

REPORT ON EXCAVATIONS AT FULHAM PALACE MOAT, 1972-1973

PAUL ARTHUR AND KEITH WHITEHOUSE

INTRODUCTION:

Bishop's Park, adjoining Fulham Palace, Fulham, is situated on the north bank of the river Thames, on an inside bend, about seven miles south-west of the Roman city of London (Fig. 1). Field work in Fulham had led to a questioning of the date and the origin of the moat and earthworks surrounding the Fulham Palace. In the hope of elucidating the nature of the site it was decided to excavate a section across these features. Therefore, in October 1972, with the permission of the Hammersmith Borough Council, a trench 22.8m (75 ft.) by 3m (10 ft.) in dimension was opened later to be backfilled in August of the following year (Fig. 2; Nat. Grid TQ 2415 7595). Excavations were carried out under the direction of Keith Whitehouse (F.A.R.G., Director of Rescue Excavations), assisted by Paul Arthur as site supervisor on behalf of the Fulham Archaeological Rescue Group. All finds and site records are temporarily deposited with the group.

HISTORICAL DISCUSSION: (K.W.)

Most historians have considered that Fulham, in earlier times, was a marshy area by the Thames not suitable for settlement.¹ Their argument was that as the terrain was low-lying and prone to flooding, 'Fulham' literally meant 'foul-ham' due to its wet state.

However, the origin of the Fulham Palace site appears to be centred on a ford that crossed the Thames from Fulham to Putney near the site of the present Putney Bridge at the head of a conjectural route of a prehistoric trackway following the route of Fulham Road-Old Street.² Evidence for its existence is emphasised by three exceptional finds that have been found along its Fulham route, a neolithic polished black-stone axe, bronze age spearhead and a coin of Philip of Macedon.

Fulham and Putney lie on one of the few stretches of the Thames west of London where there is firm sand and gravel on both sides of the river with no intervening alluvium, and this coupled with the deep loop in the Thames at this point would create a strategic route from the London area and the east into western Surrey. The Thames would have been much shallower and probably non-tidal.

Numerous river finds of artefacts dating from palaeolithic times to the iron age period confirm activity in the area.³ Fulham was probably first occupied in mesolithic times, for after the last Ice Age, the flat terrain of the flood-plain both fertile and well drained would have been easy to clear for farming and therefore conducive to settlement. Similar sub-soil is found on the opposite riverbank at Putney.⁴

ROMAN

Until 1962, little was known about the Roman period in this part of London until occupation evidence was found west of Putney High Street, near the River Thames. Since then excavations have revealed considerable evidence of activity on that side of the river, though the exact nature of this occupation has yet to be established. The evidence suggests

an area of agricultural small-holding, and a small fragment of mosaic pavement, possibly Roman, perhaps indicates a substantial building in the vicinity.⁵

The discovery of evidence of Roman occupation on the opposite riverbank at Fulham, has raised questions about the history of the settlement on the north bank. Until 1972, no authentic Roman find was known from Fulham, although the well known 'Fulham Sword', a legionary sword and scabbard dated to the 1st century A.D., was found in the Thames in 1887. The precise find spot is uncertain although it is recorded to have come from the Middlesex bank, west of Fulham Palace.⁶

One or more roads must have linked these two sites and the associated ford with other settlements in the area. It would therefore seem reasonable that the prehistoric trackway may have continued in use in the Roman period. In Saxon times the independent estates of Kensington and Chelsea had the Fulham Road as a common boundary.

There is little evidence available about the end of the Roman period, although it appears to have ceased in the late 4th/early 5th century.

The subsequent history of the area is unknown until A.D. 704-705 when the Bishop of Hereford granted a place called 'Fulanham', consisting of the present area under the authority of the London Borough of Hammersmith, to the Bishop of the East Saxons (London).⁷

THE ORIGIN OF THE MOAT

The first apparent documentation dates to between 1163-80.⁸ The Fulham Palace site originally appears to have been an island, for a stream is known to have issued forth at Colehill and to have fed the moat at its northern corner. The stream apparently forked, one arm flowing along Bishops Avenue into the Thames delineating the north-west side of the moat, the other flowing down Fulham High Street and discharging into the Thames in the vicinity of Putney Bridge. The north-east and south-east sides were thus determined by the stream and the south-west side by the River Thames.

The moat has generally been considered to be medieval in origin and, although its size would be extraordinary for this date, it has been claimed to be the largest medieval moat in England.⁹ It encloses approximately 14.5 hectares (36 acres). Since the discovery of a Roman settlement in Putney, reconsideration of the date of the riverside portion of the moat has led to the suggestion that it is similar in form to a Roman defensive earthwork of the early empire. Another view held is that its size was indicative of an iron age earthwork, while local tradition has associated its construction with a Danish incursion in A.D. 880¹⁰ for Sir Arthur Blomfield concluded that it was the work of the Danes because its size could only have been constructed by a large body of men for defensive purposes.¹¹ It is not, however, unreasonable to suggest that the Danes would have used an existing earthwork to avoid the inconvenience of digging another and by this date the site must have already been occupied by the 'hall' of the estate and an existing earthwork could well have been refashioned.

It might be expected that the existing Palace complex would have been centrally placed within the moated area, though it was in fact positioned in the north-west corner. This perhaps suggests that a separate enclave, which would have been easier to defend, was established and such an arrangement would have general parallels with the situation at Pevensey and Portchester. In 1975/76, a rescue excavation and resistivity survey in the north-west corner of the moated area inferred that approximately 0.4 hectares (one acre) had

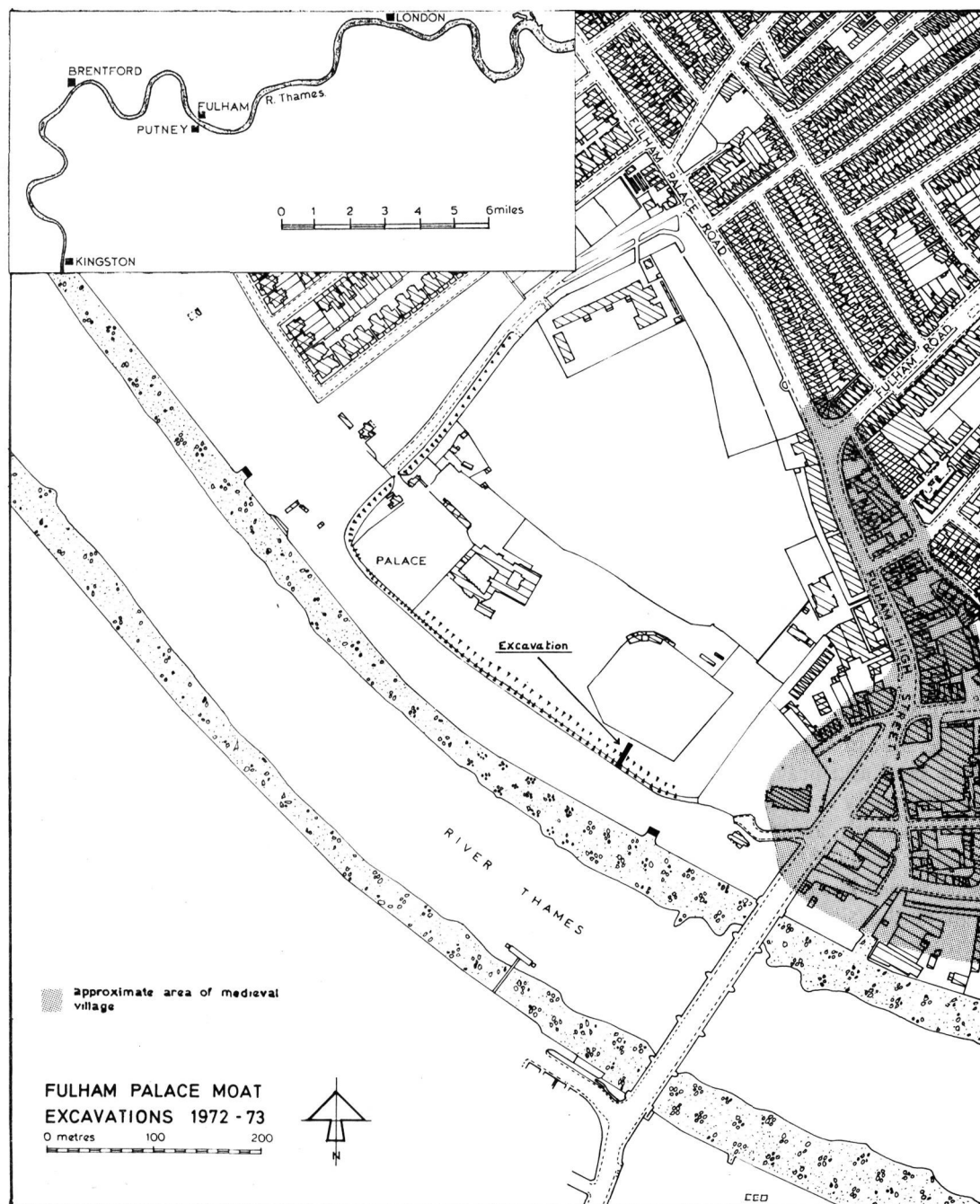


Fig. 1 — Fulham Palace Moat: Site location plans (*Crown copyright reserved*)

been separated in the medieval period by multiple banks and ditches. The banks lacked dating evidence but several features contained debris of the 13th century. This evidence, taken together with crop-marks noted on the adjoining lawn, suggests that this corner may have enclosed the Palace by the 13th century.

The Bishops Walk, between the river and the moat, was a bank against flooding until the late 19th century, but may owe its origin to the late Roman embanked surfaces (Fig. 3). A large drainage ditch on the south-west side, which is now back-filled, could originally have been an additional defence.

A further length of ditch, at least 180m. long, is shown on Rocque's map running parallel with the moat's north-east arm.¹² Additionally, on the east side of Fulham High Street, running parallel with the length of this arm, is a bank standing c. 2.00m high at its southern end. During the 19th century, properties on a portion of it were known collectively as High Bank. It may be significant that in 1391 the High Street was known as 'Burystrete'.¹³

Much work remains to be done before the full complexities of this multivalliate structure are understood.

NOTES

1. Dennis Haselgrove *Fulham, Church Gate and its Surroundings* (Fulham, 1968) 1.
2. W. F. Grimes *The Excavation of Roman and Mediaeval London* (London, 1968) 44.
3. G. F. Lawrence "Antiquities from the Middle Thames" *Archaeol. J.* 86 (1929) 89-90.
4. Stan Warren "Neolithic Occupation at Putney" *London Archaeol.* 1 No. 12 (1971) 276-79.
5. Nicholas Farrant "The Romano-British Settlement at Putney" *London Archaeol.* 1 No. 16 (1972) 368-71.
6. Now in the British Museum.
7. M. Gibbs ed. *Early Charters of the Cathedral Church of S. Paul London* Camden Soc. 58 3rd ser. (1939).
8. Adrian Morey and C.N.L. Brooke ed. *The Letters and Charters of Gilbert Foliot* (Cambridge, 1972).
9. Dennis Haselgrove *op. cit.* in note 1, 34.
10. G. N. Garmonsway (trans.) *The Anglo-Saxon Chronicle* (London, 1972) 76-77.
11. A. W. Blomfield *Fulham in the Olden Times* (Fulham, 1856) 24.
12. John Rocque *Environs of London* (London, 1741-45).
13. Minutes of a Court General of Fulham Manor held in 1391.

THE EXCAVATION: (P.A.)

The site, in Bishop's Park, formerly within the Palace grounds, lies on fairly level Flood Plain sand and gravel held within a meander of the Thames. The Flood Plain deposit¹ is approximately 7.6m (25 ft.) thick and rests on London Clay. Below the Clay, at about 49m (160 ft.) depth, are the Reading and Thanet Beds which are based on chalk at an approximate depth of 76m (250 ft.). This site is approximately 93m from the present low tide mark. The bank is visible along most of its southern and western course as a low earthwork (900mm high at the site) immediately behind the infilled moat. The excavation cut through the earthwork and moat exposing a varied stratum dating from the neolithic (see main section and plan, Fig. 3).

PRE-ROMAN PERIOD

The earliest deposits on site may be divided into two groups. First, a gully and four hollows cut into natural gravel to the south of the moat, and secondly, a deposit of light clay material on natural sand and gravel to the north of the moat. Cut into the gravel were two small pits, one with an associated gully. All were sterile of artifacts.

Group I. South of moat cutting.

The gully (3) (Figs. 4 and 6), of shallow U-shaped section, was apparently left open for some time and silted naturally, the fill being sterile apart from some eroded gravel from the sides and a high number of crazed flints and charcoal flecks. Immediately to the south-east of the gully was a group of four hollows as well as two depressions which may once have been similar hollows. The largest hollow may conceivably have been a post-hole due to its very regular round shape. It was 460mm (1 ft. 6 ins) wide

at the top and 300mm (1 ft.) deep. Its fill was identical to that of the gully apart from the occurrence of a struck flint flake in its base. The other three hollows were irregularly shaped and also contained fill similar to that of the gully. Sealing all was a deposit of clay and gravel (layer 4) varying in thickness. The top of the deposit was flat.

Group II. North of moat cutting.

This deposit (layer 2) consisted of a layer of graded clayey alluvium which became sandier as the underlying natural subsoil changed from gravel to sand. The northern part of the deposit was disturbed in parts. Four fragments of friable neolithic pottery were recovered from the clay, which also contained a considerable amount of gravel, crazed flints and flecks of daub and a number of mesolithic and neolithic struck flints (see p. 52). Two small pits (1) were cut into the gravel (Fig. 6). They were filled with a soil slightly darker than the overlying alluvium. Cut into the alluvium was a small pit (Layer 5; Fig. 5) which contained two hundred closely packed river pebbles, none larger than a clenched fist, and may date to the Roman period.

