AN EXCAVATION AT 5–27 LONG LANE, LONDON BOROUGH OF SOUTHWARK, LONDON SE 1

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With contributions from Philip Armitage (animal bones), Nick Branch (pollen-stratigraphic analysis), John Brown (building materials), Joanna Bird (decorated samian), Barry Bishop (lithics), Wendy Carruthers (plant remains), Damian Goodburn (timber technology), Malcolm Lyne (Roman pottery), Ellen Swift (registered finds), and Lisa Yeomans (analysis of the horn cores)

SUMMARY

Excavations at 5–27 Long Lane, London Borough of Southwark unearthed archaeological remains dated to the Bronze Age, Roman, medieval, and post-medieval periods. In prehistory and during the Roman period the site lay on the southern edge of a low-lying sand island, part of a series of eyots that formed the south bank of the Thames. These eyots have in recent years been increasingly recognised as preferred locations for prehistoric activity. A timber platform that may have acted as a landing-stage attests to the importance of access to the island for the local population in the Bronze Age. Environmental samples of the surrounding peat have provided detailed information on the local vegetational history of the site from the Early Bronze Age to the Late Iron Age.

At the time of the Claudian invasion the area of the site seems to have been an inter-tidal marsh. A timber structure, perhaps a landing-stage, was found and dated to the mid-1st century AD. The subsequent fall in river levels meant that by the end of the century the timber structure was redundant and the land had been reclaimed for urban development. A sequence of clay-and-timber buildings spanned the period from the beginning of the 2nd century until the middle of the 3rd century AD. Together with the pottery and animal bone recovered from associated deposits these finds provided a wealth of information on the everyday lifestyle of some of Roman Southwark's ordinary citizens.

After the Roman abandonment of the site 'dark earth' up to 1m thick formed. The site was not developed again until the post-medieval era when, in the 17th century, pressure for housing once again meant that the site was built upon.

INTRODUCTION

Archaeological investigations, in advance of new building, were undertaken by Pre-Construct Archaeology Ltd at 5–27 Long Lane, London Borough of Southwark, SE 1, between November 1999 and January 2000. The archaeological works were at the behest of CgMs on behalf of Metropolis Developments who generously funded the excavation and post-excavation work.

The site (TQ 3260 7978) is located near the junction of Tabard Street and Borough High Street, bounded in the east and west by commercial properties, to the north by St George's Gardens, and to the south by Long Lane. Rectangular in plan, the site covers an area of approximately 800m^2 (Figs 1, 2).

GEOLOGICAL BACKGROUND AND TOPOGRAPHIC SETTING

The site lies within Greater London, on the south bank of the River Thames, approximately 700m south of the present London Bridge. The drift geology of north Southwark is formed by the Pleistocene gravels and in places by alluvial sand or clay.

At the time of the Roman Conquest in AD 43 a broad 'main channel' existed between the north bank of the Thames, some 100m to the north of the modern waterfront, and a south bank lying close to the present day riverfront

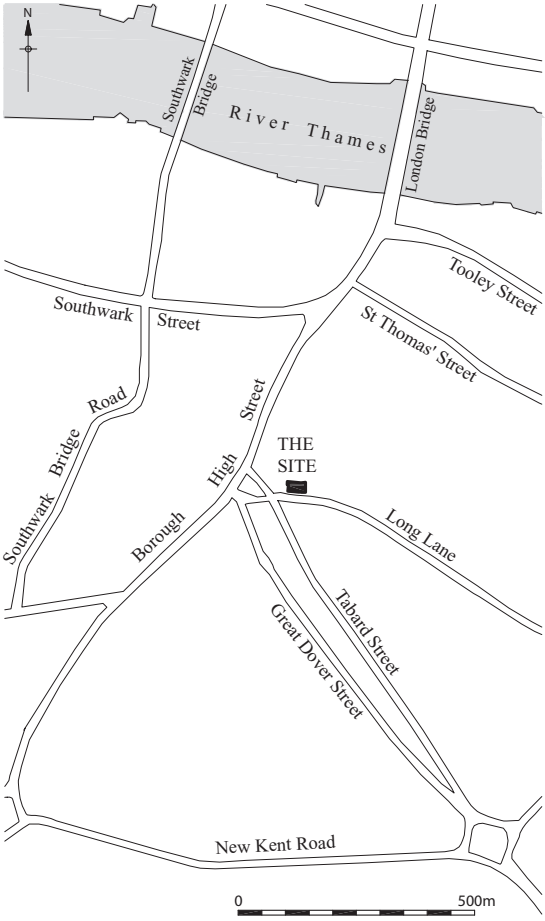

Fig 1. Site location

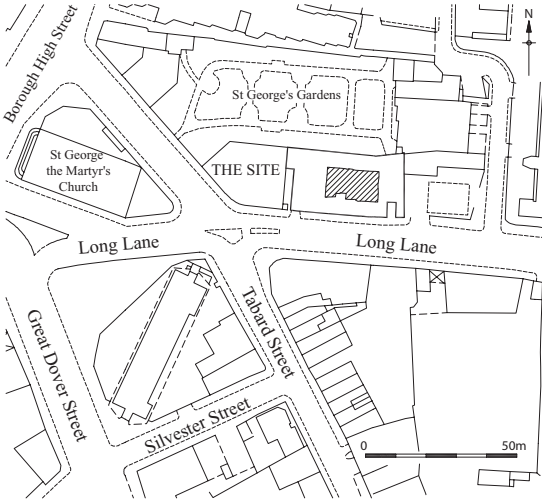

Fig 2. Site location (detail)

of north Southwark. South of the main channel was a series of small sandy islands, or eyots of land, surrounded by tidal mud flats or marsh and intersected by water channels (Fig 3). The tops of the eyots are generally no higher than +1.8m OD (Heard *et al* 1990, 609). The Roman settlement at Southwark was subsequently to develop on two of the larger sand islands. The subject site is located on the southern edge of the southern sand island, close to the line of the Roman road (Road 1) north from the junction of Stane Street and Watling Street to the bridgehead. To the south, the site was separated by further watercourses from the floodplain gravels, which formed a land surface at *c.*+1.7m OD, some 1,000m south of the modern river bank (Sheldon 1978, 19).

The drift geology exposed within the excavation area appeared to demonstrate a low-lying

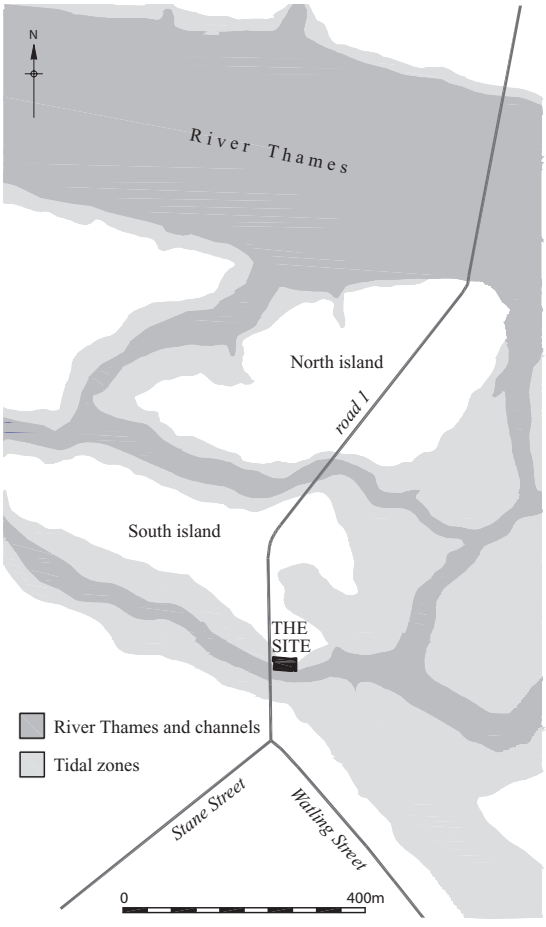

Fig 3. The site in relation to Southwark's north and south islands, Road 1, Watling Street and Stane Street

sand island with a water channel immediately to the south. The highest levels recorded on natural drift deposits on the site were in the north-east part of the excavation, on orange silty clayey sand, at +0.38m OD. Where encountered further south, alluvial sands were recorded sloping from north to south from +0.23m OD to –0.02m OD over a distance of *c.*5m, representing the slope of the bank to a water channel to the south. Natural river gravels were encountered at –0.29m OD.

THE ARCHAEOLOGICAL EVIDENCE

Period I: Bronze Age

The earliest evidence for human activity on the site comprised a compacted stony surface at +0.13m OD, which appeared to be a deliberate attempt to consolidate the bank of the water channel. A deposit of waterlogged wood overlay the stones. The wood, comprising willow/poplar and alder, may have formed a crude platform (Figs 4, 5). Much of this wood showed no signs of having been worked but, from a small sample, six worked items were recognised; three of these had small axe-cut stake tips, around 50mm in diameter, two of which had 'pencil points' of several narrow (<40mm wide) concave facets cut from roundwood, whilst the third had an abraded wedge point and was made from a radially cleft section. A fourth had an oblique axe cut with a slightly concave facet and an end diameter of 25mm. A small section of decayed pole with a roughly rectangular cross-section and an abraded, radially cleft timber were also part of the assemblage. The cuts to these wooden items were at a shallow angle, moderately smooth but narrow and concave, and on this evidence a Bronze Age date for the platform is considered to be likely (Goodburn 2000; 2003, 101).

