archaeological finds. Both Poseidonius and Tacitus refer to Celtic practices of depositing offerings in lakes and marshes, while the numerous instances of objects recovered from rivers and marshes, must be a reflection of this practice.

There is ample evidence for the marshy nature of the valley floor over this stretch of the river Ver. The 1695 edition of Camden's *Britannia* noted the extensive marsh that existed here pointing out that it was the only such marsh in the area (Camden 1695, 299. Also quoted by Haselgrove and Millett 1997). Supporting evidence is provided by the thick deposits of river peat and alluvium that have been repeatedly encountered in excavations on the northern fringe of the Roman town, and it is clear that pre-Roman Verlamion overlooked an extensive marsh through which the river Ver made its way as best it could, occupying now one water channel, and now another (Anthony 1970).[8] It was not until the third century A.D. that the marsh was drained and the river canalized (Frere 1983, 277–81).

The marsh was bounded on the south by a low gravel terrace; the St Michaels enclosure stood on the edge of this terrace. A crossing in the marsh certainly existed in the mid-first century. In 1964 a rescue excavation, carried out by the staff of the Verulamium Museum assisted by members of the local archaeological society, but with pitifully small resources, uncovered the waterlogged remains of a mid-first-century timber structure, the so called 'timber tower' (Anthony 1970). The 'tower' was represented by three rows of timber uprights, some massive and squared, others thinner and rounded. The outer rows were 8 m apart, with a less well defined central row. All three rows ran towards the river, continuing the line of the street between *insulae* XIX and XVII of the Roman town. The posts had been driven into the waterlogged river peat, and were preserved in places to lengths of over a metre. Both the peat and the uprights had been sealed by a layer of brushwood, and outside the outer rows of posts were the butt ends of a chalk bank; this was equated with the turf bank excavated by Frere 30 m to the south-west, and dated to the Claudian period (Frere 1983, 40). The bank on the east side was roughly double the width of that on the west and it was suggested that this was an *accensus* giving access to the top of the bank. The timber structure itself was identified as a fort gate, largely because of its early date, its association with the turf and chalk Claudian bank and the presence of several small pieces of military equipment, notably horse fittings.

The hypothesis that a fort existed at Verlamion rested on two main pieces of evidence, the presence of military equipment in the town, and the recognition of the Claudian turf rampart

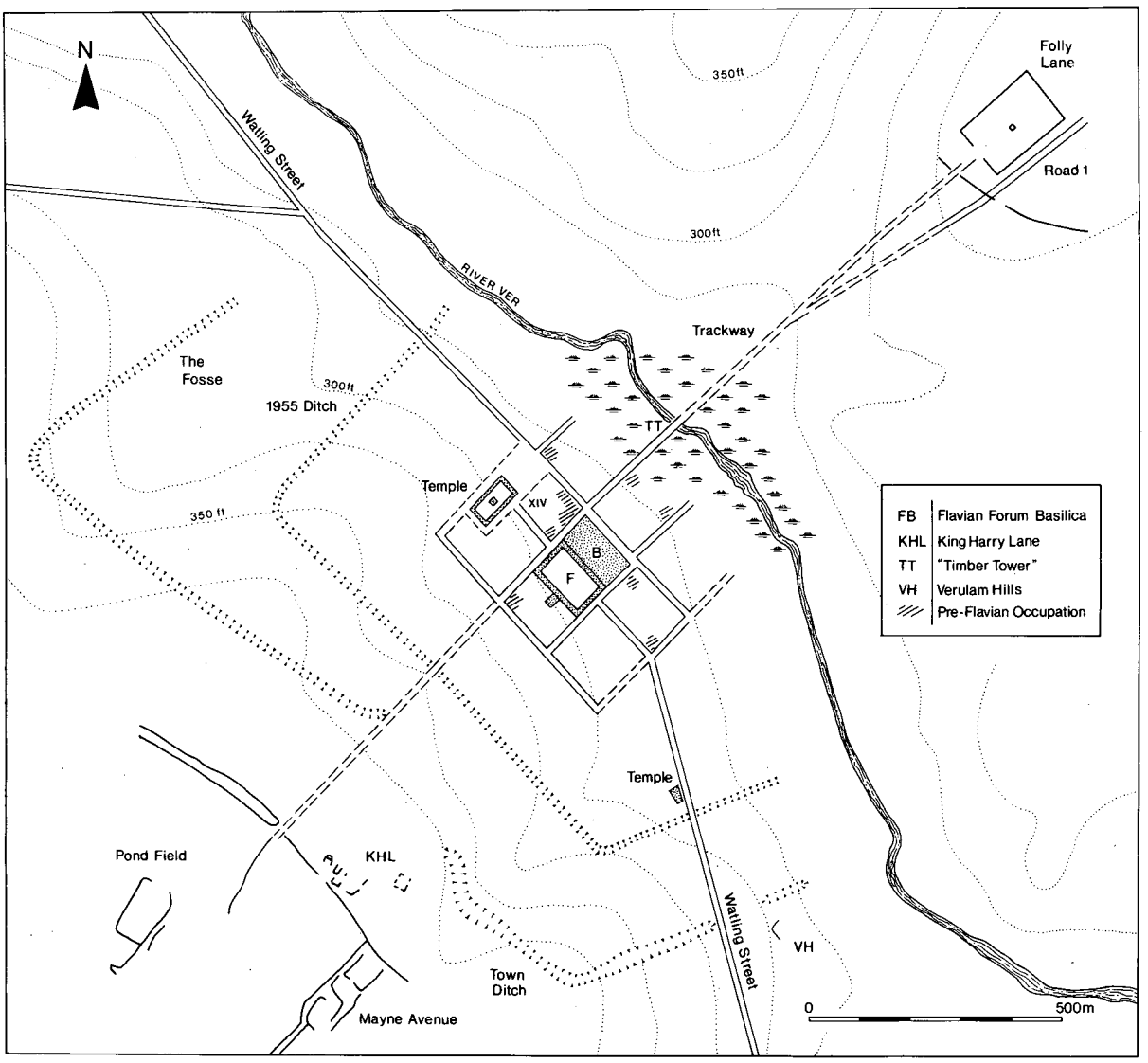


FIG. 117. Verulamium in the later first century.

in *insula* XVII (Frere 1983, 40). The presence of Roman cavalry equipment in the indubitably 'native' context of the Folly Lane burial, and also on the Gorhambury villa site, coupled with evidence that in northern Gaul members of the native aristocracy served as Roman cavalry officers, are reminders that the discovery of military equipment need not necessarily imply the existence of a fort, but merely the presence of people who had served in the army. Nor can the use of turf to build the Claudian bank in *insula* XVII be seen as a necessarily military or Roman technique. The carefully cut and laid turf in the Folly Lane shaft is a clear indication that the local population were well accustomed to working with it. Furthermore, Reece has pointed out that the coin evidence does not support the thesis for substantial military occupation in Verlamion in the conquest period (Reece 1984, 15), while excavation in the late 1980s demonstrated that Watling Street itself was unlikely to have been aligned on an early fort, and more likely to be aligned on a pre-Flavian civilian settlement (Niblett 1993, 82). In the continued absence of either structures or objects that provide definite evidence for a fort, the possibility that no such fort existed becomes a probability.

Thus there is no longer any convincing reason to support an interpretation of the timber tower as a fort gate, and indeed it bears no relation to the plan of any known fort gateway (Manning and Scott 1979). Instead it can be seen as a brushwood trackway, supported by rows of upright piles and perhaps associated with a gate, and possibly predating the Claudian bank. The peat beneath the brushwood contained grog-tempered pottery similar to that at Prae Wood (I.