ROMAN PERIOD

Adjacent to Layer 5 was another small pit (7) cut 140mm into the alluvium, with a maximum width of 720mm, containing a horse's skull minus its mandible and a dog's skull with its atlas and axis vertebrae (Fig. 5). Both skulls were lying nearly parallel, facing east, and with their crania uppermost. The tops of the skulls had been crushed in antiquity, probably due to the use of the adjacent surface. The pit's fill was clayey and represented backfill. Directly to the north-east of the burial was a large post-hole (8) (lying 5.14m from the northern edge of the trench), 210mm in diameter, cut 450mm into the alluvium. The original post was c. 180 x 180mm square, and although the packing seemed undisturbed, there was no soil discolouration to suggest that the post had rotted *in situ*. The packing consisted of thirty-six large, roughly squared, flint nodules of mean weight 1.82kg, the largest weighing 4.55kg, three weathered sandstone blocks and a broken tegula. The flints were not waterworn, as is the locally occurring river gravel, and had thus been imported.

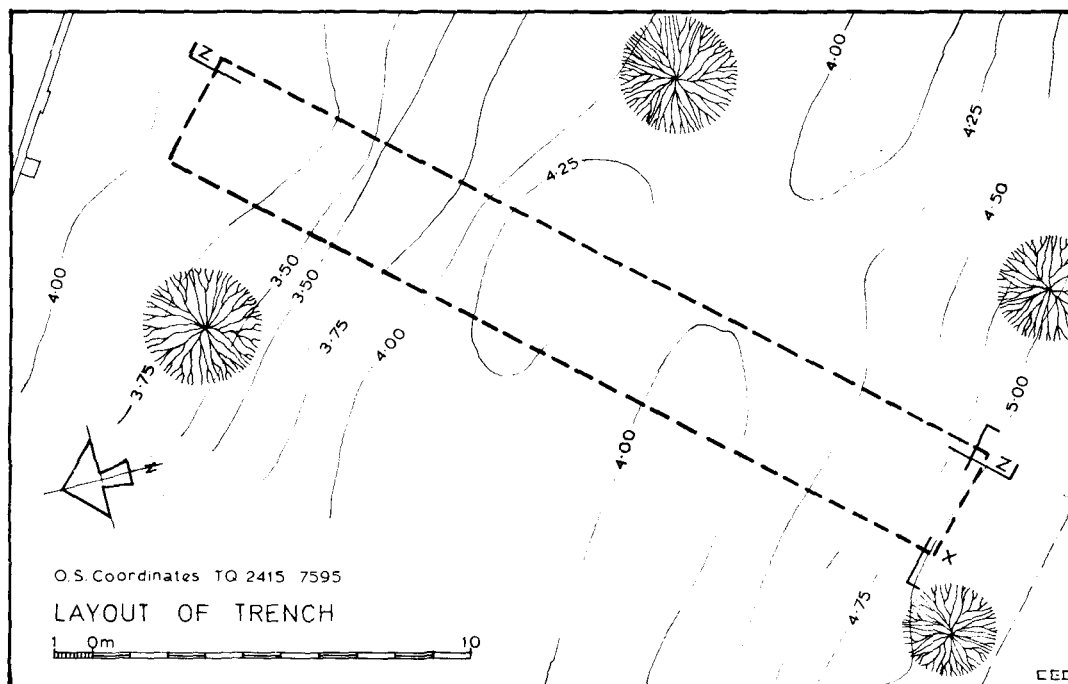


Fig. 2 — Fulham Palace Moat: Layout of trench

Partly sealing the burial was a gravel spread (Layer 9), which had one recognisable resurfacing (Layer 10) and contained a coin of Victorinus. At the southern end of the site a second surface had two distinct resurfacings (Layers 12, 14 and 16). The primary southern surface was bedded on compacted iron shot clay (Layer 11) which immediately overlay the clay and gravel Layer 4. Similar layers of iron shot clay (Layers 13 and 15), both containing Roman debris, were respectively underlying Layers 14 and 16. The pottery and bone from these layers had badly corroded surfaces, while metal objects remained only as discolourations in the soil.

To the east of the gravel surface Layer 9, and forming a slightly acute angle with its edge, was a pit or ditch terminal (Layer 6) partly obscured by the section. Its fill consisted of dirty wet sand with some charcoal flecks and a small amount of Roman rubbish including a high percentage of bone.

The occurrence of two burnt deposits dating from about the mid 4th century were possibly the result of a localised fire. Layer 17, which was about 180mm at its thickest point, partly overlay Layer 6, while a similar layer (Layer 18) 150mm thick was laid down next to the gravel surface Layer 9 and the post-hole. Both layers consisted of dark, charcoal-flecked soil and contained large amounts of pottery, bone and tile, which in some cases were burnt. Oyster and mussel shells were also recovered from Layer 17.

Shortly afterwards, a V-shaped ditch was dug through the gravel and the burnt Layer 18, and its flat bottom had penetrated the natural gravel. The ditch (Layer 19) was approximately 830mm deep and had a dark fill containing a large amount of gravel which probably derived from the gravel surfaces 9 and 10, as well as usual domestic rubbish and a coin of Constantine I from the top of the fill. Parallel to this ditch was a trench (20; Fig. 3) further south, of U-shaped section and cut about 440m through the gravel and into the alluvium. In the bottom of this trench a post-hole (21) of 300mm diameter and 265mm depth had been dug. There were no signs of a decomposed post, although some gravel packing remained in the base. The trench had remained open long enough for a thin band of rapid silt to accumulate in the bottom, but had then been backfilled with material almost identical to the surrounding soil, but containing a small amount of Roman refuse.

The latest recognisable ancient feature on the site was a bank of dump construction, which covered the trench (20) and ditch (21). Its fill contained many small abraded sherds and no coins later than *c.* AD 367 to 375. The front part of the bank consisted of a clay layer (Layer 22), and the whole was covered with clean gravel capping (Layer 24) almost devoid of finds, and presumably deriving from the natural subsoil. The crest of the bank was fairly level and contained at least three post-holes averaging about 270mm deep and 140mm wide, and spaced at approximately 500mm intervals. These were devoid of dating evidence and lay just beneath the modern topsoil. Any ditch accompanying the bank to the south would have been totally destroyed by the medieval moat (Layer 27), which was infilled over the years 1921-1924. Behind the bank and overlying Layers 6 and 17 were various indistinct sandy layers (Layer 25) containing late Roman refuse. These layers were virtually indistinguishable from the overlying 18th and 19th century strata, apart from the date range of respective finds.

For convenience, all modern layers, excepting the moat, are labelled Layer 26.

INTERPRETATION: (P.A.)

The evidence can be divided into three periods, pre-Roman, Roman and post-medieval, though only the first two are discussed here. Detailed information on the post-medieval deposits is lodged with the site records.

PRE-ROMAN PERIOD

Mr. J. J. Wymer writes:

237 flints were submitted for examination, and, except for one naturally-fractured piece, all are artifacts. The majority come from levels disturbed in Roman or later times, but there are 33 from a light clay with gravel and 22 from dirty sand (Layer 2). Both the latter deposits are assumed to be natural alluvium of the River Thames.

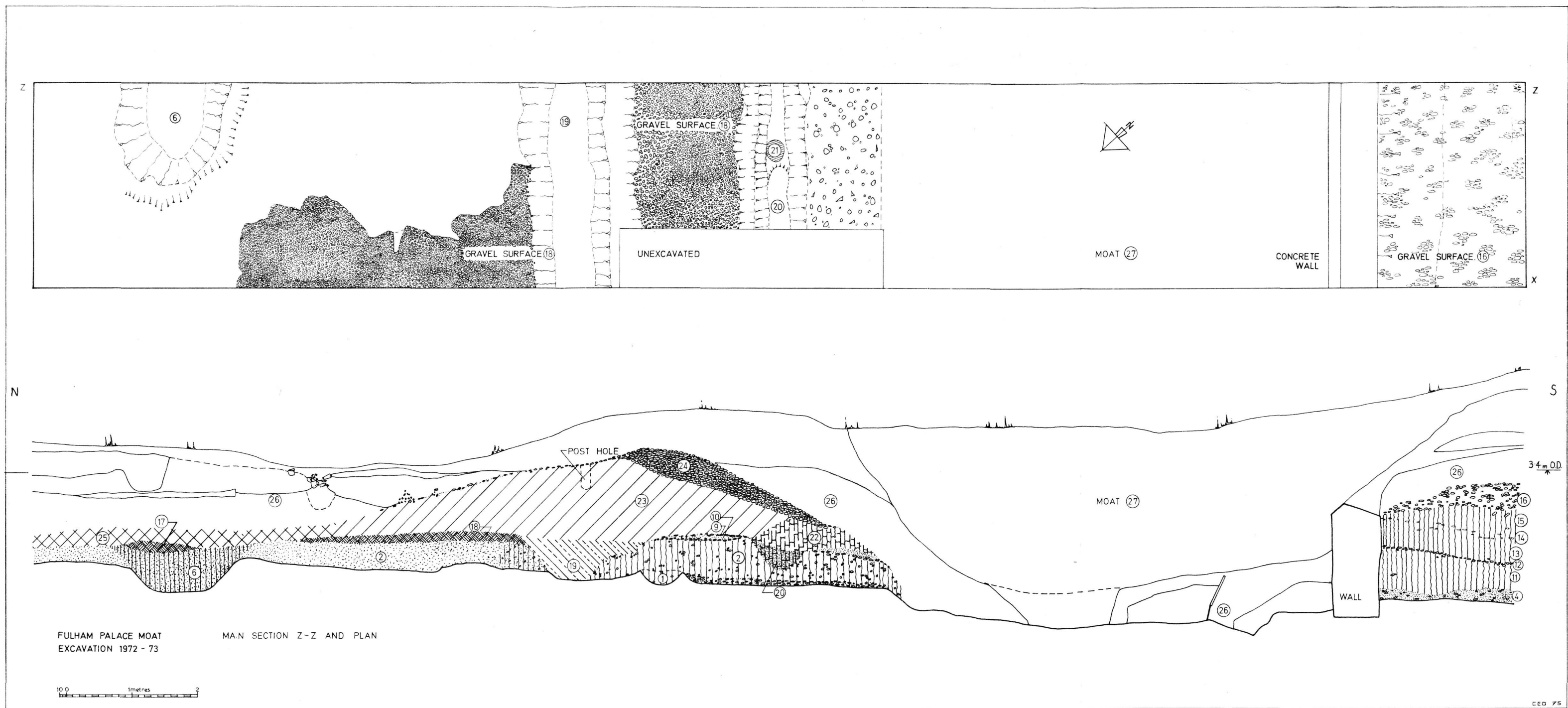


Fig. 3 — Fulham Palace Moat: Main plan and section

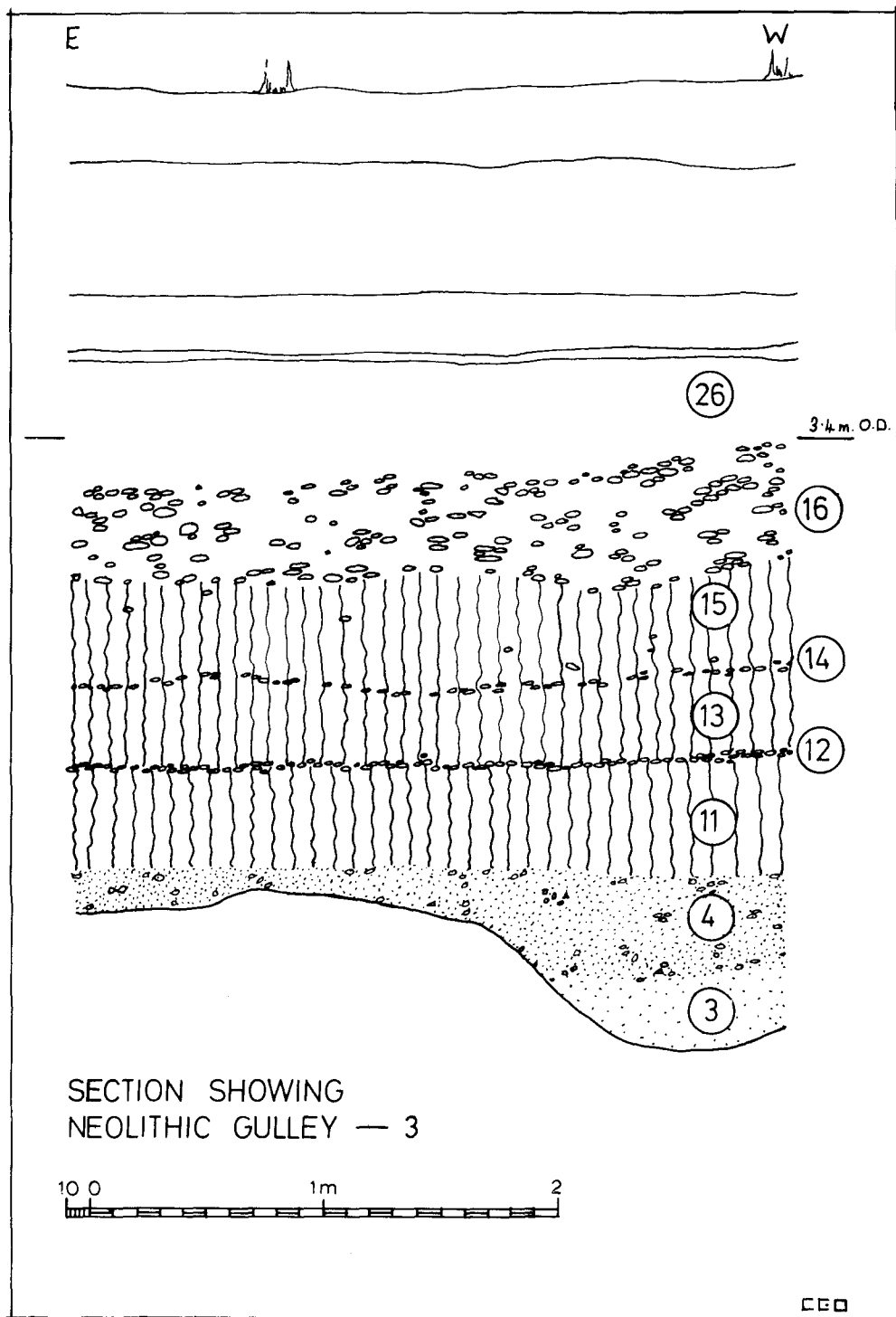


Fig. 4 — Fulham Palace Moat: Section of south end of trench (Z-X) showing neolithic gully and overburden