Directly below the timber platform one struck flint, a quantity of burnt flint, and a complete adult cattle metacarpus were recovered. The worked flint, although not diagnostic, had been struck from an earlier struck item, which is a phenomenon often noted from Middle to Later Bronze Age assemblages (Young & Humphrey 1999). The animal bone represents an individual of small stature (withers height estimated at

Fig 4. Crude timber platform on the bank of a channel, looking west, scale 2m (the upright post piles later forming part of Period III Phase 1 Roman timber platform)

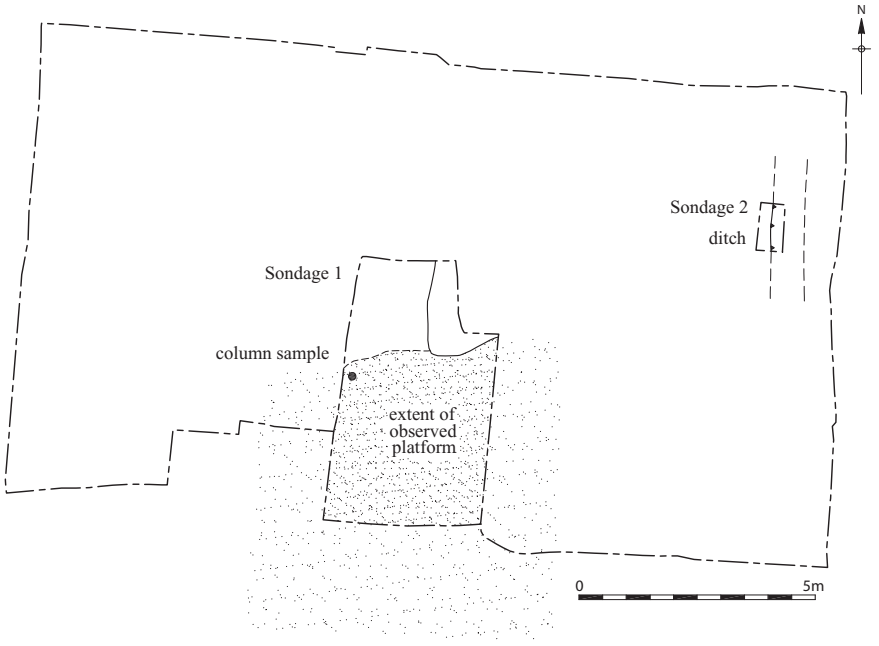

Fig 5. Extent of the Bronze Age timber platform and ditch as revealed in excavation

0.98m). Such diminutive cattle are comparable in stature to Celtic shorthorn, which first made their appearance in Britain by the Late Bronze Age, although the breed is more characteristic of the British Iron Age (Grigson 1982, 48).

The platform may have assisted fowling and fishing or may have formed part of a landing-stage. The possibility that the eyot may have been inhabited was also suggested by a north–south boundary ditch, 0.68m deep, although only a short length of the feature was investigated.

Alluvially deposited sands and silts 0.23m thick sealed the wooden platform and ditch. These produced two struck flints and some burnt flint and were probably laid down when rising water levels inundated the sand island. One of the flakes was possibly a *tranchet* axe primary-sharpening flake of Late Mesolithic date, or core rejuvenation flake, most consistent with a Neolithic or earlier date and residually deposited. This process has also been observed at Butlers Wharf in north Southwark, where residual flintwork of a Mesolithic tradition was recovered from alluvial deposits containing Bronze Age material (Ridgeway & Meddens 2001). Both pieces had only slight evidence of abrasion suggesting that they had not travelled very far.

Period II: Middle/Late Bronze Age to Late Iron Age

The period of rising water levels or sporadic inundation, which resulted in the deposition of alluvial silts and sands, was followed by a prolonged period of peat formation. The top of the peat in the east of the excavation area was at +0.75m OD, sloping down to the south-west to *c.*+0.45m OD over a distance of 13m. The thickness of the peat mirrored the underlying topography and was thickest where it neared the earlier palaeochannel in the south-west corner of the excavation area, at 0.63m thick, whilst to the east it varied between 0.18m and 0.10m thick. At Hunt's House *c.*300m to the north-west a contemporary marsh surface was recorded at a similar level, at +0.55m OD (Taylor-Wilson 1998).

Column samples were taken through the peat sequence, extending into the underlying sand and gravel deposits (see Fig 5). Radiocarbon dating of these samples indicated a Middle to Late Bronze Age date for the base of the peat sequence, and a Late Iron Age date for the top.[1] Pollen-stratigraphic analysis of the column samples identified two local pollen assemblage zones.

Local Pollen Assemblage Zone 1: herbaceous pollen – willow

This zone occurred between –0.08m and +0.15m OD and was characterised by high percentage values of herbaceous pollen (50–70%). Grasses and sedges dominate the assemblage with a diverse range of other herbaceous pollen types present.[2] The tree and shrub pollen component is dominated by willow (*Salix* 20%), and includes alder (*Alnus* 18%), oak (*Quercus* 12%), and hazel (*Corylus* 5%). The aquatic pollen and spore assemblage includes reedmace (*Typha latifolia* 15%) and *Pteridium* (25%). Pollen grains of cereals are present throughout the zone.

This zone has been subdivided into three phases, each corresponding to a significant change in the local vegetation cover.

Phase 1: clearance

Following peat initiation, the local vegetation cover consisted of grass/sedge swamp (*Poaceae* and *Cyperaceae*) and open willow carr woodland with alder, oak and birch (*Betula*). The margins of the wetland area were probably colonised by reedmace. On nearby dryland, isolated trees of lime (*Tilia*) and possibly pine (*Pinus*) would have grown, with an understorey of hazel shrubs and, in more open areas, tall herbs and ferns such as meadowsweet (*Filipendula*) and bracken (*Pteridium*). The absence of evidence for dense woodland at the base of the sequence and the generally open character of the vegetation cover indicate possible deforestation of the local area prior to peat formation. The presence of cereal pollen may suggest that areas of woodland were being cleared for cultivation.

Phase 2: cultivation

The decline in arboreal pollen taxa (birch, oak, alder, lime and pine) between –0.08m OD and 0.0m OD corresponds to a phase of cereal cultivation at Long Lane. The diverse assemblage of herbaceous pollen taxa indicates a range of plant habitats, including disturbed ground, cultivated land, and grassland. The decline in woodland may also have led to localised erosion, increased surface water runoff, and changes in wetland hydrology resulting in the expansion of reedmace.

Phase 3: regeneration

Following this phase of cultivation, there is pollen-stratigraphic evidence for shrubland and woodland regeneration that continues into Zone 2. Between 0.0m OD and +0.16m OD, light-loving trees and shrubs such as ash (*Fraxinus*), beech (*Fagus*), and hazel colonise the area, and there is a corresponding decline in the diversity of herbaceous plant taxa. In wetter areas, willow and alder expand as a response to reduced water levels and more stable conditions on the peat surface.

Local Pollen Assemblage Zone 2: alder – oak – ferns

This zone falls between +0.15m and +0.40m OD, is dominated by alder (30%), oak (21%) and ferns (*Filicopsida* 35%), and includes grass/sedges (Cyperaceae 22% and Poaceae 21%). The aquatic assemblage is poorly represented (*eg* reedmace 5%).

During this zone, the vegetation cover at Long Lane was dominated by open mixed deciduous woodland. The open structure is suggested by the presence of ash and ivy (*Hedera*) and the high percentage values of herbaceous pollen taxa, including a range of grass/sedges and other plants commonly found within rough grassland. The presence of *Filicopsida* spores may indicate that ferns colonised a relatively dry peat surface, an interpretation supported by the presence of *Potentilla*-type pollen (*P. erecta* – tormentil) and low values of aquatic pollen types. It is therefore highly likely that alder, oak and birch colonised the stable peat surface. On dryland, the woodland cover would have consisted of isolated trees of beech, maple (*Acer*), and possibly pine with juniper (*Juniperus*).

Discussion of Bronze and Iron Age Periods I and II

Between approximately 1490 and 1120 cal BC there is unequivocal evidence for a sustained period of cultivation that resulted in non-arboreal pollen values exceeding 70% of the total land pollen record. These values are in excess of those noted elsewhere (Tinsley 1981; Branch & Lowe 1994), and suggest widespread deforestation. According to Aaby (1994), in a study of the relationship between modern pollen rain and vegetation cover, values of non-arboreal pollen exceeding 70% indicate farmland and meadowland. This period of cultivation clearly post-dates the main lime (*Tilia*) decline recorded at several sites in the Thames Valley (*eg*