Thompson, pers. comm.), as well as items of military equipment and Claudian coins. However, this material was not certainly earlier than the trackway; much of it could well have fallen through the brushwood and sunk into the soft peat. On the other hand, the bank itself must date from the mid-first century at the latest, since in *insula* XVII its weathered tail underlay a building destroyed in the Boudiccan revolt (Frere 1983, 38). Its purpose may have been defensive, or it may have been designed to protect the area to the south from flooding; in either case the bank could be associated with the evolving native settlement rather than with a Roman fort.

The trackway was clearly designed to give access to the valley floor, and presumably led across the river. The primary date of road 1 on the Folly Lane site, and the comparatively late date of the Colchester road (see above, p. 76), is further proof that the crossing point of the river in the first century lay upstream from the later crossing outside the north-east gate of the Roman town (FIG. 117).

No doubt the trackway also provided a convenient point from which to make ritual deposits in the marsh. Certainly a large number of small objects were found in the river peat close to the trackway, some if not all of which must have been deliberately thrown in, presumably as votive offerings. In addition to a substantial quantity of pottery (including early grog-tempered wares) and animal bone, six fragments of cavalry fittings and five pre-Claudian and Claudian coins, the peat beneath and adjacent to the layer of brushwood included a small enamelled brooch, in the form of a helmeted horseman. Close parallels exist in the small horsemen brooches from Hayling Island, Lamyatt Beacon and elsewhere (Leech 1986, 316–19, fig. 34; also Dix and Taylor 1988, 334, fig. 19) where they form votive offerings at shrines. The same deposit yielded a small plaque depicting a river deity.[9] The fine bronze skillet in apparently pristine condition from the same peat deposit is also likely to be a deliberate deposit, rather than accidental loss (Anthony 1970, pl. 4). Not all this material necessarily dates from the conquest or pre-conquest period, although a large quantity of coin pellet moulds (1.5 kg) found in 1992 during a watching brief in silt and peat 80 m south-east of the trackway, must be of this date and may also be a ritual deposit.

The St Michaels enclosure can therefore be seen to have differed from other contemporary enclosures in three important respects. It lay well away for the preferred position for 'normal' farmsteads in the oppidum, on the edge of the clay-with-flints plateau. It lay close to an arguably ritual site beneath the *insula* XVI temple, and adjacent to the marsh, which almost certainly had a strong religious significance. Finally, the concentration of metalworking debris around it is unparalleled on other sites in Verlamion. At the same time it is clear that there was a special relationship between the St Michaels enclosure, and the Folly Lane enclosure. The Folly Lane enclosure in its imposing position, overlooking the centre of the Roman town, was clearly designed to be viewed from the valley floor. Like the medieval abbey of St Alban, in later centuries, the Folly Lane site was chosen, not because it was the highest point, but because it occupied the skyline when viewed from the centre of Verlamion, and by anyone approaching the town.

It goes without saying that the Folly Lane enclosure was an exceptionally important site, and it has been argued above that the St Michaels enclosure also had a special status. The precise relationship between the two enclosures is the next question to be addressed, and of crucial importance in this context is their relative date. The initial date of the St Michaels enclosure has not yet been established but as the ditch was already turfed over by the Claudian period, it is unlikely to have been dug much after *c.* A.D. 25–30, and may well be significantly earlier. As discussed above (p. 57) there is evidence to suggest that the Folly Lane enclosure may have surrounded an earlier ritual site, predating the main burial in *c.* A.D. 55. If this was the case, both enclosures could well have been contemporary, forming a single scheme involving two high status or ceremonial enclosures linked with each other by the timber track. On the other hand, if the Folly Lane enclosure was not laid out until shortly before the burial took place, it must date from a time when the St Michaels enclosure ditch was already being allowed to fill with silt and rubbish. At present there is insufficient evidence to decide between these two possibilities.

What is clear however is that when the burial took place ten years or so after the conquest of A.D. 43, its position was deliberately chosen so as to be seen from the central area of the emerging

Roman town (FIG. 117). If the line of the road leading to the timber track is projected north-east, it runs directly to the entrance into the Folly Lane enclosure. If the road line is projected southwards, it can be seen to leave the early town at a small change in alignment in the 1955 ditch. The 1955 ditch defined the Roman town in the later first century A.D. and the change of alignment in it may well reflect the original, southern entrance, just as a change in the ditch's alignment on the north-east side of the town coincided with the point at which Watling Street entered the town. South-west of the town, in Pond Field, a causeway over the 'Wheeler' ditch also lies on the projected line of this road (Wheeler and Wheeler 1936, pl. XII). In other words, it appears that the main road through early Verulamium ran on the west side of the Forum site, and was aligned on the Folly Lane enclosure. There is growing evidence to suggest that the plan of the Roman town was heavily influenced by pre-existing land use. The position of the Roman forum, overlying the St Michaels enclosure, is unlikely to be coincidental, while, as we have seen, the temples in *insulae* VII and XVI and the metalworking shops in *insula* XIV may all have their origins in the pre-Roman period. The 'timber tower' trackway may well date from before the conquest, in which case the street leading to it is likely to be of similarly early date. The Folly Lane excavation demonstrated that it was not until the second century, that the 'Colchester' road was laid out. This road then became the main 'through' road in Verulamium running along the east side of the Forum and leaving the town through the Silchester and North Gates (FIG. 118). In the King Harry Lane cemetery the southern extension of this road, was dated by Stead and Rigby to the Flavian period on the basis of pottery found beneath it (Stead and Rigby 1989, 11). It need hardly be pointed out that this pottery simply provided a *terminus post quem* for the road's construction, and it was not until the second century that ribbon development started to build up along it.

FOLLY LANE AND ROMAN VERULAMIUM

There is no convincing reason to suppose that the remains buried in the Folly Lane enclosure were not those of one, adult, individual; in view of the nature of the pyre goods this was probably a man. Nor is there any evidence to suggest this was a sacrificial or votive deposit comparable to rather earlier deposits in northern France (Bruneaux 1986). Nevertheless, it is clear that the person was someone of exceptional importance and while his precise identity will never be known, it is possible to speculate as to the type of person he is likely to have been. The quality of the pyre goods alone would suggest an aristocratic burial. Added to this is the size of the surrounding enclosure, the isolation of the burial within it, the imposing position of the site, well away from contemporary cemeteries, and the elaborate design of the mortuary shaft. These factors, together with the subsequent construction of the temple and the continued veneration of the site, all suggest that he came from an élite group which was able to maintain its power, position and wealth after the conquest. The way in which the site dominates the St Michaels enclosure strongly suggests that this élite controlled the Verlamion 'oppidum', while the fact that early Roman Verulamium itself seems to respect an established layout, implies that this élite continued to influence the town's development after the conquest.

The continuing influence of a local élite in the conquest and early Roman periods, implies, in turn, that there was at least an element of pro-Roman sympathy amongst the Catuvellaunian aristocracy. A friendly aristocracy, together with a well developed local centre at Verlamion, would provide ideal conditions for the establishment of a client kingdom at the time of the conquest, and subsequently a *municipium*. It would not be straying too far beyond the evidence to suggest that the occupant of the Folly Lane burial was a local magnate, perhaps a member of the Catuvellaunian/Trinovantian 'royal family' who was established as a client ruler at the time of the conquest. Only after his death, which had certainly taken place by *c.* 55, was the area incorporated into the new province; this may also have been the point when the emerging town was granted the status of *municipium*.

Foster has suggested that the occupant of the Folly Lane burial had served in the Roman army (Foster, this volume, p. 176); if so he would have been conversant with many Roman religious, administrative and legal practices and so ideally fitted to introduce them at Verlamion.