They are classified as:

	<i>Unstratified</i>	<i>Layer 2 - alluvium</i>
Core	1	4
Flake	144	41
Blade	3	1
Bladelet	7	2
Core preparation flake	1	—
Utilised flake	7	2
Spall	15	4
?Axe rough-out failure	—	1
Graver	1	—
Scraper	2	—

It is unfortunate that among these flints there is nothing that is convincingly diagnostic of any particular industry or period. The unstratified flints, i.e. those in disturbed levels, have presumably been thrown up from earlier levels, and the date of the deposition of the alluvium is unknown. The presence of cores, and a core trimming flake, show that flint was actually being knapped on the spot, and the few utilised flakes at least demonstrate that there was some domestic activity. At least five pieces are burnt, but these do not include any from the alluvium. A small proportion of the artifacts (13%) are patinated and this is suggestive that at least two different periods are represented. Blades and bladelets might be expected to have a mesolithic context, but the patination is little guide in this respect, for the number of these artifacts found is too small to regard the somewhat higher proportion of patinated to unpatinated (31%) as significant. However, at least one flake shows traces of earlier patinated flake surfaces, and there are two patinated flakes which show clear traces of utilisation at a later date, as the edge damage is unpatinated. Also, the only tool form of any consequence, although it is rather a crude, poor example, is a micro, plain angle graver. This is more likely to be mesolithic in date than neolithic, and it is patinated.

The cores are all small (less than 4cm long). Three are of single platform type, and one is multi-platformed and irregular. None has been used for the production of blades or bladelets and, like the majority of the flakes which accompany them, have all the aspect of a normal neolithic industry. One scraper is perhaps better described as a small (3cm) thick flake with secondary working along one edge and obliquely across the distal end. It is burnt and patinated. The other is a small 'thumb scraper'.

The only tentative conclusion that may be made from these flints is that both mesolithic and neolithic industries existed here, either buried in or on the surface of the Thames alluvium. More convincing evidence for the date of at least some, if not the majority, of the flints being neolithic comes from four pot sherds found within the clay alluvium. They include two rim sherds, one of simple form, one externally thickened. One of the other sherds is probably part of a curved shoulder. The latter is of a hard, thick ware with a red burnished exterior. All the sherds have flint grits, but only the externally-thickened rim sherd has coarse grits which protrude on the surface. These sherds have the form and texture of neolithic pottery.

Neolithic material is well known from the River Thames from Kingston to the City of London,² but occupation along the flood plain is only attested by a few mainly more recent finds. These are usefully summarised by Warren,³ and his account of the discoveries on the opposite side of the river at Putney suggest a similar situation to that at Fulham.

ROMAN PERIOD

The Roman period on site has been divided into three tentative phases (see Fig. 6), dating from not earlier than the end of the third century to the last quarter of the fourth.

Phase I

This may be represented by the possible ditch terminal (6), the pit containing skulls of a horse and a dog (7), the post-hole (8), the gravel surfaces (Layers 9 and 10) and possibly Layer 5 and the primary gravel surface south of the moat cutting. Perhaps the most interesting find was Layer 7, which may be interpreted as a ritual burial. The two skulls are discussed at length in the bone report (p. 69). Although the horse's skull, which lacked its mandible, may have been old already when it was placed in the pit, the intact condition of the dog's skull, with articulating vertebrae, might indicate that the animal was decapitated especially for the purposes of the burial. A fracture in the horse's skull may indicate that it had been pole-axed. There is, as yet, no exact parallel to the Fulham votive burial amongst the substantial number of Romano-British votive burials known to us. Merrifield⁴ lists much of the evidence from the London area, although such burials are well spread throughout the lowland zone. Dogs were by far the commonest animals used in such rituals, followed by oxen and horses, and were particularly important in Romano-Celtic religion, appearing in various contexts as a symbol of death or healing.⁵ They are perhaps best illustrated in their latter role by the well-known finds from the fourth century temple of Nodens at Lydney.⁶ The horse, being a relatively expensive animal, was a suitable sacrifice. It too can be associated with death and healing, and was likewise linked with the Celtic mother-goddess. The Fulham

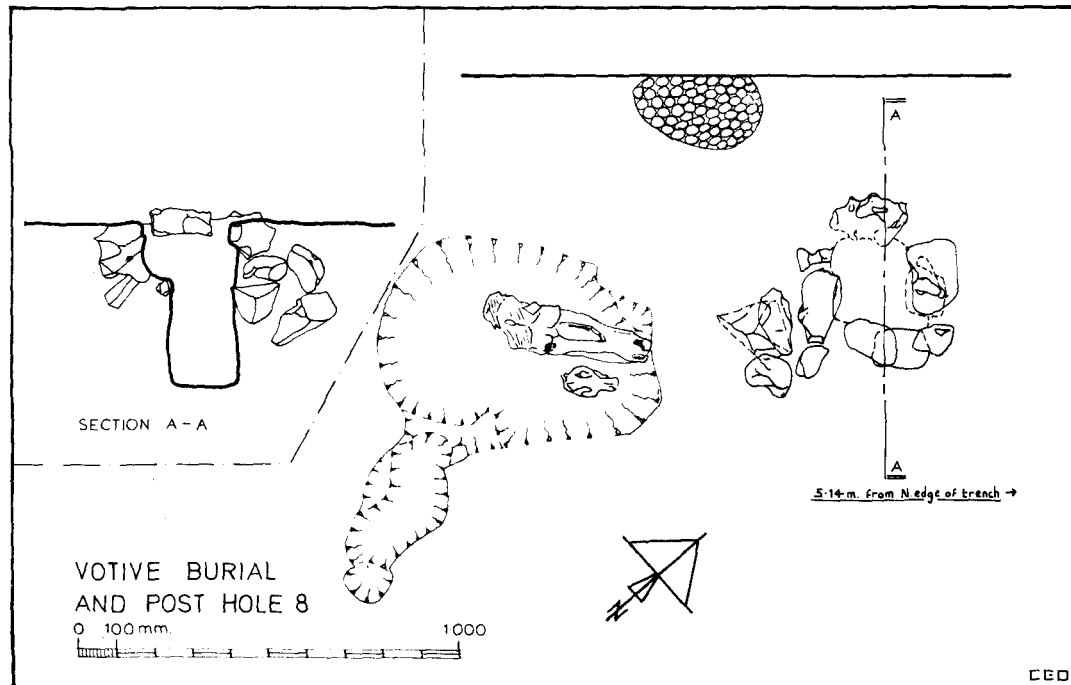


Fig. 5 — Fulham Palace Moat: Votive burial (7) and adjoining features (5 and 8)

burial is most akin to the group of animal foundation burials which were deposited in the vicinity of gateways or in association with buildings. At Maiden Castle,⁷ Wheeler discovered a pit containing a dog skeleton, beneath the earliest Belgic gravel track at the southern entrance, while at Lullingstone, Kent,⁸ two ox skulls were found in the flue of a hypocaust dating to the late 3rd century. Thus, the Fulham burial may perhaps be circumstantial evidence for the close presence of a building or gateway, perhaps incorporating the post-hole and gravel surfaces.

There is no direct link between the primary gravel surface south of the moat cutting (Layer 12 and its clay bedding, Layer 11) and the other features assigned to Phase I, although as with the other layers, it represents the first deposit of Roman material above neolithic or post-neolithic alluvium (Layer 4).

PHASE II

To this phase can be assigned the burnt deposits (Layers 17 and 18), the V-shaped ditch (19), and possibly the small trench and post-hole (20 and 21) and the intermediate gravel surface, and its clay bedding (Layers 13 and 14) south of the moat cutting.

Layers 17 and 18 may represent the burning and destruction of a nearby structure. The level surface of these layers would suggest that they were raked over, prior to the digging of the V-shaped ditch. The small trench and its associated post-hole has been tentatively assigned to phase II because, as with the ditch, it underlies the bank deposit and cuts through Layers 9 and 10. However, there is no evidence to assess its chronological relationship to the burnt deposits. It may represent a fence-line, a beam slot for the footings of a building, or a palisade associated with the bank.

PHASE III

In phase III the bank (Layers 22, 23 and 24) was constructed, and the last gravel surface and bedding (Layers 15 and 16) may have been laid down. Layer 25 might also date to this phase.

The striking similarity in the proportions of the numbers of beakers, bowls, dishes and jars in Layer 23 of the bank with those of the underlying deposits would strongly suggest that it was constructed from the scraping up of earlier Roman deposits, and capped and faced by natural gravel presumably derived from an accompanying ditch to the south, now destroyed by the moat, or from the moat itself.

The very presence of the bank begs the important question as to why it was built. As it is an unsealed deposit, it may theoretically date to any time between the 4th century and the medieval period, although the large bulk of datable material would favour a construction date in the late 4th century, postdating the early 370's. As such, it would appear to be unprecedented, but it would be equally difficult, if not more so, to parallel the earthwork with post-Roman constructions. Therefore, it is tempting to see the earthwork resulting from unrest in the late 4th century. It is interesting to note that a similarly, enigmatic earthwork, it too with a *terminus post quem* provided by 4th century pottery, lies in Pear Wood, near Brockley Hill and the Watling Street.⁹ Alternatively, the earthwork may date to the sub-Roman period, when London seems to have been a British enclave at least until the middle of the 5th century, along similar lines to St. Albans. Dr. Juliet Clutton-Brock remarked that "many of the scraps of bone (from the Roman layers) were rolled as if they had lain in water", and Mr. F. G. Dimes remarked of the building rubble that, "in general the

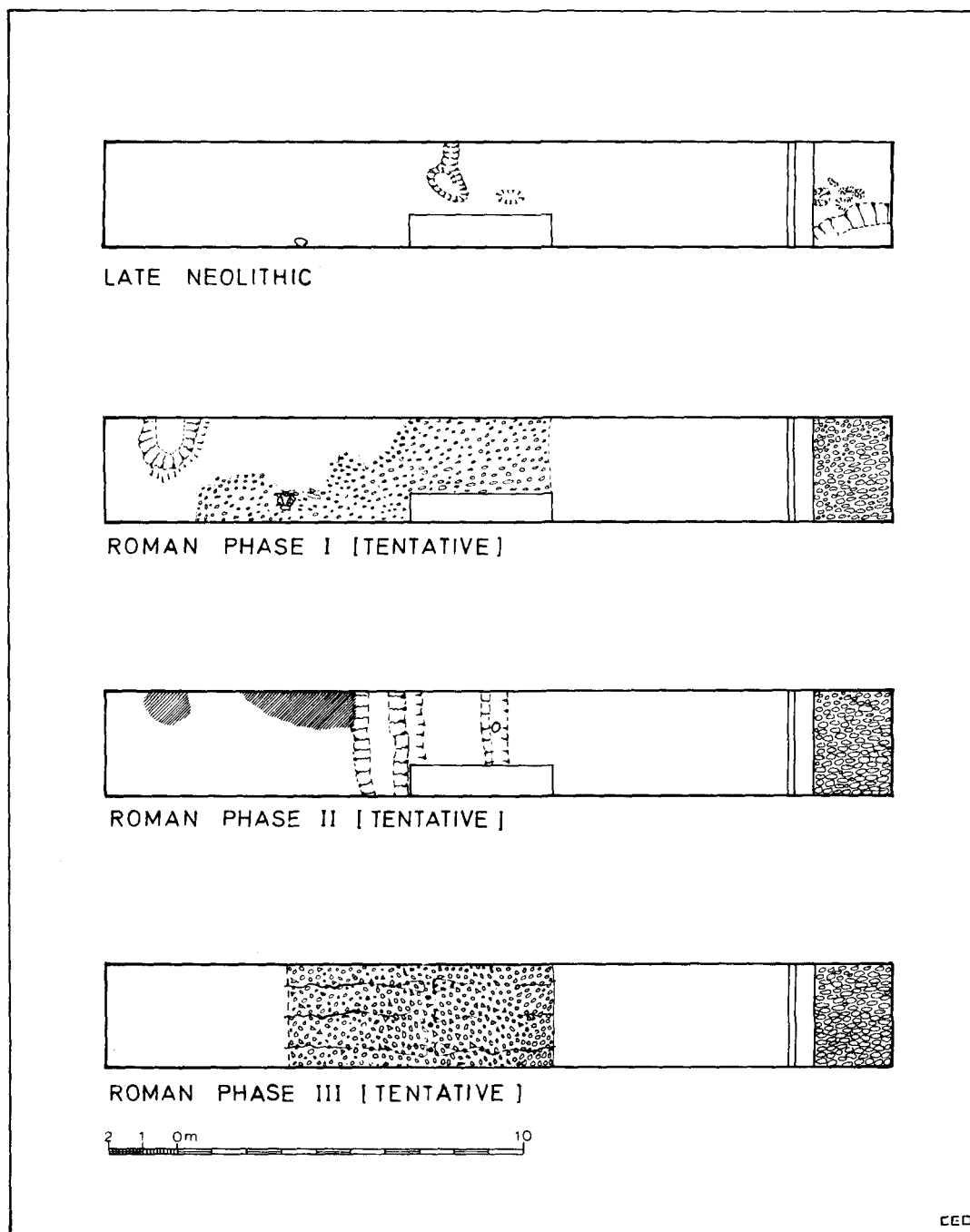


Fig. 6 — Fulham Palace Moat: Tentative phase plans

specimens are in a very poor state and many are deeply weathered'. The same may be said for much of the pottery in Layer 23. Indeed the high degree of Roman pottery fragmentation, which could be interpreted as due to weathering of material which had originally lain on the Roman gravel surfaces, might equally indicate a medieval date for the bank, despite the lack of post-Roman dating evidence. The earliest surviving documentation of the moat (Layer 27) exists in the Court Rolls of Fulham Manor dating to 1392,¹⁰ although it was probably in existence earlier, and it is probable that the date of the bank (Layer 23) should be bracketed *c.* AD 380 — *c.* AD 1163-81. It is unwise to speculate too far on the limited evidence available, and it is clearly desirable that further excavation should take place to try to establish more firmly the date of the bank.