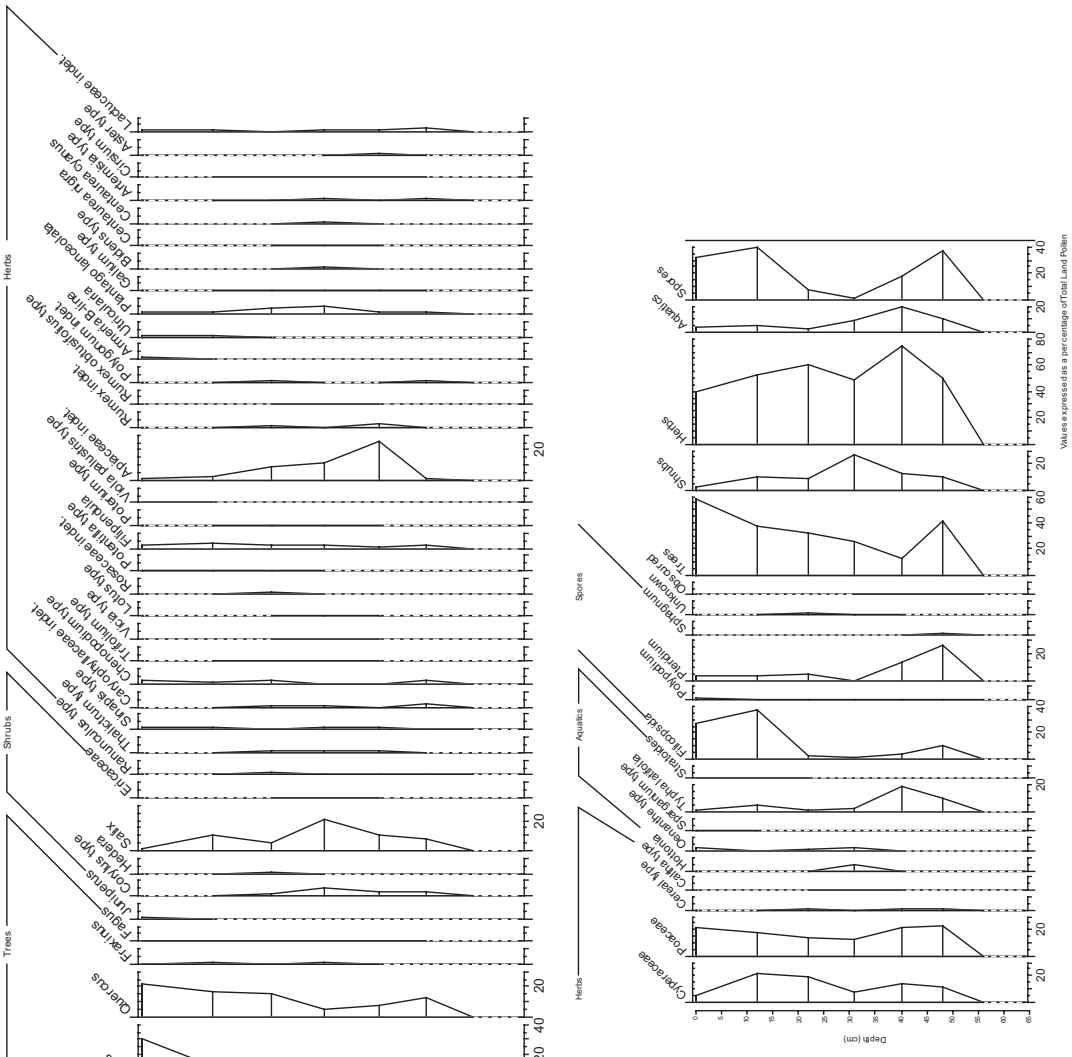

Fig 6. Pollen diagrams

Bramcote Green, *c.*2150–1750 cal BC; Thomas *et al* 1996) and suggests, therefore, that prior to peat initiation at Long Lane the landscape in the general vicinity of the site may already have been open in character and subject to a period of prolonged human activity.

Evidence for more extensive woodland clearance in lowland areas during the Late Bronze Age has been inferred from the ratio of arboreal (tree) to herb pollen, with records of herb pollen exceeding 14% equated with widespread deforestation rather than isolated clearance episodes (Tinsley 1981). By comparison with other data from the area (Sidell *et al* 2002; Allen *et al* 2005), there is a perhaps surprisingly strong anthropogenic signal from the Long Lane site. In South-East England, pollen and molluscan evidence indicates that from 1550 BC woodland clearance was extensive on the South Downs, for both pastoralism and cereal cultivation. In the lower Thames Valley, at Bermondsey, Rainham and Barking, the pollen-stratigraphic evidence for woodland clearance from the Middle Bronze Age is overwhelming (Meddens 1996), and indicates widespread agricultural activity associated with the exploitation of marshland, perhaps for pasture, and cereal cultivation on nearby dryland.

It is apparent from the Long Lane pollen diagram (Fig 6) that although the former vegetation cover was fully restored by approximately AD 50, the woodland cover simply returned to its already depleted state prior to 1490 BC. These conditions were highly suitable, however, for the widespread colonisation of beech woodland, perhaps taking advantage of open vegetation structure. This record is supported by pollen evidence from Hampstead Heath, Tilbury and Runnymede, suggesting widespread colonisation of beech woodland in the Thames Valley during the Late Holocene (Greig 1992).

The plant remains from the top of the peat indicate that the site was wet, marshy, and probably mineral-rich or polluted. Spike-rush (*Eleocharis* subg. *Palustres*), floating sweet-grass (*Glyceria fluitans*), water crowfoot (*Ranunculus* subg. *Batrachium*), and stonewort algae (Characeae) can all inhabit shallow, slow-flowing to standing water or marshy land. Celery-leaved crowfoot (*Ranunculus sceleratus*) achenes (seeds) were frequent, and this species is commonly found in shallow murky water or seasonally exposed mud (Haslam *et al* 1975).

Remains from drier, grassy habitats were also frequent, however, indicating that the higher land in the area supported rough grassland or scrub vegetation, again with some nutrient enrichment. Rough chervil (*Chaerophyllum temulum*), for example, is typical of hedgerow communities, where the soil is dry and nutrient-enriched (Ellenberg 1988). Seeds of this taxon were particularly frequent in the peat deposit. Other hedgerow or scrub species represented were bramble and elder, which were possibly growing nearby and brought in by birds.

The evidence would seem to suggest that by the end of the period of peat formation a boggy but stable surface had formed on the edge of a sand eyot. The peat was not permanently waterlogged but perhaps intermittently inundated, although it was not possible to state whether this was due to the tidal rise and fall of the River Thames.

The site thus appears to be located close to the southern edge of a low-lying sand island, with a channel that would have divided the eyot from the higher and drier ground to the south. Recent excavations at 32 Long Lane (Stabler 2000) and at 34–70 Long Lane (AOC 2001) suggest that the underlying topography represents a channel which, at this point, roughly followed the line of present day Long Lane.

Although there was no direct evidence for prehistoric cultivation at Long Lane, the boundary ditch suggests that the eyot was managed and perhaps used for agriculture. That access from or to the channel was important was evidenced by the consolidation of its north bank, initially by the dumping of gravel pebbles and subsequently by the construction of a matted timber platform. Furthermore, the radiocarbon-dated pollen-stratigraphic record indicates that prior to approximately 1490 BC peat formation commenced during a phase of woodland clearance and cereal cultivation.

The Ordnance Datum levels on this sand island are consistent with those recorded elsewhere in north Southwark, where palaeosols have been encountered at between 0.20m and 0.60m OD; for example at Phoenix Wharf (Bowsher 1991), Hopton Street (Ridgeway 1997), Lafone Street (Bates & Minkin 1999), Wolseley Street (Drummond-Murray *et al* 1994), and Hunt's House (Taylor-Wilson 1998). Ard marks cut into natural sand at Phoenix Wharf, Hopton Street and Lafone Street, and a fragment of a wooden ard share discovered at Three Oak Lane (Proctor & Bishop 2002, 1–27) suggest cultivation during the Bronze Age. The evidence to date thus suggests intermittent, perhaps seasonal,

activity by hunter-gatherers, followed by more permanent occupation of the sand islands by farmers and pastoralists in the Bronze Age.

Period III: Roman

Londinium was founded *c.*AD 50 on the north bank of the Thames, at the furthest point down stream that a fixed bridge could span the river. The main approach road to the southern bridgehead (known in archaeological literature as Road 1) generally follows the line of Borough High Street and divides to the south of (the later) St George's Church, forming an eastern route (Watling Street to Kent) and a western route (Stane Street to Sussex) (see Fig 3). The Roman settlement in Southwark probably originated in the area of the bridgehead (close to the present-day crossing at London Bridge) and subsequently developed along the approach roads (Sheldon 1978, 30–6). At its height, in the late 1st/early 2nd century, the settlement may have fronted the Thames for about 500m and extended to the south some 800m to where the roads to the Kent and Sussex coasts diverged (Heard *et al* 1990, 611). The area to the east and west of the settlement would have been mud flats, whilst higher ground to the south was probably farmed.

The status of *Londinium* in the early Roman period is uncertain but after the Boudiccan Revolt the city was upgraded to a provincial capital (Hassall 2000, 53). Although the precise status of Roman Southwark remains uncertain, the suburb can perhaps best be viewed as an integral part of *Londinium* (Milne 1995, 69).

The Roman activity identified during excavations at Long Lane has been subdivided into seven phases.

Period III Phase 1: timber platform AD 50–80

Located in the central area of the excavation and driven into the peat were 49 *in-situ,* vertically-set oak timbers. Arranged commonly in pairs, occasionally singularly, and in one instance in a group of three, the remains of this structure consisted of numerous truncated pile tips, some more complete piles, and a range of smaller stake tips. The timbers appear to have formed a rectangular structure 9.0m E–W and 5.5m N–S, though it may have extended further to the north, and regular alignments of posts were observed (Fig 7). The tops of the posts typically survived to levels of between +0.60m and +0.70m OD, but there was no indication of the original height of this structure. The recovery of driftwood lying on top of the peat and amongst the timbers

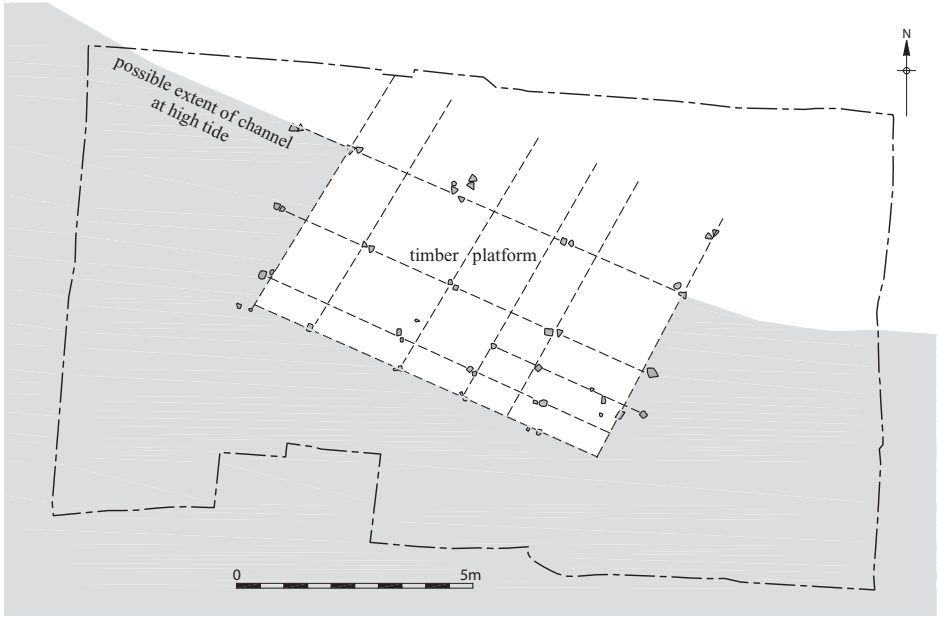

Fig 7. Period III Phase 1, timber platform, showing alignments of timber piles

suggests that the contemporary water level (at least at high tide) may have inundated the peat, and the structure would have been constructed above the water level.