After his death, the local aristocracy were no doubt encouraged to continue the process, much as described by Tacitus a generation later (*Agricola*, 21). It is not certain when the St Michaels enclosure, arguably the administrative centre of pre-Roman Verlamion, was replaced by the Forum of Roman Verulamium. Certainly the ditch of the earlier enclosure had been allowed to silt up by the Claudian period (Frere 1983, 3, 193), while the Flavian Forum-Basilica complex is known to overlay an earlier masonry structure. Whether this was part of an earlier Forum is unknown, although this is not unlikely; it may well never have been completed (Page and Taylor 1914, 131, pl. IV).

Assuming pre-Flavian Verulamium was the centre for a pro-Roman element in the Catuvellaunian/Trinovantian confederacy, it is not surprising that it was singled out for attack during the Boudiccan revolt. By A.D. 61 the town already covered some 50 acres, and included workshops, occupation sites, a masonry bath house and the nucleus of a street grid, aligned on the road leading to the timber tower. Within this area are traces of pre-Flavian destruction, destruction which it is reasonable to attribute to Boudicca (Niblett and Thompson 1993, 86, fig. 7; also, Niblett and Thompson forthcoming). At Folly Lane evidence for the revolt is non-existent, but it is difficult to see how destruction here would leave any archaeological trace, especially if the temple had not yet been built. The sacking of the town however resulted in severe disruption; afterwards the site of the *insula* XIV workshops lay derelict for at least fifteen years, the Flavian Forum and Basilica were not completed for nearly twenty years (Frere 1983, 8, 71), and the baths in *insula* XIX were not replaced for at least thirty years (Niblett and Thompson forthcoming). It is possible that the inhumations found in cemetery enclosure ditches at Folly Lane, King Harry Lane, Verulam Hills Field and St Stephen's are also evidence of local catastrophe. If these remains represent burials which relatives were intending to 'retrieve' as part of the sort of prolonged burial ritual discussed above, the sudden spate of 'unretrieved' inhumations dating from the mid-first century could be due to the dispersal or death of local families in A.D. 61. Complex funerary rites of exposure and subsequent cremation may only be recognized archaeologically when the process was interrupted by an event such as the Boudiccan revolt. There is no indication that any of the inhumations were of people who were themselves victims of the rebels.

Although the development of the Roman town indubitably suffered a setback in A.D. 61, the process was re-established during the Flavian period. No doubt the practice of drafting members of the local élite into the Roman army continued here, much as it did in the post-conquest period in northern France (Fichtl 1994, 96), with the result that by the third quarter of the first century members of the local aristocracy were well used to participating in the numerous official ceremonies that were so marked a feature of the military calendar (Henig 1984, 26–35). These ceremonies, although conducted in Classical temples and particularly concerned with the state religion of Rome, would also have acknowledged local and provincial gods. It is thus hardly surprising to find a classical temple attached to the Verulamium Forum, on the site of the earlier St Michaels enclosure, while 175 m to the north-west the large, Romano-Celtic temple was built in *insula* XVI in *c.* A.D. 90 (Lowther 1937). The Folly Lane temple, overlooking both sites, and connected to them by road, probably dates from the same period and provides a particularly vivid illustration of the process of Romanization in Verulamium. The construction of the Romano-Celtic temple at Folly Lane, venerating a local hero, presents an interesting contrast to the near contemporary reconstruction of the classical temple to the imperial cult at Colchester. Both temples stood a short distance outside the contemporary town, both must have been the focus for important ceremonies, yet the rulers in whose honour they were erected could hardly have been more different.

The first half of the second century saw increased activity on the valley side below the Folly Lane temple. Pits were dug in the terminals of the main enclosure ditch, as were the first of the deep, and presumably ritual, shafts. However, the period of greatest ritual activity on the site was during the later part of the second century, when it formed part of an extensive complex extending on both sides of the river valley. This complex comprised five main elements, i.e. the Folly Lane temple and precinct, the ritual shafts on the lower slope, the Branch Road bath house, the Verulamium theatre and the *insula* XVI temple (FIG. 118).

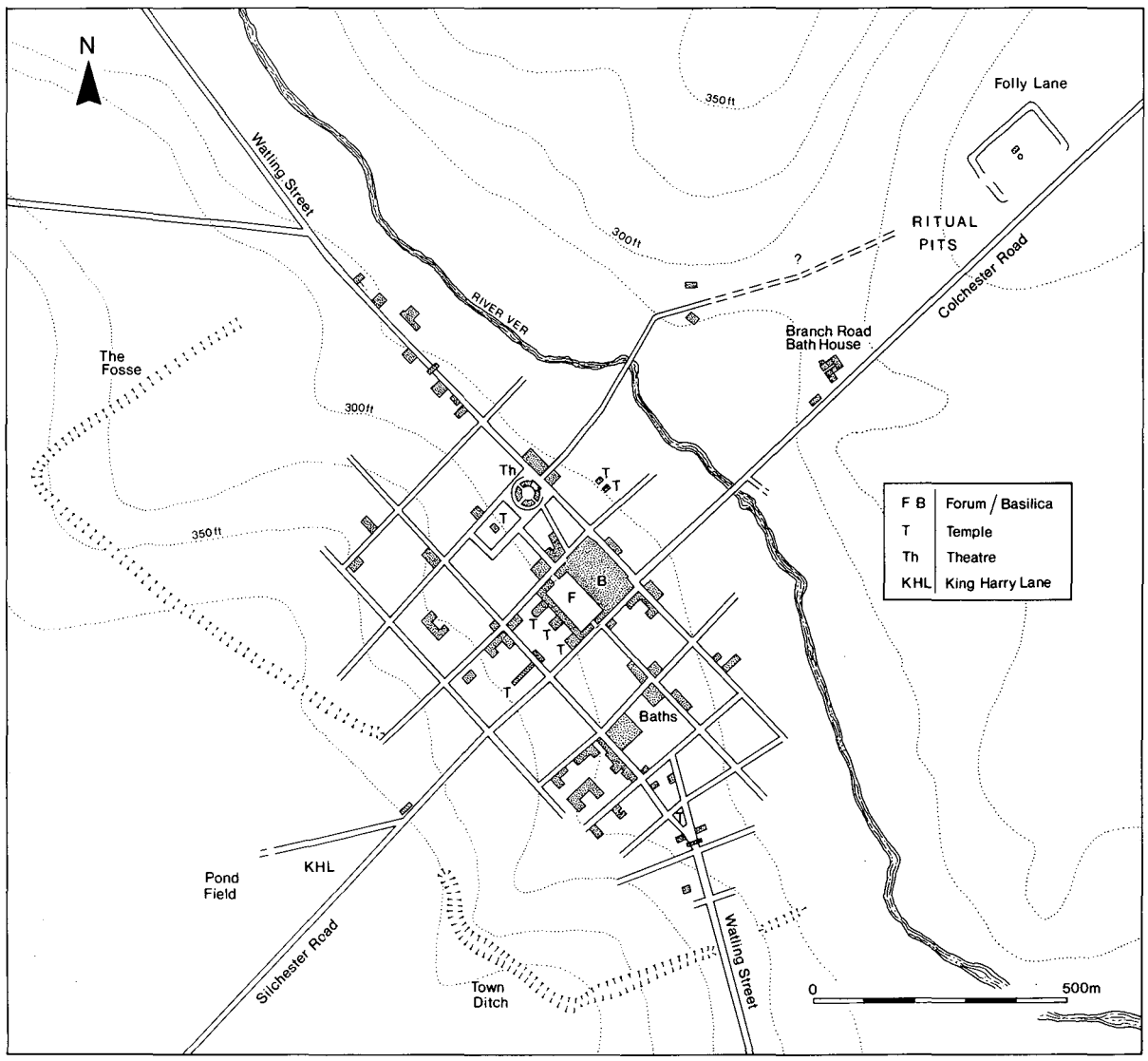


FIG. 118. Verulamium in the late second century.