Another question posed by the earthwork, if indeed it is Roman, is what was there to enclose or defend? Excavations across the Thames at Putney have shown there to be some kind of minor settlement¹¹ with Roman material dating from at least the second half of the 1st century until the end of the 4th. Grimes has suggested that a prehistoric trackway, the 'Old Street', crossed the Thames at Fulham/Putney,¹² where the river must once have been fordable. It would be expected for a settlement, such as that at Putney, to have access across the Thames to the north, and it would not be surprising for a small 'bridgehead' to have developed on the opposite side of the river. The excavations have not yet yielded any evidence for Roman activity in Fulham prior to the end of the 3rd century. Both the Antonine *samian* and the *sestertius* of Marcus Aurelius are not incongruous in a later 3rd century context. Thus, on present evidence, the Roman activity at Fulham spanned only one third of the period of that at Putney.

Layer 23 yielded three fragments of hypocaust tile. A large number of *tegulae* and *imbrices* were found throughout the deposits, while Mr. F. G. Dimes of the Geological Museum has shown that building rubble from the site includes Kentish ragstone, Chert, Hassock, Chalk, Tufa, Carstone and a variety of sandstones, possibly including Reigate, Gatton and Merstham Stone.¹³ This would strongly suggest at least one substantial building nearby. The Roman pottery came from a number of sources. Little can be local, and most was probably obtained through the markets at London. Niedermendig lava querns and Mayen ware must have come down the Rhine and across the Channel. Coal came from the north-east of England. It is interesting to see the material which arrived at the site in the late 3rd and 4th centuries, all of which would suggest a fairly thriving community. It is still too early to judge its own degree of self-sufficiency, but presumably it was an agricultural community, and perhaps, situated on the Thames, a small local market. The occurrence of two probable pieces of military equipment (Small Finds report, Nos. 6-7), however, should not be overlooked.

Although, with the limited excavation, it is hard to judge the function of the various ditches, surfaces and post-holes, it may be worth briefly considering the importance of the southern gravel surfaces (Layers 12, 14 and 16). These three surfaces were built up on thick layers of compacted clay, to a little under two metres total height, perhaps within the space of a hundred years. Although the surfaces themselves may perhaps be seen as representing a trackway along the riverbank (or even perhaps a towpath, such as the one that Ausonius saw running along the banks of the Moselle near Trier¹⁴), the thick clay-bedding is unexplained. Perhaps the thick clay and rise in level of the surfaces may be seen as a result of a rise in the level of the Thames. Further up-river, at Staines, flood deposits dating from the 3rd century AD have been found at approximately 12m O.D.¹⁵ Such inland flooding may similarly have occurred at Fulham or at least have represented a potential menace. The high water

mark (if the Thames at this point was tidal) cannot have been far removed from *c.* 1.5m O.D.,¹⁶ whilst the base of the Roman deposits in the southern part of the trench is also *c.* 1.5m O.D. The top of the clay and gravel deposits (Layers 11-16) is, at least, 3.6m O.D. and must almost certainly have been higher than the level of the river. Embanking has proceeded along this stretch of the Thames in recent years, and may well have been vital to the survival of a Thameside settlement at Fulham during the Roman period.

In conclusion, the evidence would seem to support there having been a substantial amount of Roman activity in 4th-century Fulham. Apart from the possible significance of the earthwork, some 36 acres in area, the site is clearly important due to there being a potentially extensive Roman settlement lying beneath a park and gardens amongst the urban spread of modern-day London.¹⁷

NOTES

1. The figures are taken from S. Buchan *The Water Supply of London*, Geological Survey Memoir (1938).
2. C. E. Vulliamy *The Archaeology of Middlesex and London*, (London 1930).
3. S. Warren "Neolithic Occupation at Putney" *The London Archaeologist* 1 No. 12 (Autumn 1971) 276-279.
4. R. Merrifield "Folk-Lore in London Archaeology Part 1: The Roman Period" *The London Archaeologist* 1 No. 3 (Summer 1969) 66-69.
5. Cf. F. Jenkins "The Role of the Dog in Romano-Gaulish Religion" *Latomus* XVI (1957).
6. R. E. M. and T. V. Wheeler *Report on the excavation of the prehistoric, Roman and post-Roman site at Lydney Park, Glos.*, (Oxford 1932).
7. R. E. M. Wheeler *Maiden Castle, Dorset* (Oxford 1943) 115.
8. G. W. Meates *Lullingstone Roman Villa* (London 1955) 108.
9. S. A. Castle "Excavations in Pear Wood, Brockley Hill, Middlesex, 1948-1973" *Trans. London and Middlesex Archaeol. Soc.* 26 (1975) 267-277.
10. K. Whitehouse "Early Fulham" *The London Archaeologist* 1 No. 15 (Summer 1972) 346. Cf. also D. Haselgrove "Early Fulham — a rejoinder" *The London Archaeologist* 2 No. 1 (Winter 1972) 18-21.
11. N. Farrant "The Romano-British Settlement at Putney" *The London Archaeologist* 1 No. 16 (Autumn 1972) 368-371.
12. W. F. Grimes *The Excavation of Roman and Mediaeval London* (London 1968) 46.
13. Mr. Dimes has kindly compiled a very full report on the stone building rubble from the excavation. A copy is lodged with the site records.
14. Edith Mary Wightman *Roman Trier and the Treveri* (London, 1970) 205.
15. Unpublished information kindly supplied by the excavator, Kevin Crouch.
16. Recent work by Harvey Sheldon would suggest that a height beneath O.D. for the level of the Thames as suggested by G. Willcox "Problems and Possible Conclusions related to the History and Archaeology of the Thames in the London Region" *Trans. London and Middlesex Archaeol. Soc.* (1975) 285-292 is too low.
17. The moat and the enclosed area has now been scheduled as an Ancient Monument.

THE FINDS

THE COINS BY PAUL ARTHUR

SUMMARY

2nd Century A.D.	1
Gallic Empire and other late 3rd Century A.D.	26
House of Constantine	20
House of Valentinian	10
House of Theodosius	1
Unidentifiable Roman	4
Post-Roman	5

LIST:

All coins are bronze. Conditions have in general been omitted. Coin no. 1 has been included as a stray find a few metres to the north of the excavation. There have also been unconfirmed finds of Constantinian coins in the vicinity of the site, L.R.B.C. references are to Carson, Hill and Kent (1975), and the R.I.C. reference is to Sutherland and Carson (1966).

1. Marcus Aurelius. Sestertius. FELICITAS Type. Rome. ?A.D. 161. (Very worn surface find).
2. Claudius II. Antoninianus. (Layer 23).
3. Victorinus. Antoninianus. FIDES MILITUM Type. (Layer 23).
4. Victorinus. Irregular antoninianus. (Layer 9).
5. ?Victorinus. Irregular antoninianus. (Layer 23).
6. Tetricus I. Irregular antoninianus. SPES AVG Type. (Layer 26).
7. Tetricus I. Irregular antoninianus. ?PROVIDENTIA Type. (Layer 23).
8. Tetricus I. Irregular antoninianus. (Layer 23).
- 9-10. As above, but from layer 22.
11. ?Tetricus I. Irregular antoninianus. (Layer 23).
12. As above, but from layer 10.
13. Tetricus II. Antoninianus. PAX AVG Type. (Layer 18).
14. ?Tetricus II. Irregular antoninianus. (Layer 10).
15. Tetrici. Irregular antoninianus. (Layer 23).
16. Aurelian. Post-reform antoninianus. (Layer 22).
- 17-22. Unidentifiable irregular radiates. (Layer 23).
- 23-24. As above, but from layer 10.
- 25-26. As above, but from layer 18. One possibly VIRTUS Type.
27. As above, but from layer 26.
28. Fragment of a 4th century silvered follis. An ancient break. (Layer 23).
29. Licinius I. Follis. R.I.C. London 15. (Layer 26).
30. Constantine I. Follis. SOL INVICTO COMITI. London. (Layer 26).
31. Constantine I. Irregular GLORIA EXERCITVS Two standards Type. Trier or Lyon. (Layer 25).
32. Constantine I or Constans. GLORIA EXERCITVS Two standards Type. (Layer 23).
33. As above, but from layer 17.
34. Constantine I or Constans. GLORIA EXERCITVS One standard Type. (Layer 23).
35. 'Urbs Roma'. Trier. L.R.B.C. I 51. (Layer 26).
36. 'Urbs Roma' irregular. (From the surface of layer 19).
37. 'Constantinopolis'. Copy of Lyon mint. (Layer 23).
38. 'Constantinopolis'. Thick flan. (Layer 23).
39. 'Constantinopolis' irregular. (Layer 23).
40. Constans. Trier. L.R.B.C. I 140. (Layer 10).
41. Constans. Trier. L.R.B.C. I 159. (Layer 25).
42. Constans. Trier. L.R.B.C. I 167. (Layer 18).
43. Constans. VICTORIAE DD AVGG Q NN Type. (Layer 23).
44. Constantius II. Cyzicus. L.R.B.C. II 2484. (Layer 23).
- 45-46. 'Fallen Horseman' Type. Irregular. (Layer 23).
47. 'Fallen Horseman' Type. Irregular. (Layer 10).
48. Valens. ?Rome. SECVRITAS REIPVBLICAE Type. (Layer 23).
49. As above, but mint unidentifiable. (Layer 23).
50. Valens. Trier. Probably L.R.B.C. II 87. (Layer 23).
51. Valentinian I. Trier. L.R.B.C. II 82. (Layer 26).
52. Valentinian I. Lyon. L.R.B.C. II 300. (Layer 23).
53. Valens or Valentinian I. Aquileia. 'Emperor dragging captive' Type. (Layer 23).
54. Possibly House of Valentinian, but extremely corroded. (Layer 10).
55. Gratian. Arles. (Layer 26).
56. Gratian. Arles. L.R.B.C. II 529. (Layer 25).
57. Gratian. Siscia. 'Emperor dragging captive' Type. Mintmark FRASISC(E) (Layer 25).
58. House of Theodosius. As L.R.B.C. II 162-4. (Layer 25).
59. Uncertain 3rd-4th century. (Layer 20).

60. As above, but layer 15.
61. As above, but layer 18.
62. 4th century barbarous minim. (Layer 26).
63. William III. Farthing. 1698-1699. (Layer 26).
64. Flattened 19th century coin. ?'Shove Ha'penny' piece. 26mm in diameter. (Layer 27).
65. Victoria. Halfpenny. 1861. (Topsoil).
66. Victoria. Halfpenny. 1866. (Layer 26).
67. Circular tag with hole through centre. Obv: BOROUGH OF WANDSWORTH A71. Rev: Blank. (Layer 26).

SMALL FINDS BY PAUL ARTHUR

(Fig. 7 Nos. 1-13; Fig. 8 Nos. 14-31)

SHALE AND JET

1. Shale bead with two parallel perforations. Characteristic late Romano-British type. cf. Lawson (1975, 244 Nos. 6-7) for similar examples in jet and further references. (Layer 15).

2. Polished jet bead; probably of Roman date. (Layer 26).

COPPER ALLOYS

3. Part of a probable Late Bronze Age socketed axehead with high lead content. The cavity at one end is typical of the shrinkage pipe formed in the runner of a casting. The runner is then broken away and the surface dressed. (Layer 23).
4. Small bronze pin with a recurved (?bent) head, possibly from an annular brooch. (Layer 23).
5. Unidentifiable bronze fragment. (Layer 23). Various other nondescript fragments remain unillustrated.
6. Bronze belt or harness fitting. These objects are frequently found on Roman sites and appear in a variety of shapes, always retaining the two rear studs. Identical parallels to the Fulham example have just been published as auxiliary equipment by Oldenstein (1976, 186-187 and Taf. 56). They are widely spread throughout the German provinces and date predominantly from the 3rd century A.D. Many examples still bear traces of silvering or tinning. (Layer 23).
7. Two fragmentary bronze plates held together by a large central rivet and four smaller rivets, one in each corner. These may be the remains of a military belt plate. cf. Chapman (1973, 48 No. 10 for a similar object). (Layer 25).
8. A thin strip of bronze through which a round-headed tack has passed. This presumably was affixed to some wooden or leather object. (Layer 23).
9. Bronze pin with a terminal in the form of a seven-petalled flower. The central cavity must have held an inset of glass or enamel. (Layer 23).
10. Fragment of a two-strand, twisted, bronze bracelet. (Layer 23).
11. As above, but more delicate and with traces of silvering. (Layer 23).
12. As no. 10 above. (From the surface of layer 10).
13. ?Purposely bent fragment of a strip bracelet decorated with concentric circles and a herringbone design. (Layer 23).
14. A bronze strip bracelet decorated with a herringbone pattern and ribbing. The eye-hole was later plugged with a higher copper wire, and is thus not evidence for a workshop reject. (Layer 23).
15. A similar bronze strip bracelet, decorated with punched circles and dots. (Layer 23).