The timbers can be divided into four groups on the basis of how they were made and their size. The largest group (28) were radially cleft with roughly square-section, axe-hewn tips, which on average measured 510m x 135mm x 110mm. Eleven were smaller stake tips, mainly hewn to roughly square sections from small poles. One pile (440mm x 150mm x 120mm) was hewn, boxed halved, from a split log. The remainder were hewn boxed heartwood from whole logs, which on average measured 465mm x 125mm x 95mm.

A scatter of pottery on the surface of the peat marsh was probably associated with the timber structure and suggests a date of *c.*AD 50–80 for the construction and primary use of the structure; a date supported by dendrochronological dating of the timbers, which suggested a felling date around the mid-1st century AD.[3] This would suggest that the structure was built at the beginning of the Roman period, contemporary with the founding of *Londinium* and the laying out of approach roads to the bridgehead around AD 50.

Discussion

The piled timber structure at Long Lane appears to represent a platform constructed on stilts above the marshy margins of a channel, in an area subject to periodic inundation (the main channel was not observed and was presumably further south beyond the limits of the site). The channel may have been navigable at least to shallow-draught vessels and the structure may have been used as a landing-stage or quay. That the back channels of north Southwark were used for river transport is attested by the unearthing of a river barge from Guy's Channel (Marsden 1980, 157) and landing-stages elsewhere in Southwark, notably at 51–53 Southwark Street (Killock 2005), Guy's Hospital (Taylor-Wilson 1998), and Borough High Street (Pickard 2002). An alternative explanation is that this represents the remains of a building raised above the surface of the marsh by means of piled foundations; conceivably such a substantial timber structure, built *c.*AD 50, could have been constructed by the Roman army.

Elements of the watercourse may have been found during previous excavations at 201–211 Borough High Street *c.*100m to the north-west of the site. Here the north side of a large channel running NW–SE was identified. Road 1 was built on a timber corduroy foundation where it crossed the marsh edge. It was supposed that the road south at this point may have been approaching a bridge (Ferretti & Graham 1978).

Period III Phase 2: land reclamation AD 80–90

Dumped deposits covering the Phase 1 timber structure and peat effectively raised the ground level by a maximum of 0.33m to a height of +0.92m OD. The ceramic evidence suggests that the dumping probably took place in a single act over a brief space of time sometime between AD 80 and 90, and was presumably part of a planned process of land reclamation.

Discussion

The process of reclamation of at least part of the marsh is generally contemporary with the deliberate infilling of channels elsewhere in Roman Southwark. At 175–177 Borough High Street, about 500m south of London Bridge, deliberate infilling of water channels was dated to the late 1st and early 2nd centuries AD (Schaaf 1976). The maximum level of these deposits was *c.*+1.0m OD. The contemporary ground surface on reclaimed land was established at a similar level at other excavations in the area, such as 51–53 Southwark Street (Killock 2005) and the Wolfson Wing at Guy's Hospital (C Pickard pers comm).

Period III Phase 3: Building 1 AD 80/90–120/130

The first evidence for the construction of buildings was a clay-and-timber structure probably built soon after the reclamation of the marsh (Building 1). A brickearth slab at *c.*+1.0m OD, a beam slot, and hearths indicated part of a building that probably extended further east and north, beyond limits of excavation (Fig 8). This building measured at least 9.5m E–W and at least 9m N–S.

The brickearth slab, 0.15m thick, suggested a rectangular building aligned roughly E–W with a south-projecting east wing. A beam slot, 0.35m wide and 0.10m deep, was cut into the slab and divided the building into at least two rooms, a west room (Room 1) at least 2.5m by 4.5m

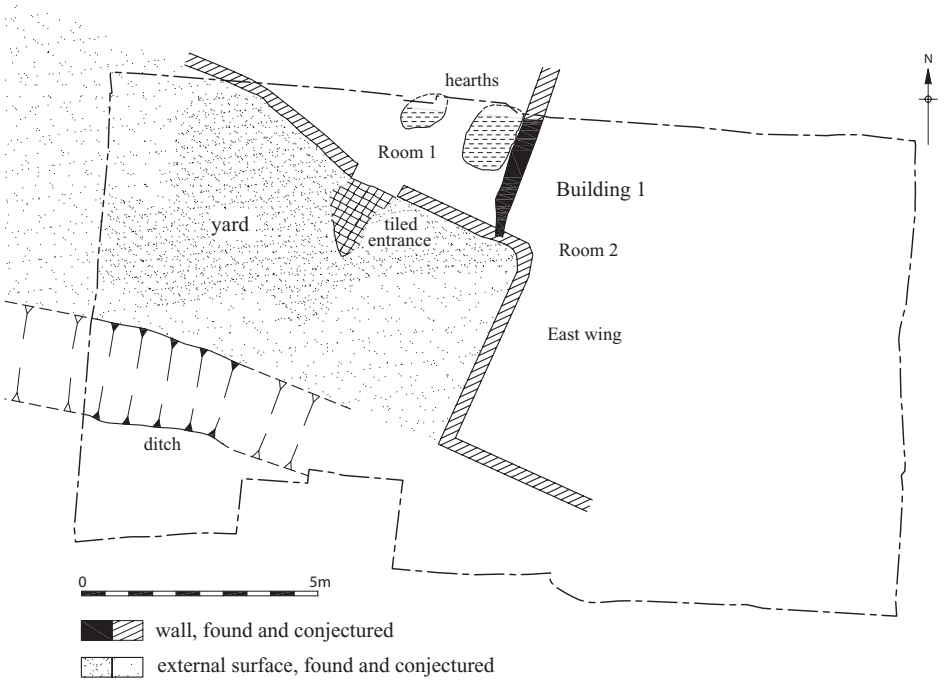

Fig 8. Period III Phase 3, Building 1

and an east room (Room 2) at least 4.0m wide. Room 1 was furnished with two hearths; one was evidenced by loose ashy silt, partially edged with stone and compacted brickearth, that measured 1.0m E–W, at least 1.10m N–S, and was 0.10m deep. Further west, a second hearth measured 0.75m E–W, at least 0.30m N–S, and 0.04m deep and was filled with dark grey/black sandy silt with lenses of ash, and fragments of burnt daub and charcoal. No internal features were identified in Room 2.

To the south of Building 1 was a gravel surface, 0.14m thick, which may represent the remnants of a yard, accessed from Road 1 to the west. The northern limits of this surface abutted the brickearth floor of the building and at its east end formed a right angle to the beam slot, extending 3m to the south. Here the margins of the gravel surface probably delineate the internal and external interface of the building. Broken roof tiles laid flat formed a 1m-wide entrance from the yard into the building. Overlying the tile entrance was a trample layer of dark grey/black silty sand and the dating of the pottery recovered from the entrance suggests that the building was occupied during the late 1st into the early 2nd century. This trample layer also produced an assemblage of glass, consisting of ten vessel sherds, one jug neck sherd, two jug or jar handle sherds, and five body sherds from one large ribbed or pillar-moulded bowl (body diameter 280mm). The ribbed bowl is usually dated to between AD 43 and the end of the 1st century, but some continued in use until the early 2nd century (Price & Cottam 1998, 44).

Further to the south a ditch, up to 2.0m wide and 0.32m deep, aligned parallel to the southern wall of the building, drained to the south and east, perhaps into a channel that may have still existed to the south of the site. The ditch probably functioned as a drain for waste water and surface water runoff.

Discussion

At Long Lane a brickearth slab, 0.15m thick, was laid down prior to building — a form of preparation for clay-and-timber buildings commonly recognised in *Londinium* (Perring *et al* 1991, 69). A beam slot probably represented a shallow construction trench, into which was laid a timber base-plate. Although there was no evidence of timbers within the slot, it probably held a ground beam, which had either rotted

away or been removed in antiquity, into which mortises would have been cut to support timber uprights, or studs, around which a framework of wattles was woven and subsequently packed with brickearth (Milne 1992, 78). In contrast, the external walls of Building 1 presumably rested on beams at ground level — a technique used elsewhere in London and one for which differential surfacing may be the only indication of a wall's position (SLAEC 1978, 31).

At least one of the rooms in Building 1 was furnished with hearths of a simple fire-pit type, presumably for cooking and heating, suggesting that the room functioned as a kitchen. Such basic hearths are extensively recorded elsewhere in *Londinium* and may reflect the poorer quality of buildings, as portable braziers were probably used in more sophisticated houses (Perring *et al* 1991, 97). The beaten earth floor may also indicate the low-status or utilitarian function of the building. The narrow entrance to Building 1 suggests a single-leaved door (the absence of metal fittings, *ie* hinges, is commonly taken as an indication that doors were hinged with wood or leather). Curtains may have been used in internal doorways.