THE FOLLY LANE TEMPLE AND PRECINCT

This has been discussed fully above (p. 65). At the start of period 5 (*c.* A.D. 140) the Ceremonial Enclosure was refurbished; the enclosure ditch was levelled, and its southern arm, visible from the Roman town, was marked out by a surface of chalk; the precinct palisade may have been renewed.

The siting of the temple in relation to the turf stack above the period 3 funerary shaft and burial, suggests that the cult originated as a hero or ancestor cult. The row of shallow scoops and stakeholes between the temple and the turf stack appear to represent offerings made in the Roman period. They are reminiscent of the rows of pits containing votive deposits at the foot of the barrows over the burials at Clemency and Goeblingen-Nospelt, where offerings continued to be made during the early Roman period (Metzler *et al.* 1991; Metzler 1991, 41). If, as has been suggested, the occupant of the Folly Lane burial was a tribal leader, this cult could in time have become a tribal or dynastic cult, concerned with the general welfare, health and fertility of the tribe and its land.

THE SHAFTS

Altogether forty or more deep pits, many of them probably votive, were found on the Folly Lane site, most of them dating from periods 5 and 6. 175 metres south of Folly Lane, rescue

excavations on Mount Pleasant in 1966, revealed two further examples,[10] and still more were recorded, although not excavated, south and west of the Branch Road bath house in 1973 (C. Saunders, pers. comm.). More pits may once have existed west of the bath house but there had been extensive disturbance here in the nineteenth century.

The occasional presence of deep pits appears to be a feature of local cremation cemeteries although they generally seem to postdate the burials in their immediate vicinity. These pits did not contain burials but were apparently used for votive offerings. In 1985 a 2 m deep pit, with vertical sides and a flat base, was excavated on the western edge of the St Stephen's cemetery. The pit contained a pipeclay figurine, two complete beakers and an early third-century coin but there was no associated burial (C. Saunders, pers. comm.). A similar pit, 30 m further east, contained three beakers and a denarius of Severus Alexander. Close by was a large late Roman pit, only partially excavated, which contained two horse skulls in its upper fill. Green and others have stressed the chthonic nature of the rites associated with deep shafts and with specific types of offering in them, notably dogs, human remains and birds (Green 1986, 133–5; Ross 1967, 24–8; Galliou 1989, 60–3; Webster 1995, 451–2). Analysis of the animal bone from the Folly Lane shafts shows slightly higher percentages of dog and horse remains than from normal domestic and industrial contexts (p. 343). It is also interesting to note the remains of three dogs in one of the Mount Pleasant shafts, and the skulls of eleven and eight dogs in late second- and third-century pits in *insulae* IV (Wheeler and Wheeler 1936, 104) and XXVIII (Frere 1983, 274). The incidence of stray human bones on the site has already been noted (p. 404), and shaft AET is particularly significant. The base of this feature produced remains of two young dogs and the skull of a young man who had been killed by a blow to the head; the skull had immediately been defleshed and the face cut away, suggesting that it was the skull rather than the head that was the cult object (p. 319). Other pits produced face urns, some of which also seem to have had the face deliberately removed (p. 301). Bird bones are not well represented at Folly Lane, although the possible fragment from a bird statuette from the period 3 pyre (FIG. 60.48), a tiny bronze owl found by a metal detectorist on the site (Appendix 2, FIG. 121), and the clay figurine from a late Roman cellar (FIG. 70) may all be significant. Taken together the evidence suggests that the Folly Lane temple was a focus for a chthonic cult with a floruit during periods 5 and 6 in the later second and third centuries.

THE BRANCH ROAD BATH HOUSE

The Branch Road bath house, 150 m south-east of the Folly Lane temple was built in about A.D. 150 during this floruit, and shortly after the refurbishment of the Ceremonial Enclosure at the start of period 5. The bath house was a substantial building facing away from Verulamium and towards the Folly Lane temple.[11] Water was supplied by a small stream in the now dry valley north-east of the bath house. Heavy masonry footings noted during building work immediately north-east of the line of the Colchester road, and apparently of Roman date, are presumably remains of a bridge or aqueduct at the point where the road crossed the valley (C. Saunders, pers. comm.).

THE COLCHESTER ROAD

The Colchester road provided a direct link between the Folly Lane temple and the bath house and was laid out at the start of period 5. Road 1 and the timber tower trackway had gone out of use by the later second century. The trackway itself was overlain by a metre high bank containing coins of Hadrian and Antoninus Pius (Anthony 1970, 54), while timber buildings south of the Branch Road bath house apparently fronted onto the Colchester road (C. Saunders, pers comm.). These buildings produced Flavian and Trajanic material, although it is not known how much of this was residual. As noted above (p. 95), in area M of the Folly Lane site, the Colchester road itself overlay early second-century material.

THE *INSULA* XVI TEMPLE

This large Roman-Celtic temple was excavated by W. H. G. Lowther in 1936 (Lowther 1937; see also Lewis 1966). It lay on the south-west side of the theatre and occupied a large precinct, surrounded by a double wall. Lowther dated the original construction of the theatre to *c.* A.D. 90, although Lyne has tentatively suggested a slightly later date (above p. 404). Two small Romano-Celtic temples (known only from air photographs) in *insula* XVII may also be part of the complex (FIG. 118).

THE THEATRE

The theatre, first built in *c.* A.D. 150 (Kenyon 1935, 215), was contemporary with the refurbished Ceremonial Enclosure and the Branch Road bath house. It was presumably used as the venue for rites requiring a large audience. This may have been particularly necessary once the grandstand provided by the bank round the Ceremonial Enclosure had been levelled at the start of period 5. The theatre faced towards the Folly Lane temple, which would have been visible from the auditiorium. At this period however, the theatre consisted of an enlarged, oval arena, with a small simple stage attached to the southern side, forcing a proportion of the *cavea* to face away from the stage (Kenyon 1935, 215–22).

A road led from the theatre, across the flood plain of the Ver, and is visible on aerial photographs on the other side of the river where it runs north-east for 85 m before turning north-eastwards for 100 metres. Thereafter it is lost in an area of nineteenth-century disturbance and modern building, but it appears to be heading towards the Folly Lane temple; in this way it can be seen to replace the earlier timber trackway in providing a direct link between Folly Lane and the theatre.

THE THEATRE/TEMPLES COMPLEX

The combination of temple, baths and theatre is paralleled at the Gosbecks site, outside Colchester, as well as being widespread on the Continent. The baths and mausoleum 4 km west of Folly Lane at Wood Lane End have already been noted. Here worshippers presumably underwent purification rituals before or after entering the temple area. At Folly Lane the Branch Road bath house must have served a similar function.

The whole complex of temples, bath house and theatre has obvious similarities to the temple/theatre sites at Harlow (France and Gobel 1985), Frilford (Lewis 1966, 81–2) and Gosbecks (Hull 1958; Dunnett 1971) and to the forty or so similar complexes in northern and central Gaul (Aupert 1992, 31–5; Bouley 1992, 79; Cadoux 1992, 89). Although Aupert (1992, 35) warns that in Gaul evidence for occupation, industry and cemeteries may have been overlooked in the past, most of these religious complexes were clearly rural, and sited well away from major urban centres. The Folly Lane complex was therefore unusual in lying partly within the *municipium* itself, and presumably wholly within its *territorium*. In this respect the Folly Lane complex is more comparable to the sanctuary of Mars Lenus, on the opposite side of the river to Roman Trier. This complex did not include a theatre, but appears to have been an important religious site, administered by the *colonia* but with provision from representatives from the surrounding *pagi* (Scheid 1992).