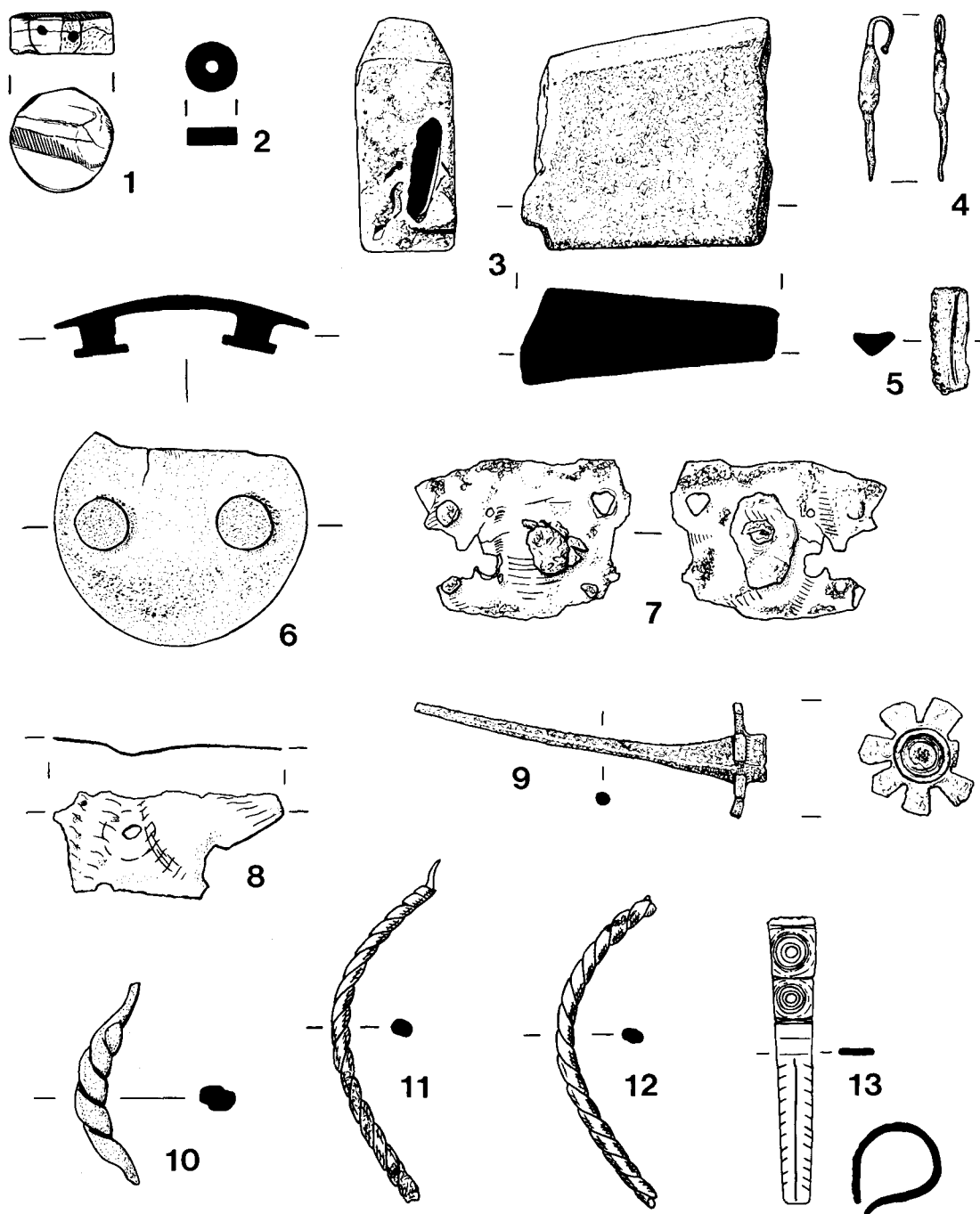


Fig. 7 — Fulham Palace Moat: Small finds 1-13 (1/1)

16. A fragment of a bronze strip bracelet with traces of ribbing. 29mm long. From the surface of layer 10. (Unillustrated).
17. Badly corroded strip of bronze, perhaps from a strip bracelet. 71mm long. (Layer 23). (Unillustrated).
18. Tapering rod of bronze, about 48mm long, which may have formed part of a needle or toilet instrument. (Layer 23). (Unillustrated).
19. A fragment of a bronze brooch spring. (Layer 23). (Unillustrated).

IRON

20. Badly corroded and broken iron nail with a flat circular head and square-sectioned shank. Altogether, a minimum of forty nails of similar form were retrieved from layer 23. Most of them showed signs of use and three intact bent nails had been hammered through wood *c.* 35-40mm thick, and were between 50 and 70mm long. The shank section averaged 5 x 5mm square.
21. A curved or bent iron strip. (Layer 23).
22. A badly corroded iron hobnail from layer 23. A further 37 examples were also found. The shanks varied in length from 7 to 16mm, and the domed heads were *c.* 10mm across.
23. Fragment of iron blade. (Layer 23).

LEAD

24. Fragment of thin lead sheet. (Layer 23). A flattened globule of lead was recovered from layer 17.

25. Folded sheet of lead, broken at one end. This may have been suspended as a weight, and a larger example from Portchester has been described as a net weight. *cf.* Webster (1975, 233 No. 167). (Layer 23).

26. Another, also from layer 23.

BONE

27. Worked piece of bone, perhaps part of a cylindrical toilet box or *pyxis*; a very common find in Italy, though scarce in Britain. *cf.* Frere and St. Joseph (1974, 69 No. 121). (Layer 6).
28. Carved bone eye. The central hole presumably held an inset pupil. Tooling marks around the edge suggest that it may have been inlaid into a statuette. (Layer 23).
29. Knob-headed bone hairpin. (Layer 23).
30. Globular-headed bone hairpin. (Layer 23).
31. Ring consisting of a section roughly cut from a long bone. *cf.* Brodribb (1971, 110 No. 4). (Layer 26).

GLASS

32. Fourteen fragments of Roman glass, representing over half a dozen vessels. One piece has horizontal ribbed moulding and all are colourless or tinted green. (Layer 23). (Unillustrated).
33. Fragment of rim from a fourth century green glass beaker. (Layer 26). (Unillustrated).
34. Eight fragments of Roman glass, two from layer 10 and the rest, including the folded base of a light blue blown flask. (Layer 19). (Unillustrated).

METALLURGICAL RESIDUES

BY R. TRIBBICK

Isolated fragments of silicate material were found in Roman levels. These were of high-iron content, typical of iron-working slag produced when iron-oxide is reacted with silica. This can occur either by combination of iron "scale" with a furnace lining, or with sand which is used to clean it from the surface of iron before hammer-welding. The total quantity (0.25kg.) is small and perhaps suggests scatter from a source not uncovered by this excavation. Some of the fragments are rounded (?water worn), which could support the idea of a more remote origin. No evidence of bronze working was given by these fragments.

Layers 13 and 23: Sections of fragments showed iron-silicate with some free magnetite.

Layer 11: A plate of magnetite, probably scale from heated iron.

Layer 18: Fritted sanded particles cemented with iron-silicate.

THE POTTERY

BY PAUL ARTHUR

Introduction

A large amount of Roman pottery was recovered from the excavation. Apart from its internal dating value, it is useful in that it provides a cross-section of wares available in the London region during the later third and fourth centuries AD. The residual element, pre-*c.* AD 250, appears to be small. Unfortunately, the largest group of pottery present, that in Layer 23 which contains 52% of the rims, consists of a random selection of material predominantly spanning a hundred years. Thus, protracted statistical analysis has not been felt to be worth the effort involved, and that undertaken has been based solely on rim counts. All rims have been tabulated according to probable production centre or fabric type (Fig. 9), and class of vessel (Fig. 10). Three subsections of the report deal with samian ware, a coarse ware, here termed Fabric A, which may be local, and with a detailed list of stamped sherds.

Catalogued sherds include examples important for dating, or of interest in their own right. Much use has been made of Fulford's (1975a) pottery report of the Portchester excavations, and any figure prefixed by the letter P. will refer to the Portchester type series. Other references will be detailed in the bibliography. A hyphen between two colours indicates that the colour of the vessel is a blend somewhere between the two. A dash between two colours indicates that they occur in patches on the vessel. A detailed pottery report will be lodged with the site records.

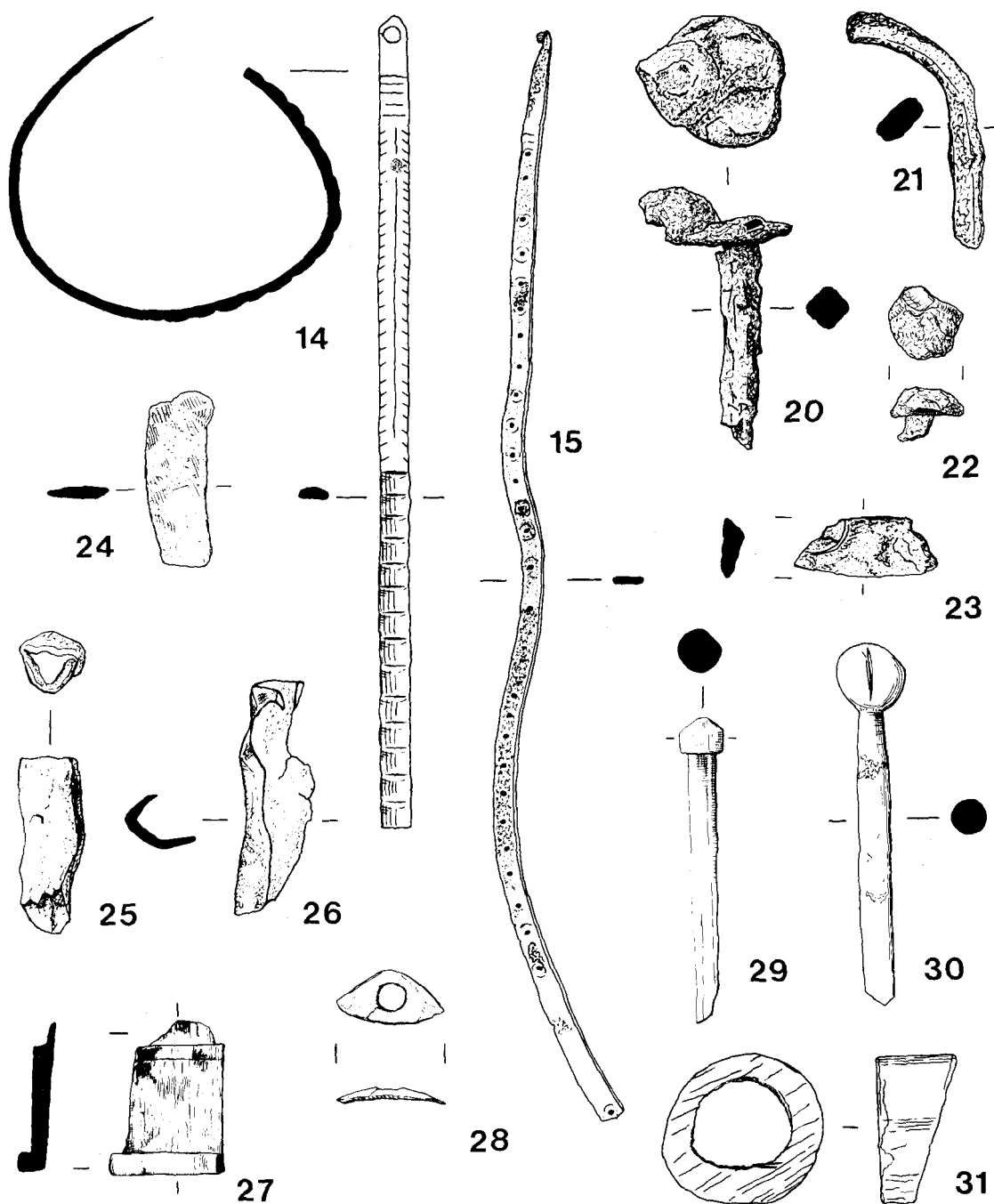


Fig. 8 — Fulham Palace Moat: Small finds 14-31 (1/1)

Discussion

Figure 9 shows the various amounts of pottery types on site according to rim counts, and their relative percentages. The wares have been initially identified by use of a x10 hand lens, and although the statistics will thus not be 100% true they do give some idea of the proportions of wares involved. 26.5% of the assemblage is unidentified, but comprises mostly coarse wares of the standard late southern Romano-British types, closely similar to the Farnham wares. Farnham, in fact, provided over half of the coarse pottery from the site, some 41% of the assemblage. The bank, Layer 23, contained an abnormally high percentage of Farnham ware dishes and a correspondingly low percentage of flanged bowls. It would be of prime importance to know where the unidentified material comes from as it comprises about one third of the coarse pottery. 6% of the total assemblage is accounted for by Fabric A, which may be local (see below). Black-burnished wares form 4% of the total, although only a minimal amount can be assigned to the Dorset source (i.e. BB1). Shell-tempered vessels form only 2% of the whole. They are similar in fabric to the pottery from the Harrold kiln site, Beds., and No. 54 is a typical jar form, which presumably had horizontal rilling on the shoulder.