Ceramic building material, recovered residually from levelling dumps, may not be an indication of the roofing system employed in the building and the suggested form of the walls of Building 1 hardly seems strong enough to support a tiled roof. Thatch or wood may have been the preferred roofing material, as in the City, at No. 1 Poultry, where 1st-century clay-and-timber buildings were sometimes thatched but most were roofed with overlapping boards or wooden shingles (Rowsome 2000, 34).

The east wing of Building 1 seems to have partly enclosed a gravel yard surface, possibly suggesting that access to the yard did not extend any further east than the building, to which it provided access from Road 1.

Such 'strip-buildings', comprising single-storey timber or brickearth structures, with modest sized rectangular rooms set one behind the other, are commonly found in early Romano-British towns, including late 1st-century *Londinium* and north Southwark. They were often laid out within adjacent long, narrow property plots (Milne 1992, 74) and buildings were generally 4–5m wide and up to 20–30m long. They are often interpreted as shops or workshops fronting onto the street with cheap rented accommodation to the rear. Evidence from *Londinium* indicates that many clay-and-timber buildings may have lasted only 5–10 years, although some could last at least 30 years; this is supported by ceramic evidence from Long Lane, which suggests a life span of between 10 and 30 years

Excavations at Leadenhall showed that access to rooms was not through the building but via narrow alleyways, which ran from the principal thoroughfare along the side of the building to the backyard (Milne 1995, 52). At Long Lane doorways on the side walls opening onto narrow alleys which ran between the buildings may be significant; Milne (1992, 77) suggests that such buildings were not occupied by a single family requiring access to all rooms, but that each room or block of two rooms may have formed independent residential units.

Period III Phase 4: Buildings 2 and 3 AD 120/130–140/150

Following the demolition or collapse and subsequent levelling of Building 1, two new clay-and-timber buildings (Buildings 2 and 3) were constructed (Fig 9). The yard area was moved to the south covering the earlier ditch, and an alley extended to the east along the length of the excavation area

Building 2 lay largely beyond the limit of excavation; only the south-east corner of the building was observed. It measured at least 2.5m N–S and 1.0m E–W with mud walls surviving to a maximum height of 0.10m. The beaten earth floor of the building was recorded at +1.03m OD.

Building 3 extended further to the east than Building 1, beyond the limits of excavation, and was defined by levelling layers, floor make-up deposits, and the remnants of a beaten earth and mortar floor. Aligned E–W, the building was at least 14m long and 7.0m wide and comprised at least three rooms and a service corridor. Within the building, floor make-up layers reflected the line of an internal N–S wall line. Two stone post pads on which timber uprights may have rested are all that actually remained of this wall, which divided the building into two parts. The western part, Room 1, measured 9.5m E–W by at least 6.0m N–S, with a beaten earth floor at +1.0m OD. An area of scorched brickearth, measuring 1.20m E–W by 1.0m N–S, defined the location of a hearth. The eastern part of the building was sub-divided by brickearth walls. An internal N–S wall, 0.30m wide and surviving to a height

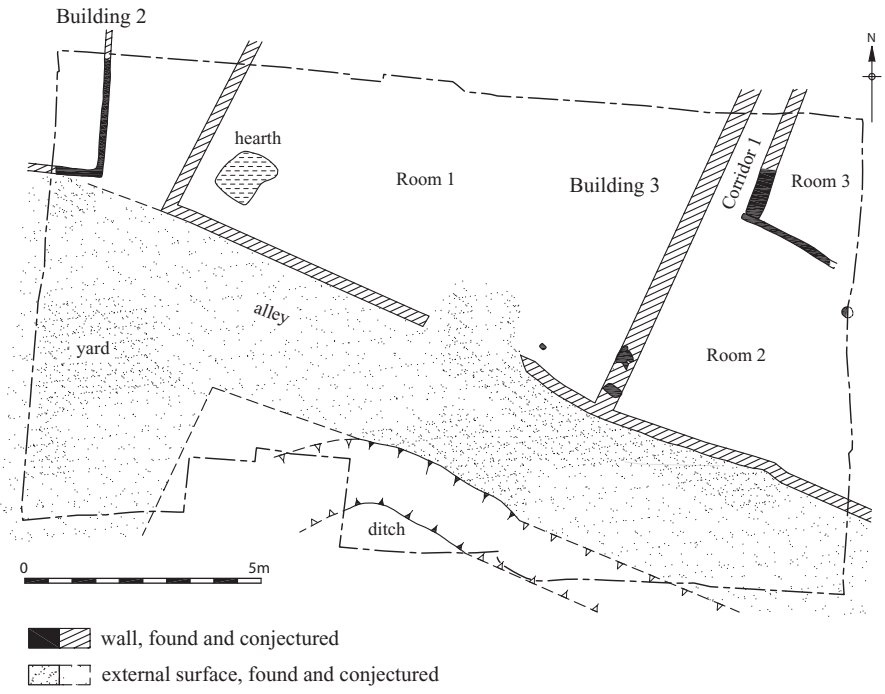

Fig 9. Period III Phase 4, Buildings 2 and 3

of 0.23m, abutted a similar, but thinner, E–W wall, 0.16m wide and 0.18m high. Painted wall plaster had survived on both faces of the E–W wall forming the southern limit of Room 3. Rooms 2 and 3 were apparently connected by a narrow 1m-wide service corridor (Corridor 1), suggested by a gap between the N–S wall and a projection of the wall alignment indicated by the post pads. Both rooms had mortar floors at *c.*+1.15m OD.

A 2.5m-wide side-alley, to the south of Building 3, extended eastwards from a wider yard area, which presumably served both buildings, while the alley itself may have provided access to more rooms or further buildings to the east. The gravel surface spread northwards into an entrance to Building 3, via Room 1. Incorporated into the metalled surface was a large quantity of burnt limestone, probably originally burnt to make lime for plaster or mortar. On the south side of the alley was a shallow drainage ditch, 1.40m wide and 0.20m deep, which had been deliberately infilled with domestic refuse. Ceramic evidence suggests that the ditch had been completely backfilled by the middle of the 2nd century AD.

Discussion

This phase represents a period when Building 1 may have been deliberately dismantled and two new clay-and-timber buildings constructed. Only a small area of the south-east corner of Building 2 was revealed and little, other than noting its presence, can be said about this structure.

More extensive remains of Building 3 were revealed, though still not a complete plan. The building incorporated a range of construction techniques — a phenomenon that has been noted before (Milne 1992, 72). Timber posts indicated by pads of stone, noted elsewhere in early Roman structures (Perring *et al* 1991), suggest that posts were incorporated into the wall structure. Other walls may have been constructed by pouring wet brickearth between timber shuttering, compacting it, and then allowing it to dry. The walls would then be prepared for painting by the application of a coarse white lime mortar with flinty inclusions and small pebbles, covered by finer mortar lacking the inclusions, and finally, a fine white lime mortar provided the surface for painting. The wall plaster showed traces of

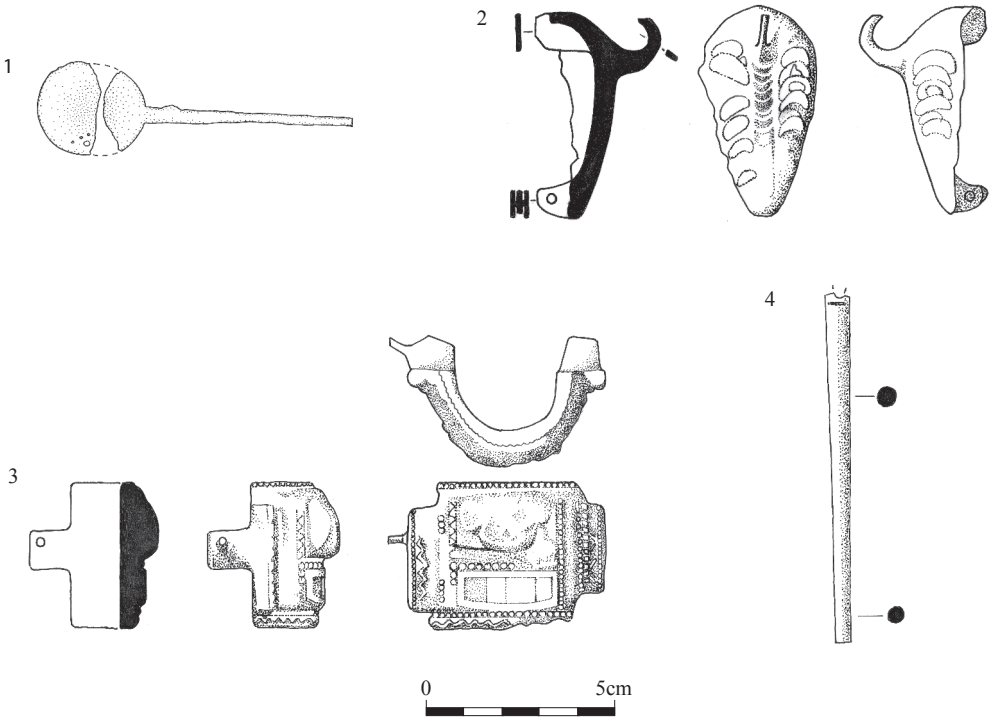

Fig 10. Small finds: 1, copper-alloy spoon; 2, plate brooch; 3, bow brooch; 4, bone needle

pink, which may have represented the lower zone of one dado.

The use of mortar flooring and painted plaster denoted the higher quality of rooms in Building 3 than in Building 1. These may represent 'reception' rooms, which usually lay towards the rear of the property. Room 1 probably functioned as a kitchen/utility area. Two coloured glass mosaic tesserae found in later contexts may also indicate high-status rooms belonging to this property, though these were clearly beyond the areas of investigation.