As part of a religious complex, the Folly Lane site may only have been used seasonally. Successive deposits of silt built up against the north-east side of the Branch Road bath house during its lifetime, suggesting fairly sporadic use of the area, and consistent with a building that was only used at times of festivals, or seasonal markets. It is possible that the Branch Road bath house was also used by the townspeople when the town baths in *insula* III (Frere 1989, 300) were destroyed during the fire of 155; this would only have been an interim measure however, as the *insula* III baths were subsequently rebuilt.

Industrial occupation had already started to spread alongside the Colchester road during periods 5 and 6. The cellars in area P are very similar to the sunken features along side the Silchester road on the south of Verulamium, and there is also evidence for metal, leather and

bone working on the site. Whether these activities took place on a seasonal basis, or whether there were permanent workshops, is not known.

By the end of the third century however, the religious importance of the site was in decline, and at the start of period 7 in the early fourth century the temple itself seems to have been deserted. The hollow over the enclosure ditch was now filled with rubbish, and there is evidence to suggest the deliberate in- filling of pits, and the levelling of hollows over earlier shafts, using redeposited material from middens (Lyne, this volume, p. 302). Certainly no new votive pits were dug after the early fourth century. The Branch Road bath house had already been abandoned and by the mid-third century, it had been deliberately demolished; furthermore, the presence of layers of silt over the robbed remains suggests that the water supply that had fed the baths was no longer maintained (C. Saunders, pers. comm.). In about 300 the theatre itself was remodelled when the *orchestra* was reduced in size and the stage enlarged and embellished, rendering the building more like a classical theatre.

THE SITE IN THE LATER ROMAN PERIOD

The reason for the decline of the religious complex in the course of the later third century is still obscure. It does not seem to have been a sudden event, although the final levelling of the site at the end of period 6, in the early fourth century, may have been a single operation before the western part of the site was turned over to agriculture. If the Folly Lane cult had been associated with a particular family, the final extinction of the dynasty could account for the site's abandonment. Such may have been the reason for the desertion of the Wood Lane End site a century earlier. On the other hand, one would expect the end of a dynasty to coincide with an abrupt abandonment of the site (as was the case at Wood Lane End) rather than a gradual decline. In fact the demise of the religious aspect of Folly Lane may be part of a more widespread phenomenon. The Gosbecks theatre was also abandoned in the third century (Dunnett 1971), while the rural religious complexes in Gaul generally fell into disuse in the course of the third century, and none survived into the fourth (Aupert 1992, 34).

A possible explanation for the decline of the religious importance of Folly Lane must be the rise of Christianity. By the end of the Roman period St Alban was a widely venerated martyr. Although the earliest known sources[12] do not explicitly associate Alban with Verulamium, the detailed description of the topography of the site of the martyrdom fit the site of Verulamium and of St Albans Abbey, while Gildas, writing in *c.* 540, but possibly using earlier sources, describes Alban as coming from Verulamium; two centuries later Bede places the site of the martyrdom and burial at Verulamium, and refers to an existing church on the spot. By the middle Saxon period the tradition that Alban was buried close to the site of the later Norman Abbey was firmly established, and Martin and Birthe Biddle have argued that the martyr's grave lay somewhere to the south of the Norman nave. They have excavated the edge of a late Roman cemetery beneath the northern side of the Norman cloisters, and have suggested that the core of the cemetery, including the grave of Alban, lay further south.[13]

Such a position, on the edge of the plateau overlooking the Roman town, would mirror the position of the Folly Lane burial and temple; although it would not have overlooked the Forum to such as extent as did the Folly Lane temple, from the Roman town, a shrine over Alban's grave would have been visible on the skyline.

It is difficult to know when Christianity first became a major influence in the town. Morris argued that the martyrdom of Alban took place in the early third century, probably in 209 (Morris 1968, 3). This date has not been universally accepted, and Thomas (1982, 48–50) favours a rather later date, during the persecutions of Decius (250–1) or Valerian (257–9). What is important in this context, however, is that all three dates fall within period 6, when the Folly Lane complex was still operational, even though the bath house may have already gone out of use. The *insula* XVI temple continued in use and the theatre was refurbished in the early fourth century.

It seems unlikely that Christianity became a serious rival to paganism in Verulamium until some considerable time after the supposed date of the martyrdom. This does not fit particularly

well with a model that relies on rampant Christianity as the prime cause of the decline of Folly Lane. Up until the end of period 6 (late third/early fourth century) the Folly Lane site had clearly been an important focus, not just for the town of Verulamium, but also for the surrounding area, no doubt attracting large number of people to festivals and seasonal markets. For centuries Verulamium had been the home of a cult centre, based on the burial place of a (doubtless heroic) tribal leader. By the end of the Roman period another religious centre had emerged, occupying a similar position in relation to Verulamium and the river valley and which may also have had elements of a head cult. According to tradition, Alban was beheaded, and although this is not explicitly stated in the earliest sources, the sentence in the *Passio*, '. . . occurrit stricto gladio carnifex . . .', strongly implies that this was the method of execution. It is eminently likely that, in an effort to divert local allegiance away from the Folly Lane site, the early Church in Verulamium deliberately promoted the site of the later Abbey. Like the Folly Lane site, this combined a hero cult, a head cult and a death and resurrection cult. Much of the reason for the early importance of the shrine of St Alban may have been because for generations the rural population of the area had been accustomed to come to Verulamium for seasonal festivals. With the eventual adoption of Christianity as the official state religion, the focus of their annual pilgrimage was simply transferred from Folly Lane to the neighbouring hill top 900 m to the south-east.

After the demise of the religious complex at Folly Lane, occupation was concentrated along the Colchester road. This contrasts with the situation along the Silchester road on the south of the town, where the road side occupation ceased at the end of the third century, presumably