The Oxfordshire kilns, providing 12% of the material, form the second largest identified group from the site and the bulk of the fine wares. Transport was presumably by river. Fulford and Hodder (1973) have listed percentages of Oxfordshire pottery from the major Romano-British sites. Although they stress that too much reliability should not be placed on their data, they found that a water link with the Oxfordshire kilns was an important factor in the percentages of such pottery arriving at a site. Additionally, rural or semi-rural sites, such as Fulham appears to have been, seem to have consumed smaller percentages of 'exotic' pottery than urban sites. This may be indicated by the 12% of Oxfordshire pottery at Fulham, some 18% at London, which is even further from the kilns, and apparently some 25% at Staines, Crouch (1976, 100), the closest of the three sites to the source. Another problem is the nature of the supply of Oxfordshire pottery to Thameside sites such as Fulham. The nature of the site may have made it unprofitable for merchants to have dropped off pottery on their way to London, and thus it might only have reached Fulham from a secondary distribution point such as the markets of the capital. Unfortunately, it is still too early to see how proportions of this, or of any other pottery, compare with other rural sites in the area.

Much Hadham, which is nearer than the Oxfordshire kilns, can apparently account for only some 2% of the wares, or 3.5% if Verulamium region material, much of which may be residual, is added on. An assessment of the Much Hadham pottery industry is clearly vital. The Vale of St. Albans is drained by the Colne to the west and the Lea to the east, and these rivers may have been adopted for river transport down to the Thames in much the same way as the River Wey was used for the transport of Farnham ware. However, in the third century, with drastic changes in pottery organisation, London region sites tended to look less and less to the north and the continent for their wares and more towards the south and west where new large industries were developing. The drive of the northern Nene Valley industry however, is indicated by equal ceramic proportions to Much Hadham.

Imported pottery comprises samian, 'Rhenish', Southern Spanish amphorae and Mayen ware, which, together with a fragment of glass (?British), forms a negligible 1.5% of the assemblage. The samian may be residual, as may be the amphora sherds. These latter, not represented by rims, would appear to belong to oil amphorae of Dressel forms 19 and 20. Although they are generally dated prior to the confiscation of Spanish estates by Septimius Severus, finds from Italy suggest their exportation at least until the middle of the 3rd century, Zevi (1966). The one fragment of Mayen ware amplifies this pottery's distribution around the Thames, and came from the same region of Germany as did the lava querns found on site.

The statistics show that the ratio of fine to coarse wares in the site assemblage is in the region of 1:5.

<i>Type</i>	<i>Percentage</i>	<i>Distance of site from kilns</i>
Oxfordshire	12%	Within 50 mile radius.
Farnham	41%	Within 40 mile radius.
Nene Valley	2%	Within 90 mile radius.
Much Hadham	2%	Within 30 mile radius.
Verulamium region	1.5%	Within 30 mile radius.
Black burnished ware	4%	Various sources.
Shell tempered ware	2%	Probably various sources.

Type	Percentage	Distance of site from kilns
Fabric A	6%	?Local.
Imports	1.5%	Over 300 miles.
Unidentified wares	26.5%	Most probably within 50 miles.

Fig. 9. Breakdown of pottery into types and fabrics

VESSELS	LAYERS																TOTALS	%
		9	10	11	13	15	16	17	18	19	20	22	23	24	25			
Storage jars		1	—	—	—	—	—	1	—	1	—	—	10	—	—	13	3%	
Jars		4	11	10	3	2	6	8	8	18	3	4	84	1	4	166	41%	
Bowls		1	4	1	2	—	2	4	4	5	—	2	32	—	—	57	14%	
Beakers		—	2	2	1	—	1	4	3	3	1	—	16	—	1	34	8%	
Dishes		2	2	3	2	1	—	4	10	8	1	—	43	—	1	77	19%	
Flanged bowls		1	3	4	—	—	—	4	1	2	—	1	16	—	2	34	8%	
Mortaria		—	1	—	—	—	—	1	1	1	1	1	3	1	—	10	2.5%	
Flagons/Jugs		—	2	—	—	—	—	—	—	—	—	1	5	—	—	8	2%	
Lids		—	—	—	1	—	—	—	1	1	—	—	1	—	—	4	1%	
Face jar		—	—	—	—	—	—	1	1	—	—	—	—	—	—	2	0.5%	
TOTALS		9	25	20	9	3	9	27	29	39	6	9	210	2	8	405		

Fig. 10. Breakdown of vessel types by rim counts

Figure 10 is a breakdown of pottery forms from the various site deposits. Jars predominate in all deposits, and represent 41% of the total. The high number, although normal on similar sites, may perhaps be accounted for by the many uses to which such a vessel may be put. Some jars, perhaps the darker fabric vessels, may have been predominantly for cooking, while others may have been for storage or as packaging for merchandise. True storage vessels form solely 3% of the assemblage.

The rest of the percentages require little comment. The frilled face-jar reminds us of the not wholly domestic nature of the pottery.

THE SAMIAN WARE BY CATHERINE JOHNS

Layer 10: Dr.31, Central Gaulish, Antonine.

Layer 13: Dr.38, Central Gaulish, Antonine.

Layer 15: Two indeterminate sherds, one Central Gaulish, one East Gaulish, both Antonine.

Layer 23: Dr.31, Central Gaulish, Antonine, stamped . . . RILLIMA, probably SACRILLUS.
Indeterminate sherds, probably mainly from Dr.31 (one sherd of Dr.33), all Central Gaulish and Antonine.

One sherd of Dr.45 in East Gaulish fabric, also late second century.

Layer 18: Dr.38, Central Gaulish, Antonine.

The Other Pottery

Fabric A.

Fabric A is an unidentified coarse ware which forms some 6% of the total pottery assemblage. Examination of the pottery assemblages at Putney and Brentford where, due to their proximity to Fulham, one might expect parallels to appear, proved negative. Additionally, it does not appear to be present at Staines or Southwark, whilst Malcolm Lyne informs the writer that he cannot recall having seen the ware during his examination of coarse pottery collections in the south of England.

Therefore it would seem probable that the ware, here termed Fabric A, is of local manufacture.

The pottery is hand-made, but displays a fair degree of competence on the part of the potter. The fabric is generally brown or dark grey-brown with a thick black core, and fairly hard and sandy. Examination under a x10 lens clearly shows an abundance of rounded and sub-angular quartzite grits, scarcely larger than 0.5mm in diameter, embedded in the clay matrix. Tempering consists of sporadic particles of red grog, Reeves (1974; Red/Brown A2). Dr. J. G. Rider kindly carried out thermal expansion measurements (Tite, 1969) on a test-piece, from which he concluded that the sherd was originally fired below the vitrification temperature of the clay from which it was made. Its vitrification temperature was estimated at 710° C. Thus, it is quite possible that the pottery was fired in clamp- or bonfire-kilns, which would leave little or no trace in the archaeological record.

The earliest stratified sherds of Fabric A came from Layer 10 (Phase 1). Due to lack of close dating evidence it is, at present, impossible to do more than suggest a 4th century date for the ware. This accords with the dating of what looks to be a similar piece from Gadebridge Park villa, Neal (1974, 249 No. 402), although confirmation of similarity is needed.

Fabric A is present in four basic forms:

- (i) A plain, everted-rim jar in various sizes (e.g. Nos. 32-33). Thirteen rim sherds were recovered.
- (ii) A bowl with a plain flattened rim of sub-triangular section (e.g. Nos. 10, 36 and 60). Ten rim sherds were found.
- (iii). A bowl with a plain, almost vertical, rim. The angle of the body turns inwards about a third of the way down (e.g. No. 61). Three rim sherds were found, of which two joined.
- (iv). A globular beaker or jar with a slightly beaded rim. One rim sherd was found and is unillustrated.

The base (No. 40) with centrally perforated hole is also in Fabric A, but cannot be certainly matched to any of the preceding forms. Some of the vessels display signs of burnishing.

Without more evidence, little can be said about this ware. However, it is interesting to find examples of very local hand-made wares, apparently dating to the 4th century, which may presage sub-Roman or early Anglo-Saxon wares of the fifth century. The simple forms recall some late pre-Roman and Roman iron age types.

THE STAMPED SHERDS

Eight sherds with concentric circle or 'rosette' stamped decoration were found during the excavation. These are described below and illustrated full size (*Fig. 11*) to facilitate comparison with similar stamped pottery from other sites.

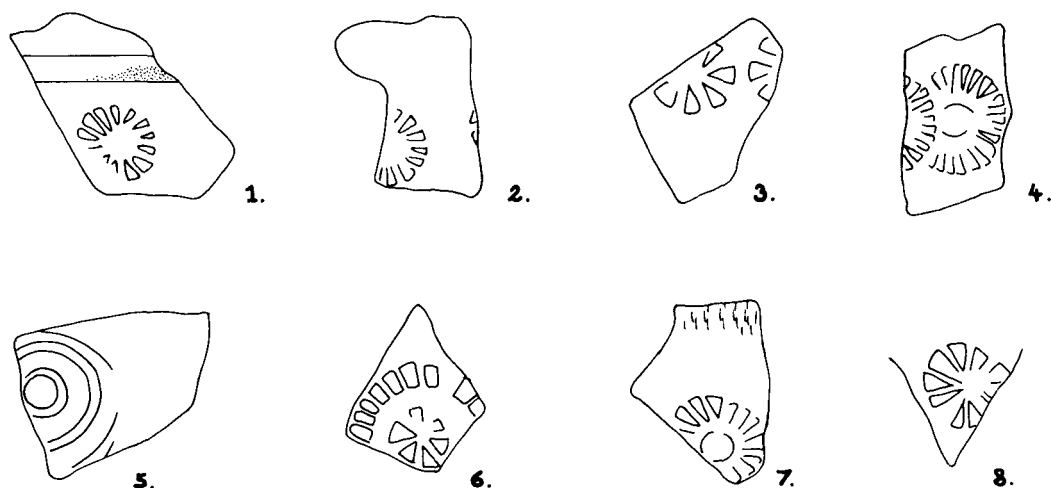


Fig. 11 — Fulham Palace Moat: The stamped sherds (1/1)

1. Bowl of type P.34 in Oxfordshire fabric 1. This stamp is identical to that on sherd 2 below, which is probably from the same vessel. (From Layer 18).
2. Same fabric as No. 1 above. (From Layer 23).
3. Bowl in Oxfordshire fabric 1, but burnt. (From Layer 23).
4. Bowl in Oxfordshire fabric 1. (From Layer 23).
5. Slightly micaceous buff-pink fabric, with an orange core and light brown slip. (From Layer 23).
6. Similar fabric and slip to No. 5 above, but not noticeably micaceous. (From Layer 26).
7. Similar to No. 5 above, but with a grey core. The sherd may belong to a bowl of type P.36. (From Layer 26).
8. Bowl of type P.33 in Oxfordshire fabric 1. (From Layer 26). For a drawing of this particular vessel see No. 67 in the main catalogue.

The Other Pottery; Catalogue

(Fig. 12 Nos. 1-26; Fig. 13 Nos. 27-52; Fig. 14 Nos. 53-69)

Layer 9: Gravel spread

1. Three body sherds of a Nene Valley beaker, in buff fabric with a chocolate brown slip, rouletting and cream barbotine decoration. Cf. O'Neil (1945, 91 No. 52).
2. Flat topped jar in medium grey sandy fabric. Farnham ware.
3. Triangular, undercut rim of a jar type P.136. Grey-brown sandy fabric, with a marginally lighter core.
4. Circular storage jar rim of sandy grey-buff ware, with a light grey layer sandwiched between it and the core. P.177. A joining sherd came from Layer 23.
5. Undercut rim of a storage jar or 'stew-pot', in medium grey ware with an orange-pink core in parts. Traces of a grey slip.

Layer 10: Gravel resurfacing of Layer 9.

6. Cornice rim jar in a slightly micaceous orange fabric, with an overall orange slip. Much Hadham ware.
7. Squared rim of a narrow-necked jar, in buff-red fabric with a brown-buff surface and traces of grey slip. P.153. Farnham ware.
8. Flanged bowl similar to P.87.3 in form with a sandy grey/brown fabric, further reduced in places, and covered by a light grey slip.

Layer 11: Clay beneath gravel surface, Layer 12.

9. Dish in micaceous black fabric, slightly buff immediately beneath the surface. Cf. Wilson (1972, 344 No. 1085).

Layer 16: Gravel surface.

10. Fabric A bowl; form II.

Layer 17: Burnt deposit.

11. Neck and rim of a 'Rhenish' beaker with grey and red sandwiched paste and a glossy dark brown slip. Central Gaulish. A joining fragment came from Layer 20.
12. A beaker with a slightly everted rim, in hard buff-orange fabric with a medium grey core, containing mica and quartz grits. The outer surface appears slurred. Probably Much Hadham ware.
13. Top of a face-jar in slightly grogged orange-pink ware, with grey core at the rim and a fine orange-pink slip. The eyes are pressed out from the inside and the nose is applied. A joining rim sherd came from Layer 18. Much Hadham ware. Cf. Hull (1958, Type 290).
14. Rim of an Oxfordshire bowl, P. fabric 3, with red slip on the exterior of the rim. Slightly burnt.
15. An Oxfordshire bowl, P. type 40.6, in fabric 1. Four sherds of this vessel were recovered, all burnt, two from Layer 17 and two from post-Roman levels.
16. An Oxfordshire mortarium, P. type 63, fabric 3. Burnt.
17. A flanged bowl in hard grey fabric with a lighter grey core. A light grey slip covers the flange and interior surface. Farnham ware. A small sherd of this vessel was recovered from Layer 23.