An indication of the domestic nature of the site was provided by a round-bowled copper-alloy spoon Type 1 (Crummy 1983), which dates stylistically to the second half of the 1st century or the 2nd century AD (Fig 10.1). Two brooches were also recovered: one a copper-alloy and enamel plate brooch, in the form of a sitting duck (Fig 10.2). The hollow body of the brooch was decorated with crescent-shaped enamel panels along each side, with the remaining enamel blue. Some of the enamel and the pin are missing. This type of brooch was probably made in the Rhineland and is usually dated to the 2nd century AD (Allason-Jones & Miket 1984, 115). A fragment of an early Roman bow brooch dated to the 1st–2nd century AD was also recovered (Fig 10.3).

The extension of the buildings and the alley to the east, beyond the area of excavation, may suggest an eastward expansion of the settlement. The differing alignments of Buildings 2 and 3 are reflected in the curve of the ditch. It may be therefore that the alignment of Building 2 was influenced by Road 1, running *c.*50m to the west of the site and from where the buildings were probably accessed, whereas the alignments of Buildings 1 and 3 were clearly influenced by other factors, plausibly the channel to the south.

Period III Phase 5: rebuilding of Building 3 AD 140/160–220

New internal floor surfaces and postholes suggest that Building 3 was partly rebuilt, largely on the earlier ground plan, while Building 2 remained unaltered, at least within the area seen during excavation (Fig 11). To the east alterations

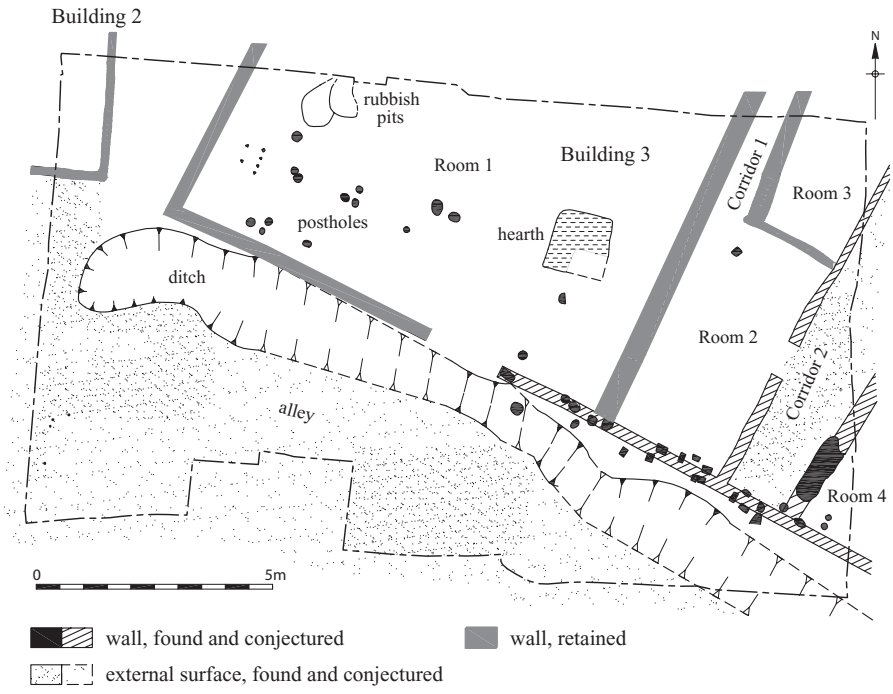

Fig 11. Period III Phase 5, rebuilding of Building 3

included a second N–S-running corridor (Corridor 2) reducing the size of Room 2, which could now be accessed from both corridors, and defining a new room (Room 4). The alley, now located further to the south with a new ditch adjacent to the building, was resurfaced.

A row of 24 postholes, varying between 0.10m and 0.32m across and 0.11 to 0.30m deep, filled with similar clayey sandy silt, represents the rebuilding of the southern external wall of the building. Internally, Room 1 was repaired with a new brickearth floor, 0.15m thick, being laid over the earlier hearth and floor surface at +1.14m OD. The eastern edge of this layer respected the postulated earlier internal N–S wall, suggesting that this was retained. A new hearth was constructed on the floor at the eastern end of the room, within a sub-square cut measuring 1.30m N–S, 1.20m E–W, and 0.15m deep. Other floors were also resurfaced: Room 3 with beaten earth to a level of +1.37m OD and Room 2 with sandy silty gravel, laid at +1.24m OD. The creation of Corridor 2 reduced the width of this room to only 2.6m.

At the western end of Room 1, two inter-cutting pits truncated the brickearth floor. The pits, up to 0.31m deep, were filled with similar sandy silt deposits containing frequent occupational debris. They appeared to have been used for the disposal of domestic waste, but may have originally fulfilled a storage function, and later been used for rubbish disposal. Such a transfer of function may reflect a change in the function of the room towards the conclusion of its period of occupation or may simply indicate abandonment of the building.

Postholes and stakeholes cutting the floor surfaces may be part of internal structural elements of the building, perhaps to support the roof or to partition the space. There was also evidence for internal alterations to the eastern part of the building, where a firmly compacted gravel layer 0.25m thick was laid down. This was probably an internal floor surface, its very straight western edge reflecting the location of a wall. An irregularity in this wall line probably indicates the position of a doorway. It appears that the gravel represents a narrow utilitarian corridor (Corridor 2) running N–S, 1.30m wide and at least 4.10m long. A sequence of trample layers of sandy clayey silts partly overlay the corridor floor.

The alley was also resurfaced and its associated ditch was filled in and covered by the metalling. Between the alley and the buildings a butt-ended ditch, at least 15m long and up to 1.40m wide and 0.45m deep, appears to have been dug defining the southern limit of the building, although this may represent a naturally-formed eaves-drip gully.

Discussion

In the late 2nd century AD the south-eastern external wall of Building 3 appears to have been rebuilt with earth-fast posts around which may have been woven a wattle framework, clad with daub and/or plaster. Such walls could have stood to a height of 2m or more (Milne 1992, 79) and would have been capable of supporting a tiled roof. The large number of *tegula* and *imbrex* fragments recovered in this and subsequent phases presumably indicates a tiled roof. The use of *tegulae* and *imbrices* typically implies a shallow pitch of around 20–25 degrees, with tiles held in place by their own gravity (Rook 1979, 295; Brodribb 1987, 10).

The presence of a hearth in Room 1 indicates continuity of function in this area and the rooms in the east may have continued to function as reception areas. The renewal of flooring had resulted in differences in level between adjacent rooms; a similar pattern has been noted in buildings excavated in *Verulamium* (Frere 1972, 15). Nearly all the pottery recovered from Building 3 was residual, suggesting that the building may have been only intermittently occupied; a suggestion perhaps supported by pitting in Room 1.

Period III Phase 6: AD 220–260

Rebuilding of Building 2 was evidenced by the laying down of a new brickearth slab, floor make-up, and floor (Fig 12). A compacted, dirty brickearth deposit, 0.22m thick, formed a level platform on which the clay-and-timber building was constructed. A posthole indicated the probable location of one of the structural timbers. A patch of silty clay and gravel 0.05m thick probably represents floor make-up and overlying this were the remnants of a beaten earth floor, 0.03m thick at +1.19m OD.

In Building 3 the floors were again resurfaced,

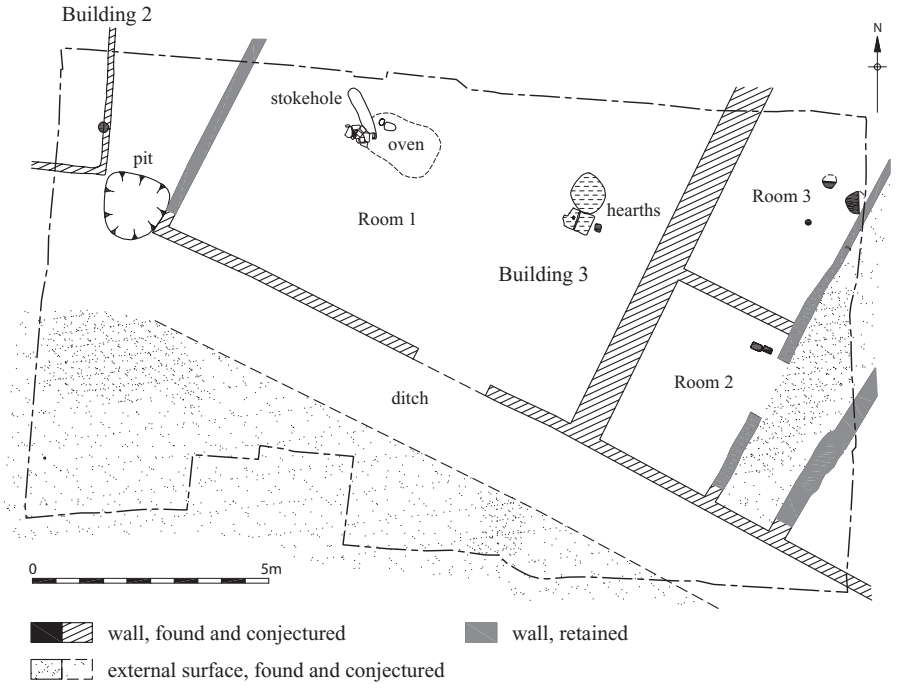

Fig 12. Period III Phase 6, rebuilding of Building 2 and modifications to Building 3