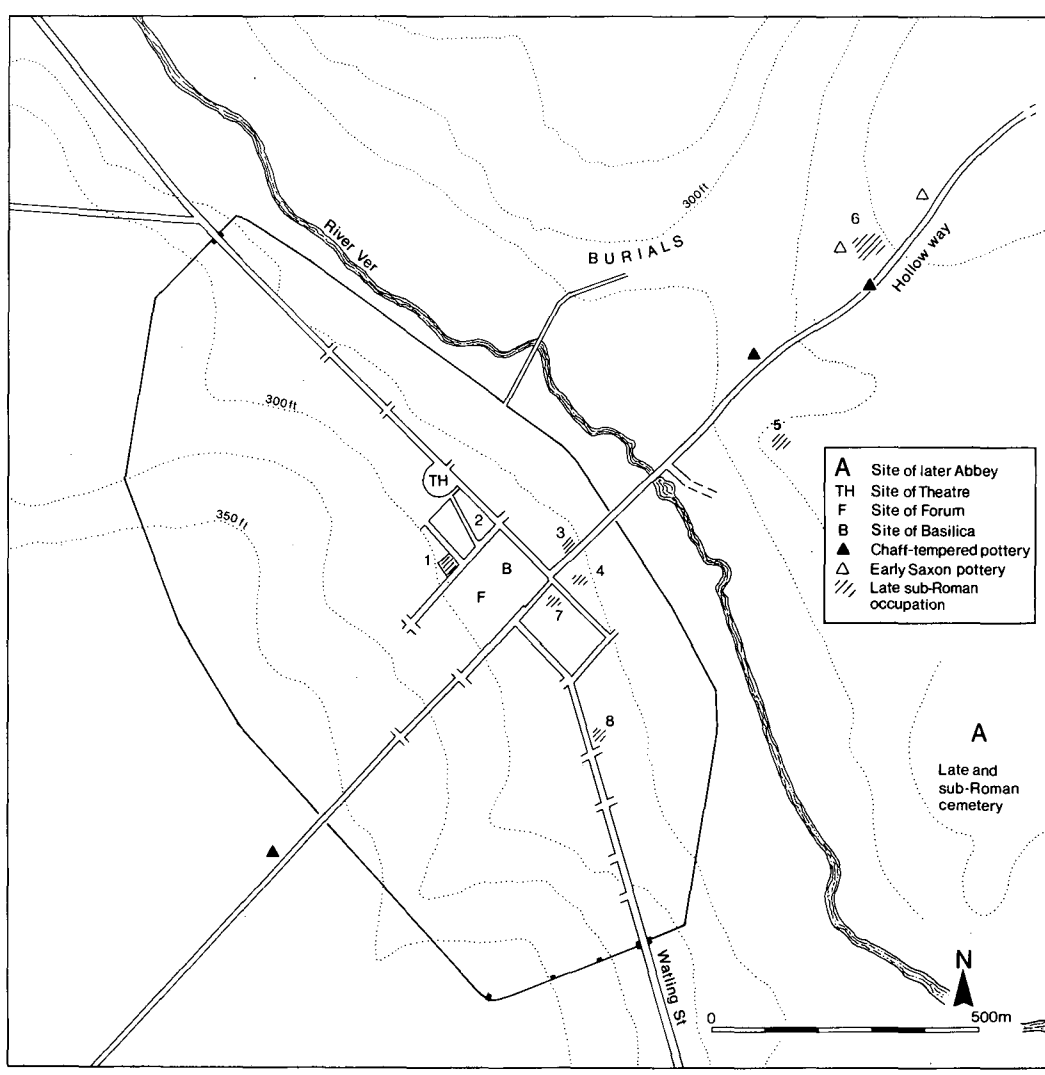


FIG. 119. Late and sub-Roman Verulamium.

with the construction of the town wall. The reasons for this difference are not known. It may simply have been due to the fact that when the wall was built, the Folly Lane religious complex was still operating, and that this over rode any other incentives to move into the walled area. Certainly the Colchester road seems to have remained an important route to the north into the sub-Roman period. The distribution of chaff-tempered ware and post-built structures dating from a post-Roman, aceramic period (FIG. 119), suggests that occupation in sub-Roman Verulamium took the form of ribbon development along this road, and that this occupation may have persisted into the sixth and seventh centuries.[14]

Notes to Part Five

1. Pers. comm. Michael Freeman, who watched the site throughout the building operations, and conducted salvage excavation.
2. The cemetery lies 500 m south of the London Gate of Verulamium, on either side of Watling Street. It was first excavated in the mid-1930s (Davy 1933; 1935). Major excavations on the cemetery were undertaken by A. B. Havercroft for the St Albans Museum Service, between 1984 and 1986. I am grateful to Mr Havercroft for information regarding it.
3. The practice might even hark back to the earlier rites at Gournay-sur-Aronde and Ribemont-sur-Ancre where bodies were exposed in ditches round sacred sites (Bruneaux 1986, 17–26).
4. Information from the Hertfordshire Archaeological Trust, who conducted excavations on the site in 1995.
5. I am grateful to Mr C. Saunders for information on excavations in the 1980s in advance of extensions to the Aubrey Park Hotel on the south side of the interior, and to Mr S. West for information on trial trenches cut across the defences on the east side of the hill fort, in advance of the widening of the M1 motorway.
6. The occupation at Bedmond correspond to Hunn's area of 'Belgic Pottery' (his fig. 3) 800 m south of Prae Wood; Mayne Avenue with his F259, Pond Field with F257.
7. An excavation in *insula* XIII by the St Albans Museum and Cardiff University is as yet unpublished. For the excavation beneath the *macellum* see Richardson 1944, 82.
8. An unpublished report on molluscs from the river peat beneath the timber tower reflects a slow moving river and areas of stagnant water. Other deposits of peat — *insula* XVII (Frere 1983, 273); *insula* XIX (Saunders, pers. comm.); Abbey Mill (Niblett 1992, 57).
9. I am grateful to Martin Henig for commenting on this figure.
10. Verulamium Museum records. St Albans Archaeological Urban Database, monument nos 5–6.
11. The bath house was excavated by Mr C. Saunders and I am grateful to him for information on the site, in advance of publication. For a summary report of the excavation see Saunders and Havercroft 1978 and *Britannia*, 6 (1975), 258, fig. 12.
12. Constantius *Vita Germani*, written *c.* 480 and quoted in *Passio Albani*, which was probably written in Gaul in *c.* 500 and which survives in corrupt eighth- and ninth-century copies.
13. I am grateful to Martin and Birthe Biddle for information on their work at St Albans.
14. For chaff-tempered pottery south of Verulamium see Stead and Rigby 1989, 222, 238, figs. 78, 83; for apparently post-Roman timber buildings in *insulae* II and XVIII, Frere 1987, 29 and Frere 1977, 401; and for post-built structures south of the Folly Lane site see Saunders and Havercroft 1978, 1–15, figs 1–2.

APPENDIX ONE

GEOPHYSICAL SURVEY: SUMMARY OF THE RESULTS
***by* P. P. Barker**

The survey confirmed the location of the north corner of the main ditch to the Ceremonial Enclosure. In addition, several other features have been found which may relate to further pits.

INTRODUCTION

Background synopsis

The development of a site for housing on the western side of St Albans resulted in rescue excavations taking place over the 1991/2 winter. These excavations revealed a large ritual enclosure believed to be late Iron Age and contains, amongst other features, the burial of a contemporary local chieftain and a Romano-Celtic temple.

The housing development covers a little over half of the enclosure as shown in FIGURE 120. In order to assess the north-western part of the site this geophysical survey was commissioned.

Site location

The site is located within the western suburbs of St Albans at OS Ref. TL 142 081. It lies near the crest of a hill overlooking the River Ver to the south-west.

Description of the site

The survey site, at the time of the survey, was grassed and used as a play and recreation area for the surrounding housing. The soils are generally fine and silty over clayey subsoils derived from Plateau drift and clay-with-flints.

Site history and archaeological potential (see FIG. 120)

The site lies within the general area of the pre-Roman *oppidum* of St Albans. An Iron Age ditch passes some 50 m to the south of the site. The site itself has been shown to be a large rectangular enclosure 100 m wide by 150 m long surrounded by a substantial V-shaped ditch, 3 m deep. Three human skeletons were found in this ditch close to the south-western entrance to the enclosure. This ditch is thought to be late Iron Age in date.

During the middle part of the first century A.D. a large burial pit was dug in the centre of the enclosure. This contained cremated bone remains as well as rich grave goods. These are all thought to be the burial of an important member of the ruling Catuvellanian family who died in the years immediately following the Roman invasion.

Later, a Romano-Celtic temple 18 m by 15 m in size was constructed some 8 m to the north of the burial.