18. Flanged bowl in off-white ware with a matt black slip. Burnt. Nene Valley ware. Cf. O'Neil (1945, 93 Nos. 2-3), and Sheldon (1972, 121, No. 4).
19. Rim of a flanged bowl in sandy black ware, with a grey/brown surface and grey slip on the flange.
20. Plain dish in dark grey ware with a buff core. Farnham ware.
21. Two sherds of an everted rim jar in hard grey fabric, with a light grey slip on the exterior surface and running half way down the interior of the rim. Farnham ware.
22. Jar with everted hooked rim of very sandy pink and grey fabric. Farnham ware.
23. Bead-rim of a storage jar, in grey fabric and with a lighter grey core. A darker grey slip covers the exterior surfaces and runs halfway down the interior of the rim. Farnham ware.
24. Jar of grey ware with a lighter grey core and traces of a darker slip over the rim. Farnham ware.
25. Narrow necked jar, of a hard grey fabric with a darker grey slip. Farnham ware.
26. Fairly soft, hand-made, everted rim jar. The shell tempered fabric varies in colour from buff to orange, with a light grey core. There are a series of horizontal impressions below the rim.

Layer 18: Other burnt deposit.

27. Base in slightly micaceous orange-brown fabric, with an exterior red-brown colour coat.
28. Rim and shoulder of a vessel in hard light pink ware, with sand inclusions and cream surface, showing delicate cornice moulding below the vertical rim. Probably Verulamium region and residual.
29. Lid in grey-buff ware, with a grey core and grey surfaces. Farnham ware. Cf. Hanworth (1968, 44 No. 38). A joining fragment came from Layer 13.
30. Flanged bowl of BB 1 ware, in a sandy dark grey fabric with black surfaces and external burnished decoration.
31. Dish in sandy dark grey fabric, with external burnished decoration.
32. Small fabric A jar, form I.
33. Large fabric A jar, form I.

Layer 19: V-shaped ditch.

34. Bowl imitating Dr.38, P. type 43, Oxfordshire fabric 1. Two pieces, both burnt.
35. Undercut, everted rim jar, with a cordon half way down the neck. Sandy medium grey ware with a lighter core. Farnham ware.
36. Fabric A bowl, form II.

Layer 20: U-shaped trench.

37. Mortarium, P. type 63, with a squared flange and of Oxfordshire fabric 3.
38. Undercut, everted rim in grog-tempered grey fabric, oxidized buff-pink on the surface and covered with an overall cream slip. Cf. Sheldon (1971, 60 No. 30).

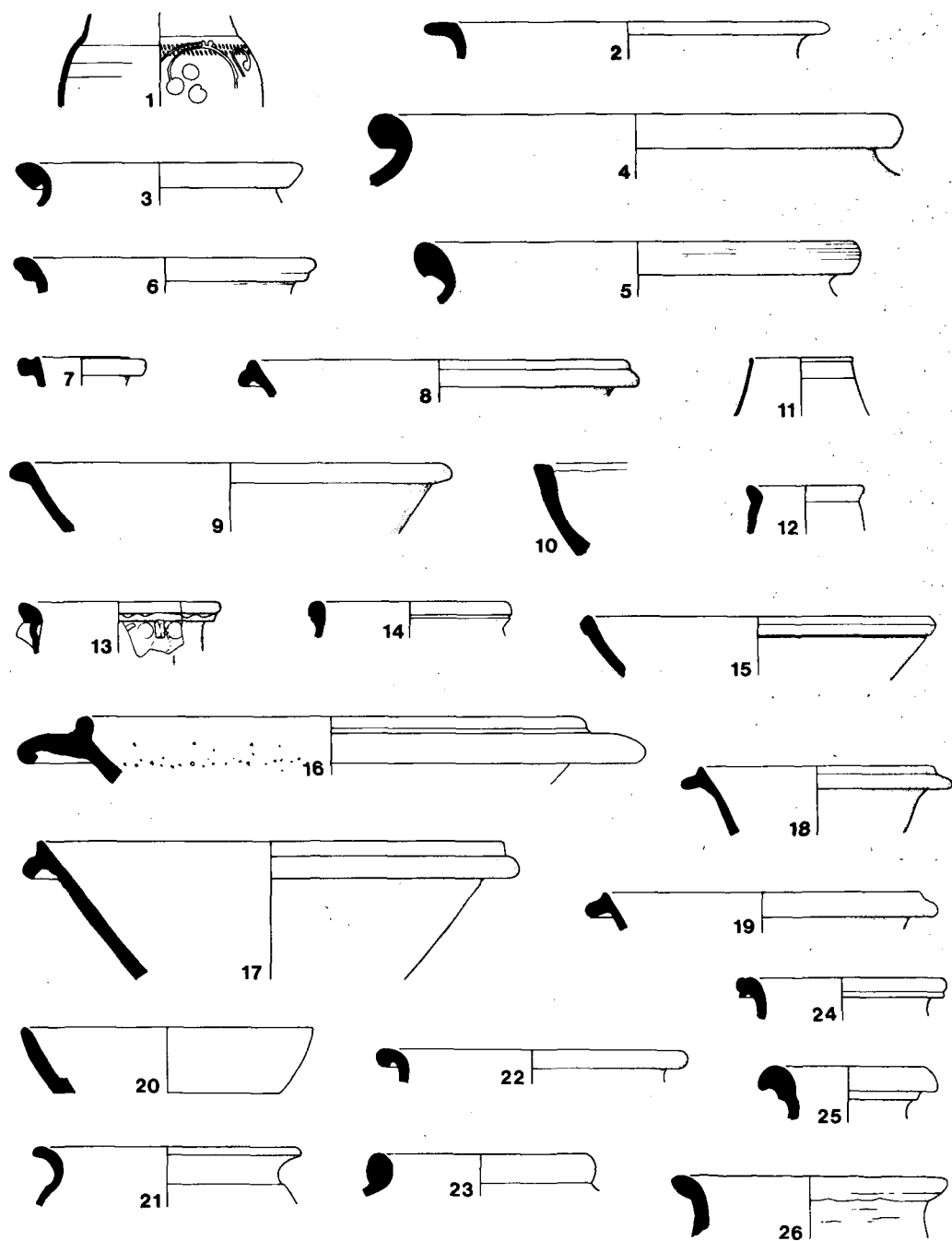


Fig. 12 — Fulham Palace Moat: Roman pottery Nos. 1-26 ($\frac{1}{4}$)

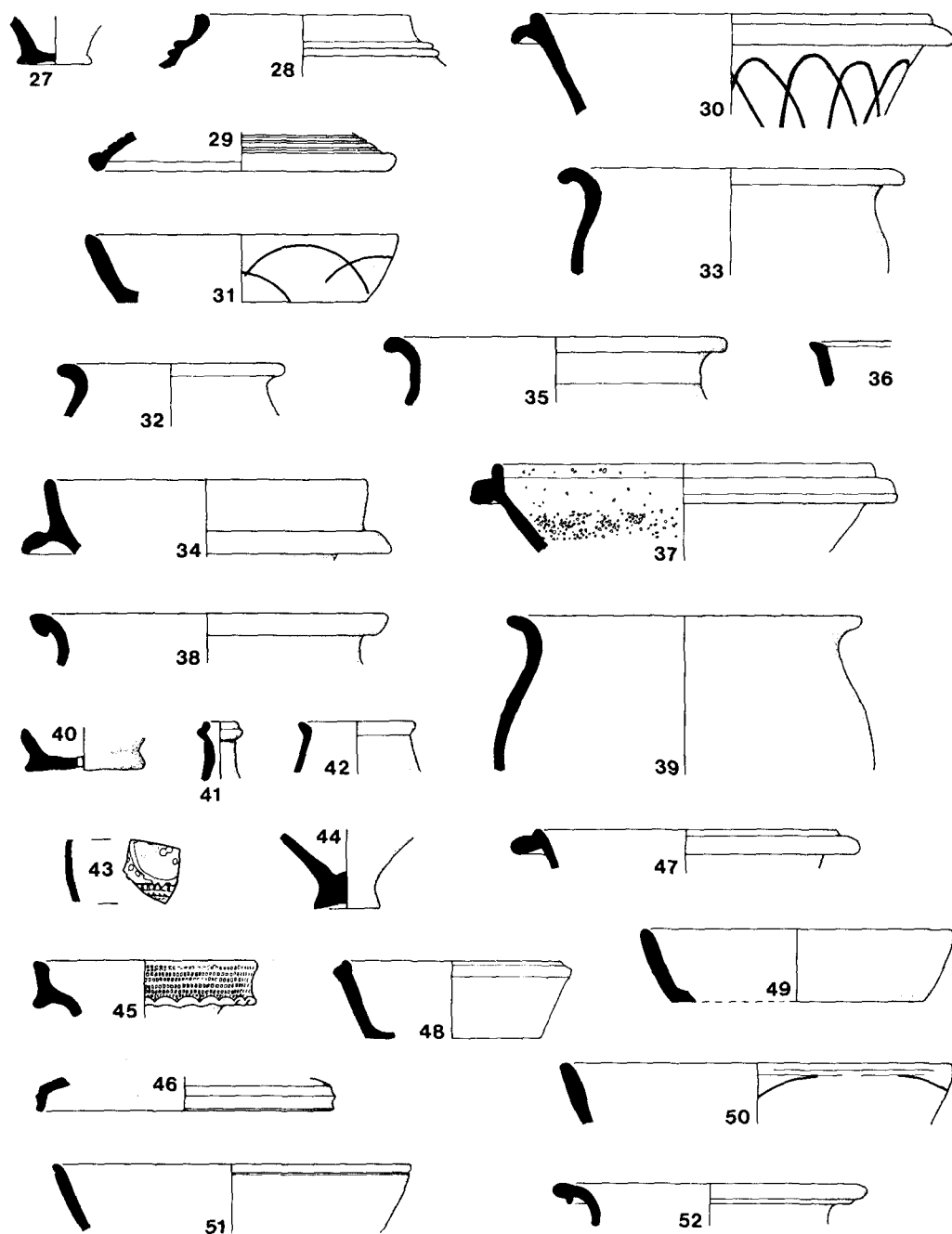


Fig. 13 — Fulham Palace Moat: Roman pottery Nos. 27-52 ($\frac{1}{4}$)

39. Hand-made, everted rim jar in dark brown/grey fabric with shell-tempering. A joining sherd from Layer 23.
40. Base of a fabric A ware vessel, with a centrally perforated hole. As only half of the base was found it is impossible to say whether or not the hole formed one of a pair of rivet holes.

Layer 23: Bank.

41. Flanged spout of a flask in orange fabric, with a dark brown colour coat. Cf. Fulford (1975b, 44 Type 2), for a New Forest example of this vessel.
42. Outbent beaker rim in white paste, with dark grey colour coat. Cf. Wilson (1972, 348 No. 1117) for rim. ?Nene Valley.
43. Body sherd in orange-buff fabric, with internal and external brown slip and decorated with rouletting and orange barbotine.
44. Beaker base in orange-buff fabric, with a medium brown external slip.
45. Narrow-necked jar rim in cream ware, with a pink/grey core. It is decorated with many small impressed rectangles and frilling. This vessel is exactly paralleled by an example from Brentford (1974 site; unpublished) found in a 4th century deposit. Wilson (1972, 352 No. 1152) illustrates an example, similarly from a fourth century context, and Suggett (1953, Nos. C30-31) from Brockley Hill are similar.

46. Lid or dish in fairly soft, cream, fabric.
47. Flanged bowl in medium grey sandy ware, with a lighter grey core.
48. Flanged dish in fairly hard, dark brown/grey fabric, with a dark grey slip on interior surface and over flange. Farnham ware.
49. Plain dish in a dark grey/buff sandy ware, with a dark grey interior slip and slight burnishing on the exterior. Farnham ware.
50. Plain dish in a dark grey, sandy ware, with semi-circular burnished lines on the exterior, and a black burnished slip on the interior. Farnham ware.
51. Plain dish with a groove immediately below the rim. In hard grey fabric, with a dark grey burnished slip on the interior and above the groove on the exterior. Farnham ware.
52. Cornice rim in a fairly sandy, grey, grogged fabric, with a grey core and thin red-buff layers sandwiched between it and the surface.
53. Triangular rim, P.137.6, in a very sandy, slightly grog-tempered, pink-buff fabric. There is a grey core and blackened rim terminal. This is Fulford's Fabric D, which appears to be no earlier than the early fourth century AD. Opinions differ as to whether or not this is a Farnham fabric and of the Tilford variety.
54. Triangular jar rim in heavily shell-tempered grey fabric, with a buff surface.