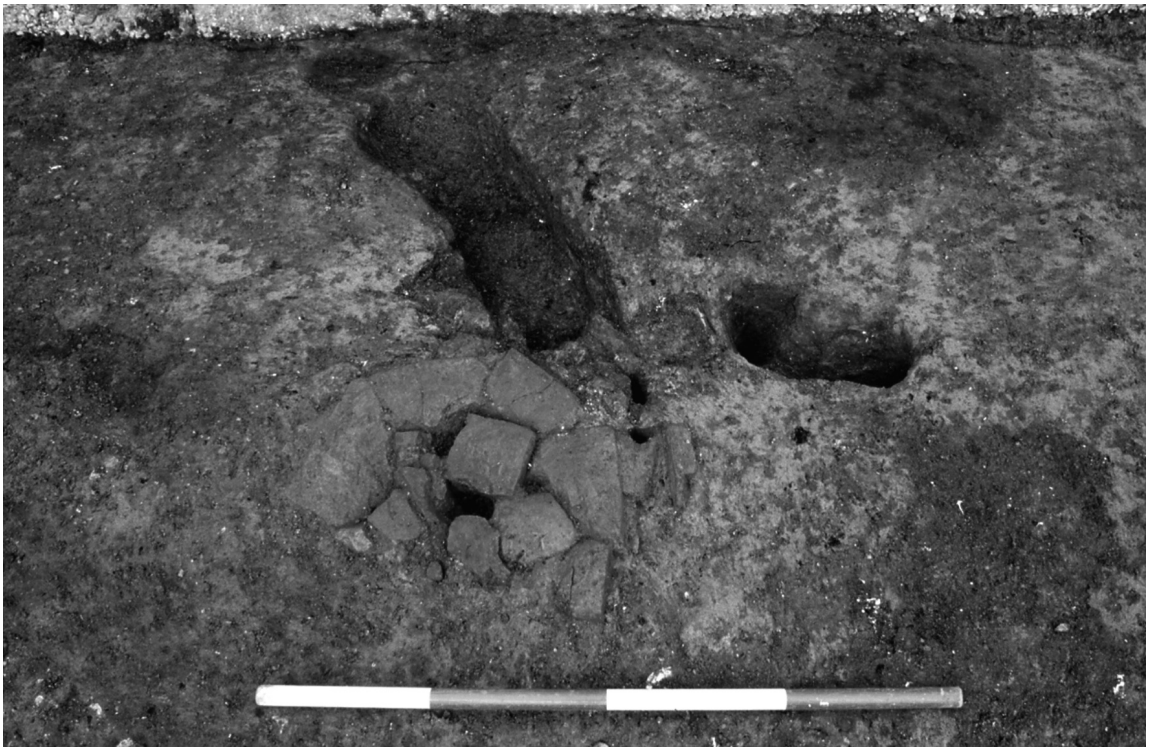

Fig 13. Oven and stokehole in Room 1 of Building 3, looking north, scale 1m

with beaten earth in the west and broken tile used in at least one of the rooms in the east. These floors appear to have extended southwards over the line of the external wall of the Phase 5 build, suggesting the wall was rebuilt, slightly further south than its predecessor. In Room 1 of Building 3 a new brickearth floor *c.*0.20m thick was laid down, on which was constructed an oven (Fig 13), only the base of which survived, built with broken pieces of roof tile and roughly semi-circular in shape, with the remains of a stokehole to the north. The stokehole was filled with ashy silt and a spread of loose silty sand with frequent fragments of fire debris may have been fire rake-out from the oven. Two postholes may have supported an associated superstructure. Charred cereal grain was recovered from the stokehole, while occasional fish bone and scales, as well as charred cereal fragments and uncharred hemlock (*Conium maculatum*), were identified within the rake-out.

Three successive hearths were built replacing that in the previous phase. The earliest in the sequence was composed of two severely cracked and scorched bricks laid flat and side by side, covering an area measuring 0.43m N–S and 0.62m E–W. Two postholes appeared to be associated with this hearth. A probable rebuild was indicated by a layer of burnt brickearth measuring 0.80m E–W, 0.70m N–S, and 0.10m thick topped with a spread of broken tile, covering the earlier structure. Immediately north, a third hearth was constructed. This was marked by burnt brickearth with a smooth and crusty surface surviving in the centre.

The east end of the building was substantially modified, initially by dumps of silty sands and clays with concentrations of plaster fragments, laid down to level and consolidate the ground prior to this final phase of construction. Floor make-up deposits indicated that there was now a new internal E–W partitioning wall between Rooms 2 and 3 making Corridor 1 redundant. The floor in Room 2 was constructed of broken tile and tesserae laid flat but in a random fashion. Two postholes, 0.20m by 0.15m and *c.*0.30m deep, were set into the tile floor, contemporaneous with the floor surface. The floor make-up dumps produced a bone needle (Type 3, Crummy 1983), broken at both ends,

with a round section 4mm in diameter, tapering to a flattened oval-section head with a grooved line below its eye (see Fig 10.4). Corridor 2 remained in use and indeed trample on the tile floor suggests that this was the position for the entrance (postulated in Phase 5) into the corridor.

The alley continued to be maintained and the ditch also probably remained in operation. A roughly square rubbish pit, 1.38m across and 0.23m deep, filled with sandy silt with occasional fragments of tile, oyster shell and charcoal, was found between the two buildings.

Discussion

During the 3rd century Building 2 was rebuilt on its former footprint and Building 3 also continued to be maintained, although with some internal modifications and the apparent reconstruction of its southern wall slightly further to the south of the building's Phase 5 wall.

Building 3 now measured at least 17.5m E–W and was 7.5m wide. In Room 1 a succession of hearths and a possible oven suggest that it continued to function as a kitchen/utility area. The use of tiles and fragments of tiles laid flat to form the base of the oven presumably increased heat retention and provided an even base. These small and impermanent hearths may have been domestic fireplaces but they could also have been used for the heating of small objects as part of an industrial process (Perring *et al* 1991, 98). There was no evidence for industrial waste and the food debris present, including cereals and fish, suggests a domestic function. The oven appears to be a variation of the key-hole shaped type reported from sites elsewhere in *Londinium* (*ibid*), the use of tile being an elaboration of the basic form. To the east lay two rooms which may have continued to function as reception areas, of which Room 2, paved with broken tile, was small, measuring only 3m by 2.5m, and could have been an antechamber (Fig 14).

Approximately 15kg of wall plaster fragments were recovered from the excavation, including several pieces of sufficient size to retain some decorative elements. Pigment colours were typically yellow ochre, reddish brown or reddish pink on white ground. The bulk of the plaster fragments were from this final phase of Roman occupation and from the east end of Building 3, indicating that during this period the building became increasingly refined in its decoration.

Fig 14. Room 2 of Building 3 with broken tile floor and postholes in the foreground defining the southern external wall, looking north, scales 2m

The style and colours used suggest a simple panel type scheme on white ground, a fairly common scheme in Britain during the 1st and 2nd centuries AD (Ling 1985, 22). Border fragments in yellow ochre and reddish brown were most common, suggesting that these pigments were used to define decorative panels. Reddish pink fragments were relatively common, and may represent a lower zone or dado, where this colour was commonly used. One fragment of polychrome plaster showed the use of blue background with green to depict some type of plant motif, however this did not survive in sufficient quantity to reconstruct the entire design (Fig 15).

The colours were painted in *fresco* technique in which pigments were applied directly to a fresh damp plaster (*intonaco*) layer and fixed by a chemical reaction forming a transparent film

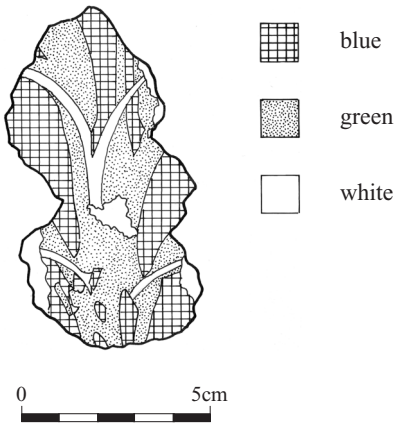

Fig 15. Painted wall plaster

of calcium carbonate over them (Ling 1985). Brushmarks are visible on some of the border fragments, but larger areas of ground colour appear to have been applied more thickly and burnished. One fragment shows pink pigment painted in *fresco* with strongly and evenly spaced grooves, suggesting that it had been applied with a fine comb rather than a brush. The colour scheme is reminiscent of, for example, the 2nd-century wall paintings at Catterick, where remnants of wall painting from the *mansio* showed a pink dado, a main zone of white ground, red frames outlined with inner borders of black, and an interval design of flower and vase in greenish blue, yellow and red. A yellow border delineated the upper zone from the main zone (Davey & Ling 1982, 91–2).

The ditch to the south of Building 3 appears to have been deliberately and rapidly backfilled during the middle of the 3rd century. The relatively large assemblage of domestic pottery recovered may indicate clearance prior to the abandonment of the site in the latter half of the 3rd century. This is further confirmed by the ceramic evidence from the postholes that formed the southern (external) wall of Building 3 suggesting that the wall was dismantled at the same time as the ditch was being backfilled.

Period III Phase 7: late Roman

Towards the end of the 3rd century the Roman buildings at Long Lane appear to have been demolished and the area abandoned. Dumped deposits, some with high concentrations of building material, covered the remains of the earlier clay-and-timber buildings.

Discussion

Occupation of the area as represented by the succession of clay-and-timber buildings came to an end by AD 260 and was followed by deposition of 'dark earth'. Many sites in the City and Southwark show a similar pattern of 'dark earth' covering earlier Roman structures and it is clear that the accumulation of this material was not a single event and that it took place in different locations at different times (Watson 1998). 'Dark earth', a dark brown silt sand with a variable mix of pottery, stone, ceramic building material, wall plaster, ash, charcoal and cess, is usually taken to be a horticultural soil and an indication of market gardening (SLAEC 1978, 40). But, as Watson points out, palynological studies of 'dark earth' samples from London indicate a wasteland rather than cultivation. Deposits of 'dark earth', sometimes 1.5m thick, continued to form over a long time, in places until the 16th century at least (Sheldon 1978, 17), and the accumulation was constantly biologically reworked (Watson 1998). At Long Lane the 'dark earth' was *c.*1m thick; the archaeological evidence suggested that the site remained undeveloped until the 16th century and in the area of the excavation the ground was still open in the 17th century.