Survey objectives

The objectives of this geophysical survey were threefold:

1. To locate and plot the extent of the enclosure ditch.

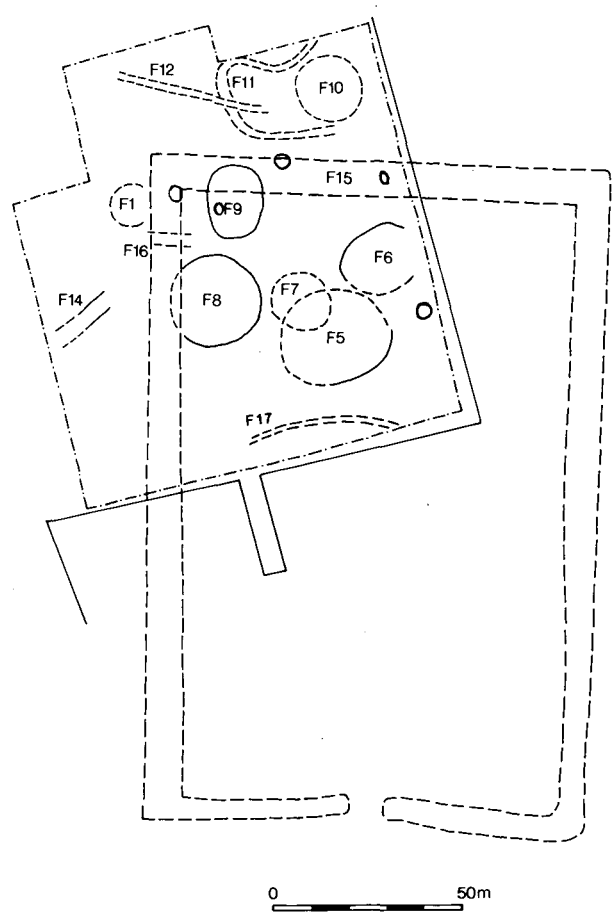


FIG. 120. Major anomalies detected north-east of the excavated areas in a geophysical survey, 1996.

2. To assess the north-west part of the enclosure, for the presence of archaeological features.
3. To aid in the preparation of a management plan to help ensure the preservation of the site.

Survey methods

Two techniques were selected for the survey:

1. An intensive resistivity survey to locate the enclosure ditch and any other burial pits or structures that may exist within the site.
2. A magnetometer survey to locate the thermoremanent effects of cremation fires and ferrous metal objects within the site. Also, should the susceptibility of the soils allow, the remains of ditches and pits.

METHODOLOGY

Dates of the fieldwork

The survey was carried out between 22 and 28 of October 1996 when the weather was mainly dry.

Grid locations

The positions of the 20 m square grids used for the survey are shown in the site archive, together with their referencing.

Description of techniques and equipment configurations

Magnetometer

Although the changes in the magnetic field resulting from differing features in the soil are usually weak, changes as small as 0.2 nanoTesla (nT) in an overall field strength of 48,000nT can be accurately detected using an appropriate instrument.

The mapping of the anomaly in a systematic manner will allow an estimate of the type of material present beneath the surface. Strong magnetic anomalies, known as thermoremanent effects, will be generated by buried iron-based objects or by kilns or hearths. More subtle anomalies such as pits and ditches can be seen if they contain more humic material which is normally rich in magnetic iron oxides when compared with the subsoil.

To illustrate this point, the cutting and subsequent silting or backfilling of a ditch may result in a larger volume of weakly magnetic material being accumulated in the trench compared to the undisturbed subsoil. A weak magnetic anomaly should therefore appear in plan along the line of the ditch.

The magnetic survey was carried out using an FM36 Fluxgate Gradiometer, manufactured by Geoscan Research. The instrument consists of two fluxgates mounted 0.5 m vertically apart, and very accurately aligned to nullify the effects of the earth's magnetic field. Readings relate to the difference in localized magnetic anomalies compared with the general magnetic background.

Resistance meter

This method relies on the relative inability of soils (and objects within the soil) to conduct an electrical current which is passed through them. As resistivity is linked to moisture content, and therefore porosity, hard dense features such as rock will give a relatively high resistivity response, while features such as a ditch which retains moisture give a relatively low response.

The resistance meter used was a RM 15 manufactured by Geoscan Research incorporating a mobile Twin Probe Array. The Twin Probes are separated by 0.5 m and the associated remote probes were positioned approximately 15 m outside the grid. The instrument uses an automatic data logger which permits the data to be recorded as the survey progresses for later downloading to a computer for processing and presentation.

Though the values being logged are actually resistances in ohms they are directly proportional to resistivity (ohm-metres) as the same probe configuration was used throughout.

Sampling interval, depth of scan, resolution and data capture

Magnetometer

Readings were taken at 0.25 m centres along traverses 1 m apart. This equates to 1600 sampling points in a full 20 m by 20 m grid. All traverses are surveyed in a 'parallel', rather than 'zigzag' mode.

Resistivity

Readings were taken at 0.5 m centres along traverses 0.5 m apart. This equates to 1600 points in a full 20 m by 20 m grid. All traverses were surveyed in a 'zigzag' mode.

Depth of scan and resolution: magnetometer

The FM36 has a typical depth of penetration of 0.5 m to 1.0 m. This would be increased if strongly magnetic objects have been buried in the site. The collection of data at 0.25 m centres provides an optimum resolution for the technique.

Resistivity

The 0.5 m probe spacing of a twin probe array has a typical depth of penetration of 0.5 m to 1.0 m. The collection of data at 0.5 m centres with a 0.5 m probe spacing provides an optimum resolution for the technique.

Data capture: magnetometer

The readings are logged consecutively into the data logger which in turn is daily downloaded into a portable computer whilst on site. At the end of each job, data is transferred to the office for processing and presentation.

Resistivity

The readings are logged consecutively into the data logger which in turn is daily downloaded into a portable computer whilst on site. At the end of each job, data is transferred to the office for processing and presentation.

Processing, presentation of results and interpretation

Processing: magnetometer

Processing is performed using specialist software known as *Geoplot 2*. This can emphasize various aspects contained within the data but which are often not easily seen in the raw data. Basic processing of the magnetic data involves 'flattening' the background levels with respect to adjacent traverses and adjacent grids. 'Despiking' is also performed to remove the anomalies resulting from small iron objects often found on agricultural land. Once the basic processing has flattened the background it is possible to carry out further processing which may include low pass filtering to reduce 'noise' in the data and hence emphasize the archaeological or man-made anomalies.

The following schedule shows the basic processing carried out on all processed magnetometer data used in this report:

Zero mean grid	Threshold = 0. 25. std.dev.
Zero mean traverse	Least mean square fit = off
Despike	X radius = 1, Y radius = 1
	Threshold = 3 std.dev.
Resistivity	Spike replacement = mean

Resistivity

The processing was carried out using specialist software known as *Geoplot 2* and involved the 'despiking' of high contact resistance readings and the passing of the data though a high pass filter. This has the effect of removing the larger variations in the data often associated with geological 'features'. The net effect is aimed at enhancing the archaeological or man-made anomalies contained in the data.

The following schedule shows the processing carried out on the processed resistance plots:

Despike	X radius = 1
	Y radius = 1
	Spike replacement = Mean
High pass filter	X radius = 10
	Y radius = 10
	Weighting = Gaussian

Presentation of results and interpretation

Magnetometer

The presentation of the data for the site involves a print-out of the raw data both as grey scale and trace plots, together with grey scale plots of the processed data, and if appropriate, after further processing to emphasize various aspects within the data. Magnetic anomalies have been identified and plotted onto the 'Abstraction of Anomalies' drawing for the site (in the site archive) and numbered for ease of reference and prefixed with the letter 'M'. An interpretative plot of these anomalies has also been included in FIGURE 120 where interpreted features have been numbered with an 'F' prefix.

Resistivity

The presentation of the data for the site involves a print-out of the raw data as a grey scale plot, together with grey scale plots of the processed data. Anomalies have been identified and plotted onto the 'Abstraction of Anomalies' drawing (in the site archive), numbered for ease of reference and prefixed with the letter 'R'. An interpretative plot of these anomalies has also been included in the archive where interpreted features have been numbered with an 'F' prefix.