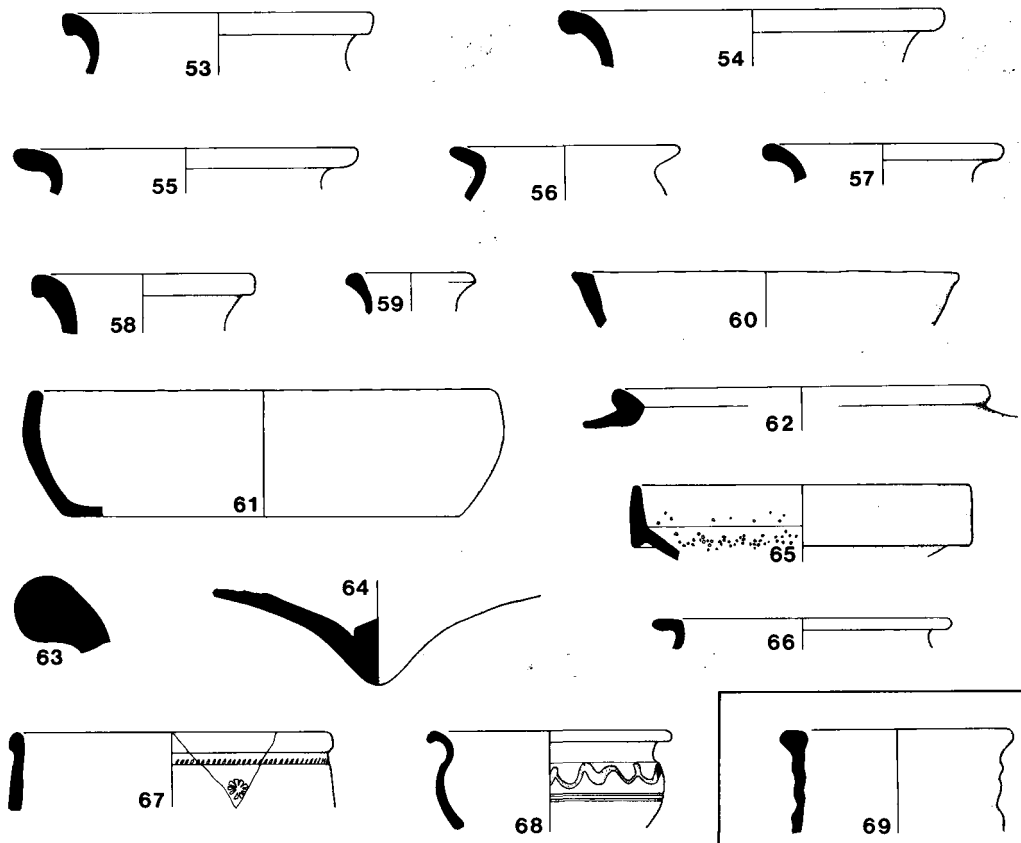


Fig. 14 — Fulham Palace Moat: Roman pottery Nos. 53-69 and medieval No. 69 (¼)

55. Everted rim jar in hard, sandy orange-grey fabric, with a grey core and orange layer just beneath the surface. Possibly Farnham ware.
 56. Similar fabric to No. 55 above, but with a cream-buff surface.
 57. Everted rim in a black shell-tempered fabric.
 58. Triangular rim from a jar, in a medium grey fabric, with a medium grey slip. Farnham ware.
 59. Slightly triangular rim of a highly fired jug, in a light green-grey fabric, with inclusions of both angular and rounded quartz grits and other inclusions. Mayen ware. Cf. Fulford and Bird (1975, Fig. 1 No. 2).
 60. Fabric A bowl of form II.
 61. Fabric A bowl of form III.
 62. Flattened, squared storage jar rim, with a grey core and surface, a light buff-grey sandwiched layer and a burnished grey exterior slip. Farnham ware. A joining sherd came from Layer 12.
 63. Large rounded storage jar rim in medium grey, grogged ware, with a slightly oxidized outer surface and traces of a grey slip. Possibly from Essex.
 64. Stub of a Dressel 20 amphora from Southern Spain. Micaceous pink/buff fabric. Body sherds from other examples were also found.
- Layer 24: Gravel capping to bank.*
65. Fairly sandy mortarium, imitating Dr. 45. Pinky-orange fabric and grey core, with a red-brown slip, red-brown grog inclusions and quartzite trituration grits. Non micaceous.
 66. Jar with horizontal out-bent rim, in a grey fabric, with a light grey core. Farnham ware.
- Layer 26: Post-Roman deposits.*
67. Bowl, form P. 33, in a hard orange fabric, with a grey core. Slip varies from red-brown to black, and decoration consists of rouletting and stamping. Cf. Fig. 11, No. 8, for a full-size drawing of the rosette stamp.
 68. Everted rim bowl, with two girth grooves, in a hard buff fabric and orange core. The exterior bears a grey-brown slip and white barbotine decoration.
 69. A medieval jug neck in a hard, sandy, cream ware, with a blotchy pine green glaze on the exterior.

THE ANIMAL BONES

BY JULIET CLUTTON-BROCK

The animal remains from the site were mostly very fragmentary and many of the scraps of bone were rolled as if they had lain in water. An exception to the majority of the material was the finding of the almost complete skulls of a dog and horse (layer 7; see p. 53), the former with a mandible, the latter without. It is difficult to escape the conclusion that these skulls were buried for some ritual purpose. They were found, facing east, in a shallow pit partly covered by layers 9 and 10. The dog's neck had been presumably severed at the junction of the axis and the first cervical vertebra for the axis and atlas were still in position next to the occipital condyles. This would suggest that there was still flesh on the skull when it was buried. The lack of mandible with the skull of the horse, on the other hand, suggests that this may have been a clean skull when it was buried. The dimensions of the two skulls are given below.

SKULL OF DOMESTIC DOG (measurement in mm)

Condylar-basal length	— 141.5
length of mandible	— 114.0
height of vertical ramus	— 42.6
depth of vertical ramus under P4	— 16.25
zygomatic width	— 94 (est)
cranial width	— 56.3
maxillary width	— 60.0
premaxillary width	— 16.7
palatal length	— 78.0 (est)
length upper cheek tooth row	— 55.5
length lower cheek tooth row	— 58.8
length of upper carnassial tooth	— 15.9
length of lower carnassial tooth	— 18.90

The measurements show that the dog was not a very large animal; it was probably similar to an average-sized mongrel of the present-day. The dentition is anomalous in that both the upper and lower second premolars are absent. The teeth are well-worn and it is likely that the dog was more than four years old at the time of its death. The jaws were healthy and there is no sign of periodontal disease or malnutrition.

SKULL OF A DOMESTIC HORSE

The facial region has been smashed, probably as a result of pressure in the soil. The upper right tooth row is complete in the maxilla, whilst the left cheek teeth are present but separate from the fragmentary maxilla. Dimensions of the horse skull are as follows (in mm):

Cranial width	— 113.0
zygomatic width	— 210.0
width of occipital condyles	— 79.6
width of upper right cheek tooth row	— 177.0

The first premolar is much worn which could be the result of the horse biting on a metal bit. This cannot be ascertained with certainty, however, without knowing the state of wear of the corresponding lower premolar. The horse was large and probably stood at least 15 hands (152.5cm) at the withers. The bone of the skull and the teeth were in a healthy condition at the time of death although the wear of the teeth indicates that the horse was probably at least 15 years old.

The rest of the animal remains have been identified as follows. No remains of wild animals were found, with the exception of one water vole mandible, a few bird bones, and one rabbit metatarsal which could be intrusive:

LAYER 6

- Pig — 1 nearly complete right mandibular ramus.
Length LRM3 — 32.05mm.
— 1 juvenile matapodial.
- Ox — 1 juvenile axis vertebra.
— 1 complete metatarsal. Length — 248 mm.
prox width — 56
dist width — 63
min width shaft — 31
- Sheep/goat — 1 fragment of maxilla with teeth.
— 1 fragment of radius.

LAYER 17

- Pig — 1 tibia fragment.
- Ox — 7 fragments of horn core and skull fragments.
— 1 mandible fragment.
— 1 premolar.
— 1 cervical vertebra.
— 1 talus — length — 63.75 mm.
— 1 hoof core.
- Sheep/goat — 1 lower tooth.

LAYER 23

Oryctolagus cuniculus (rabbit) — 1 metatarsal bone.
Arvicola terrestris (water vole) — 1 mandibular ramus.

- Dog — 1 premolar tooth.
— 1 distal end tibia.
- Cat (probably domestic) — 2 metatarsal bones.
1 radius.
3 vertebrae.
1 1st phalanx.
- Horse — 4 teeth.
— 2 articulating cervical vertebrae from a small horse or pony.
— 1 distal end of a radius.
— 1 1st phalanx fragment.
- Pig — Fragments of maxilla, teeth and limb bones, some juvenile.
- Ox — Fragments of long bones, ribs, foot bones etc. None complete enough for measurement.
- Sheep/goat — Fragments of teeth and limb bones.
— 1 distal end of metatarsal — width — 20.5 mm.

LAYER 24

- Dog — 1 distal end of a tibia.

LAYER 25

- Pig — 1 cuboid bone.
— 1 complete talus — length — 59.9 mm.
— 1 hoof core — length — 63.5 mm.

The other Roman levels contained fragments of bones and teeth of domestic pig, ox, and sheep/goat that are not listed because they are not complete enough for any useful results to be obtained from them. In layer 11 there was a small collection of much-smashed bone fragments which were obviously associated and were considerably stained from the iron deposit. Unfortunately the fragments were too small to be identified but they probably came from one ungulate skull.

THE COAL

BY DR. A. H. V. SMITH

Specimens of coal and coke were submitted to the Yorkshire Regional Laboratory of the National Coal Board for evidence that might indicate the source of the coals. The samples comprised 5 small fragments of coal from layer 23 and one from layer 11 as well as two fragments of coke-like material also from layer 23.

The five fragments of coal were crushed and treated as a single sample. The sample from layer 11 was also crushed. Reflectivity measurements and spore analyses were made on both coal samples to determine their rank and approximate age. The two pieces of coke were impregnated with resin, ground and polished for observation under the microscope to confirm their nature.

The average maximum reflectivity of the coal from layer 23 is 0.91%, that of the coal from layer 11 0.73%. These values are significantly different and indicate a strongly and weakly caking bituminous coal respectively. The deduced volatile matter and carbon contents on a dry ash free basis of coals with these reflectivities are respectively: 35.5-38 and 84.5-86 (Layer 23), and 36.5-39.5 and 81.5-83.5 (Layer 11).

A good assemblage of spores was obtained from each coal sample and from the established stratigraphical ranges of the species present it can be stated that the coal from layer 23 is of Middle Coal Measures age, that is, from a seam between the Clay Cross and Mansfield marine bands of the Yorkshire coalfield or the equivalent horizons in other coalfields. The coal from layer 11 is of Lower Coal Measures age, that is, from below the Clay Cross marine band and more precisely from seams between the Better Bed and Fenton seams of the Yorkshire coalfield or their equivalents.

It is assumed that coal seams in Roman times would have been worked at their outcrop. Seams of the appropriate age and rank outcrop in the east Pennine coalfield from Nottinghamshire to Northumberland. The particular coalfields from which each coal may have come are Yorkshire (Barnsley area) and Durham for the coal from layer 23, and Yorkshire (Leeds area), Nottinghamshire and Northumberland for the other specimen. Since no spores are diagnostic of individual seams it is impossible to be more precise.

Microscopic examination of the two pieces of coke-like material showed that one was a char from a mild heating such that the microscopic components were still recognisable whereas the other had been completely coked. The optical properties of the coke suggest that the rank of the original coal was similar to that recorded from the coal in layer 23.

CONCLUSION

The coal fragments from the different levels on site are from more than one source but both could derive from outcrops of the East Pennine coalfields. The lower rank coal could have come from the Nottinghamshire coalfield but the other coal is unlikely to have originated from nearer London than Yorkshire.

THE CHARCOAL

BY G. RICHARDSON, ROYAL BOTANIC GARDENS, KEW

The following woods were identified from charcoal found in the Roman deposits:-

Oak	<i>Quercus robur</i> L. type.
Elm	<i>Ulmus</i> sp.
Ash	<i>Fraxinus excelsior</i> L.
Hazel	<i>Corylus avellana</i> L.
Thorn	<i>Crataegus</i> sp.
Acer	Probably <i>Acer campestre</i> L.
Coniferae	Probably Fir. <i>Abies</i> sp.
Salicaceae	Probably Poplar. <i>Populus</i> sp.

THE MOLLUSCAN REMAINS

A complete qualitative analysis of the molluscan remains from soil samples taken on site by J. Cooper, is preserved with the site records. A summary article on the material is published in *The Conchologists' Newsletter* No. 57, Cooper (1976, 490-492).

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ACKNOWLEDGEMENTS

We are most grateful to the Hammersmith Borough Council for allowing us to excavate the site. Together with them we also thank the Wandsworth Historical Society for the invaluable loan of their equipment and Mr. R. P. Hills and his firm McAlpines for advice and loan of trench shoring.

We are indebted to the many specialists who have given of their knowledge: Miss D. Charlesworth (Glass), Dr. Juliet Clutton-Brock (Animal Bones), Mr. J. Cooper (Molluscs), Mr. F. G. Dimes and Mr. M. Owen (Stone Building Material), Miss C. Johns (Samian Ware), Mr. G. Richardson (Charcoal), Dr. J. G. Rider (Thermal expansion measurements), Dr. A. H. V. Smith (Coal), Mr. R. Tribbick (Metallurgical Residues) and Mr. J. J. Wymer (Flints). Mr. Malcolm Lyne and Mr. Martin Millett gave help with the Alice Holt/Farnham pottery.

Thanks are also due to Mr. R. Merrifield, Mr. H. Sheldon and Mr. S. Warren for visiting the site and giving their most helpful advice, Dr. R. Reece and Dr. Hugh Chapman for reading and commenting on the text of the report and Mr. N. Farrant for his assistance both during and after the excavation.

Mr. C. Oliver acted as Site Surveyor, drawing up all plans and sections, and gave constant assistance and encouragement, Mr. S. Garfi drew the small finds and Mr. P. Elkins made the initial pottery drawings. Mr. G. A. C. Evans provided storage and transport. Miss Janet Taylor kindly typed the report, and M/S M. Edgar, N. Hale, F. McLaren and L. Jones gave particular assistance in post-excavation work. We owe a debt to these and to the many volunteers without whom the excavation and processing would not have been possible.

The substantial part of this report was compiled in 1976.

The Society is grateful to the London Borough of Hammersmith for a grant towards the cost of publishing the report.