RESULTS

The magnetometer survey

The magnetometer survey has found a number of strong discrete thermoremanent responses at various locations in the site. In addition the rectilinear feature M1 was found which is thought to be a modern pipeline (F4 in FIG. 120). Despite further processing of the data no indication of ditches or pits were found apart from what may be a weak response from the enclosure ditch, and which is labelled M15. It is interesting to note the very noisy nature of the site indicating a large number of ferrous objects on the site. Of course it is not possible to give a date for this proliferation of material.

In looking at the stronger thermoremanent responses it is seen that they can be divided into areas. There is a line of anomalies which have been numbered M2–M7 which either lie on or very close to the main enclosure ditch. This may be coincidence or it may indicate that objects have been incorporated into the ditch fill material. In particular M4 and M5 lie within the complex resistance feature R5 and F9.

There are a number of discrete magnetic anomalies within the body of the enclosure including M8 to M12. As with M4 and M5 above, M9 and M10 lie within a resistance anomaly, (R7, Feature F5 in FIG. 120).

The large area of magnetic disturbance M13 has no particular form of shape. As it appears to obscure the line of the enclosure ditch it may be no more than modern rubbish.

Finally it should be remembered that the strong responses seen close to the edge of the survey area (e.g. M12, M14 and M16) may be magnetic effects from nearby modern objects.

The resistivity survey

The resistivity survey has revealed a complex pattern of resistance anomalies which may be natural, but bearing in mind the history of the site, are felt to reflect a number of archaeological features. Due to the complexity of the resistivity anomalies the reference numbering relates to definable groups of anomalies that are considered archaeologically significant.

Though not showing as a higher or lower resistance anomaly the line of the main burial enclosure ditch can be traced as a line containing no anomalous features. This has been labelled F15 on FIG. 120.

Three rectilinear resistance anomalies are seen crossing the site, R1, R2 and R3. These are all interpreted as modern pipelines and have been marked as F1, F2 and F3 on FIG. 120.

The complex of lower and higher resistance anomalies R12 crosses the main ditch near its north corner suggesting either a contemporary causeway or entrance at this point or that this is

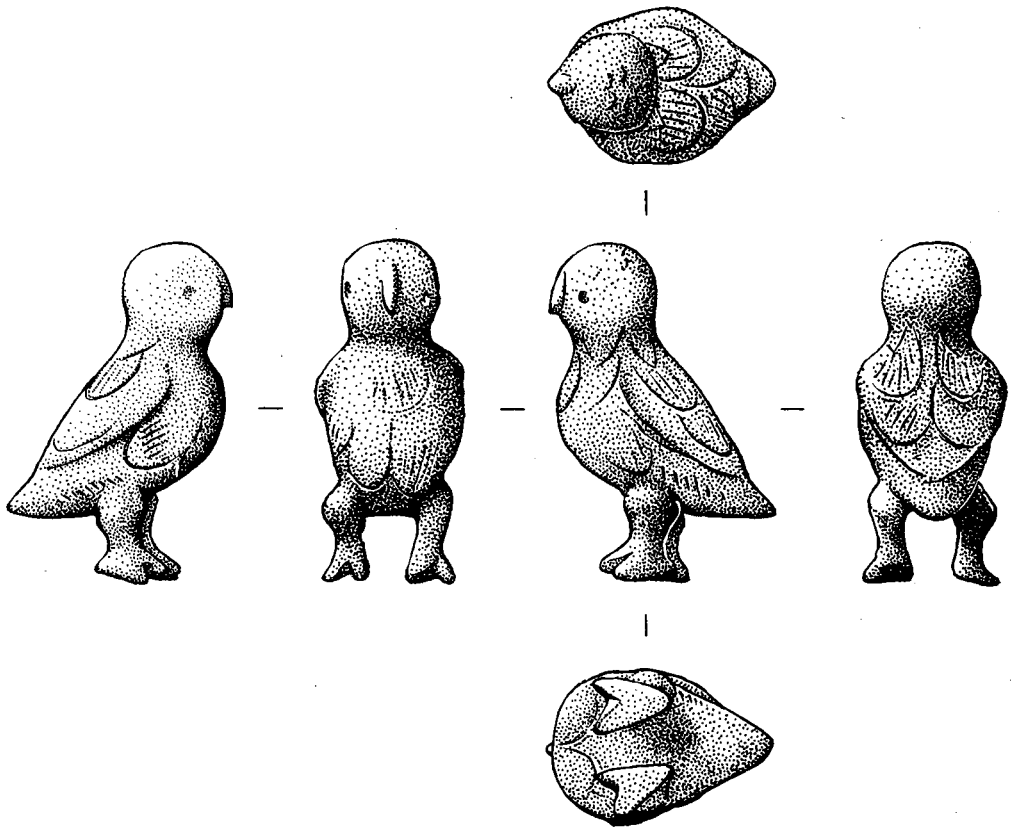


FIG. 121. Copper alloy owl, unstratified. Found after the completion of excavations. Scale 2:1.

a feature made after the abandonment of the ditch.

There are a number of circular and sub-circular anomalous areas than can be clearly identified within the survey area. These include R5, R6 and R7 (F9, F8 and F5 respectively on FIG. 120). These three are either wholly or substantially within the enclosure. In addition, as mentioned above, R5 and R7 both encompass strong thermoremanent responses. In view of the known archaeology on the site these features have been interpreted as being potentially other pits.

There are three further similar features: R8, R17 and R15 (F10, F6 and F7 respectively on FIG. 120) which are less convincing but are possible other pits or areas of archaeological disturbance. If this interpretation is correct, as F7 appears to overlap F5, it indicates features of different periods.

R13 (F13 on FIG. 120) is a curved low resistance linear anomaly which may be part of a small ditch around either the main burial pit or the temple.

Outside of the main enclosure there are areas of complexity which may well be of archaeological origin. In particular, the curvilinear and rectilinear anomalies R9 (F11) and R14 (F12) to the north are interesting. Similarly R19, R12 and Rl6 on the north-western side may also have archaeological potential.

CONCLUSION

The survey has demonstrated the potential for the north-western sector of the enclosure site to contain further pits or other features of archaeological interest. There is also evidence for some features outside of the enclosure both to the north-east and north-west of the site.

APPENDIX 2

A COPPER ALLOY OWL WITH STOUT LEGS AND TWO TOED FEET

Unstratified find by a metal detector user on the site at Folly Lane, post excavation

The figurine is neatly made. It has a flat face with a rounded head and barely discernable eyes and beak. The plumage of the wings, neatly folded across its back, are shown by incised lines and the fold of the wings by a deeper incised line. Length 20 mm (FIG. 121).

Two other bird figurines were recovered from Folly Lane. The ceramic pigeon from E93 AJB 5 and 7 (FIG. 70.39) and the feet of a small bird figure CBZ 3 (FIG. 60.48). Both of these may have had religous significance.[1]

Note, *by* Martin Henig

The figurine depicts an owl, the bird most closely associated with the goddess Minerva. It may be compared with an owl from Chester (Lloyd-Morgan 1977, 103–8, figs 3 and 4). Another owl appears on a hollow cylinder base, perhaps the mounting of a sceptre, from Willingham Fen, Cambridgeshire (Rostovtseff 1923, 94, no. 6 and pl. iv; Pitts 1979, 90, no. 188; Henig 1984, 140, ill. 62). Other examples of owl figurines have been found at Avenches (Liebundgut 1976, 65, no. 49) and Nijmegen.

1. Birds sometimes summated head-dresses e.g. The Felmingham Hoard Norfolk (Gilbert 1978).

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