Period IV: medieval and post-medieval

There is no evidence in the archaeological record for features or deposits that can be dated to the Saxon period and indeed evidence for occupation of the site in the medieval period is scant. Features were limited to field boundaries, ditches, hedgerows and fence lines and some pitting, probably of a horticultural nature. The site lies 100m to the east of the Church of St George the Martyr, and William Necton's map of *c.*1530 shows the churchyard enclosed possibly by a hedgerow, with small plots to the east similarly enclosed. Throughout the medieval period and the early post-medieval period the site appears to have been agricultural land. However, from the 16th century onwards the land appears to have been increasingly encroached upon for the disposal of rubbish and for water supply, evidenced by pitting and a barrel-lined well.

Cartographic evidence (Morgan 1682) shows that in the 17th century the Long Lane frontage

of the site was built upon. The archaeological evidence of rubbish pitting, cesspits and a N–S ditch representing a property boundary is consistent with the excavation area being to the rear of these properties.

By the mid-18th century the ground still remained open and continued to be used for the disposal of rubbish. However a horn-core lined pit may be an indication that some industrial activity was also being undertaken nearby. The pit measured 2.40m N–S, 1.92m E–W, and 0.91m deep. The horn-cores, which consolidated the sides of the pit, appear to have been roughly cleaved in half and set with their points towards the edge of the cut and the pit used for rubbish disposal. The horn-cores were probably obtained from a slaughter-yard/butcher's shambles, tan-yard or horn-worker's premises in the locality.

Analysis of the horn-cores revealed a preponderance of medium-horned animals and a noticeable absence of long-horned stock, which have featured prominently in other post-medieval horn-core assemblages, and it would seem reasonable to suppose that had cores of long-horned cattle been available to line the pit they would have been selected and used. Arable-farming systems of the southern and south-western counties in the early modern period employed many middle-horn cattle owing to their proven reputation as superior draught animals (see Kerridge 1967, 316–17) and from this it follows that such stock were probably predominant over the other early breed-types (short- and long-horned) in the region around Southwark.

The archaeological evidence suggests that during the late 18th century the site was regenerated and new houses were built which, at least in part, encroached upon what had, since the mid-3rd century, been an open area. The excavations exposed the remains of brick walls, a floor, and a fireplace, which dated to this era. The cartographic evidence supports the archaeology, for Horwood's 1813 map shows that the site was at this date occupied by residential properties with back gardens. These buildings continued to be occupied until the end of the 19th century. Cartographic evidence shows that by 1914 the site was cleared and a distillery built.

DISCUSSION

The topography of north Southwark is crucial to its urban development in the Roman period and indeed to the siting of *Londinium* itself, for as Milne (1995, 40) states Southwark's island topography dictated where the roads and river crossing and therefore the city itself could be built.

Palaeoecological data suggests that the River Thames, as it flowed through *Londinium*, was tidal in the early Roman period (Milne 1993, 81–4). The Thames regularly reached a height of +1.25m OD and had a tidal amplitude of at least 1.5m (Yule 1988; Brigham 1990). This would mean that, at least at high tide, the timber structure on the edge of the marsh by the presumed channel could have acted as a landing-stage. A substantial fall in the river level of 1.5m occurred between *c.*AD 50 and AD 250 and it may have fallen as low as a MHW of 0.50m OD by AD 150 (Brigham 1990) which would have rendered the 'landing-stage' inoperable by the end of the 1st century.

The fall in the river level coincided with the rapid expansion of *Londinium* and Southwark during the Flavian period and once-marginal land appears to have been drained, reclaimed and developed. It has been suggested that at its peak in the late 1st/early 2nd century AD the settlement in north Southwark may have covered up to 24 hectares (Merrifield 1983, 134) and the population of *Londinium* at its height may have been as high as 20–30,000 individuals. Clay-and-timber building was a relatively cheap and easy construction technique, using readily available materials, and would have been ideally suited to the purpose of accommodating large numbers of people relatively quickly.

At Long Lane a series of clay-and-timber buildings was revealed that span the period from the late 1st/early 2nd century until the mid-3rd century AD. The site appears to lie on the southern and eastern margin of Roman Southwark, although clay-and-timber buildings have been found to the south of the site, at Arcadia Buildings, adjacent to Watling Street (Dean 1980) and traces of Roman brickearth buildings and metalled surfaces have also been discovered to the south at Long Lane Studios (AOC 2001). Although there was no direct evidence for commerce or industry, the lack of evidence for this at Long Lane does not preclude such activity. The concentration of hearths in Building 3 during the final phase of Roman occupation (see Phase 6) may be an indication of industrial activity; bakeries, metal-working

and craft shops were frequently established in rooms and backyards of domestic dwellings (Rowsome 2000, 34).

By the third quarter of the 2nd century *Londinium* suffered a grave decline in its population (Merrifield 1983, 147). That the population of the city following AD 150 was shrinking has been demonstrated by statistical analysis of domestic rubbish, food debris, and available water supply (Marsden & West 1992, 138). Increased insecurity, political instability, and disease have all been suggested as possible reasons for this decline. Southwark was not immune from this dramatic change in fortune. At 201–211 Borough High Street, for example, the earliest buildings of clay-and-timber dated to the mid- to late Flavian period and buildings of this tradition lasted until the mid-2nd century; a similar pattern has been reported elsewhere in Southwark.

The bulk of the pottery from the Roman quayside discovered at 51–53 Southwark Street dated to the period AD 120–160. The pottery was a typical waterfront assemblage, suggesting direct importation of pottery from other parts of the Roman Empire, although in the late 2nd century the importation virtually ceased (Killock 2005). British pottery production centres that supplied London, such as those at Brockley Hill and Highgate, also went into decline and may have ceased manufacture as early as AD 160 (Merrifield 1983, 144). A notable feature of the pottery assemblage at Long Lane is the high proportion of imported samian ware. The evidence at Long Lane after AD 150 is consistent with a collapse in the population, with buildings perhaps not occupied on a regular basis. The repair to a samian bowl (see Fig 21.24) is perhaps an indication that obtaining a replacement had become difficult and that the item was clearly considered of sufficient value to be mended and retained.

The 3rd century saw a revival in fortune for *Londinium* and Southwark but it was followed by late Roman occupation of a very different kind (Merrifield 1983). Buildings in Southwark appear to be fewer but grander, mainly constructed in stone and generally located on the north island. The widespread occurrence of 1st- and 2nd-century clay-and-timber buildings on both islands, the concentration of structures with stone footings to the north, and the finding of burials cut through these suggest a progressive reduction of the settlement towards the bridgehead (Heard *et al* 1990, 618). Nevertheless at Long Lane the use of clay-and-timber buildings lasted perhaps until the mid-3rd century when their final abandonment presaged a phase of urban wasteland and the dumping of refuse.

Complex Roman pitting and ditches which may have been ritual in character have been unearthed *c.*150m south-west of the site at Swan Street (Beasley 2007), in an area considered to lie beyond the settlement but within a quarter dedicated to ritual/religious practices. A comparison of the relative proportional frequencies of the main domesticates calculated for Swan Street and Long Lane reveals a marked difference in the overall pig:sheep/goat ratios, with sheep/goats featuring more prominently in the Swan Street assemblages, while pig features more strongly in those from Long Lane. While this could be simply explained in terms of basic differences in local dietary preferences between the inhabitants of the two sites, the relatively high frequency of sheep/goats at Swan Street does not fit well into the known food-ways of later Roman Britain (King 1978; 1984). That the Long Lane evidence does fit the expected dietary pattern underlines the apparent out-of-the-ordinary situation at Swan Street and reinforces the suggestion that the sheep/goats at that site may have had a purpose other than (primarily) as food sources, perhaps being used as sacrificial offerings.

Apart from the possible backyard-reared domestic fowl and sucking pigs, the inhabitants of the Long Lane site appear to have relied heavily on market-bought food supplies, which in the case of red meat was invariably beef, pork and mutton. These same inhabitants would have lived in reasonably close proximity to a diversity of natural and humanly modified rural habitat types (river banks, marshes, boggy woodlands, meadows, fields) supporting plentiful numbers of easily accessible wild fowl. It is somewhat puzzling therefore that such an abundant, ready-to-hand food resource was apparently not exploited. In this respect, the Long Lane inhabitants were not alone, as their neighbours elsewhere in Southwark also seem not to have included wild birds in their diet (as evidenced by the faunal remains from 199 Borough High Street and from Swan Street). This situation is, however, in marked contrast to the consumption of a wide variety of wild birds (comprising woodcock, teal, tufted duck, whimbrel, lapwing, godwit and golden plover) by the town-dwellers of Roman Colchester (see Luff 1982, 131).

The status of the settlement at Long Lane may perhaps be best described as that of the 'artisan' class and the general lack of contemporary deposits of glass is considered to reflect the site's marginal location and the low status of its inhabitants. However there are signs that the inhabitants had aspirations and Building 3 appears to be a step up from a simple strip-building and shows characteristics (painted wall plaster, internal corridors, and the provision of 'reception rooms') of multi-roomed town-houses inhabited by wealthier citizens. The 'reception rooms' are also an indication that the inhabitants engaged in 'Roman' social life. Comparable residential residences might be Buildings K and F unearthed at Newgate Street and Watling Court (Milne 1995, 67) or Building 6 at Leadenhall Court (Milne 1992, 74) — a timber-framed structure with a tiled roof and painted wall plaster, which had at least seven rooms, an internal corridor, and a veranda at the rear (Milne 1992, 73–80, fig 25).

Whilst a Romanised building style was clearly adopted, this does not necessarily imply the ethnic origin of the inhabitants. The population of *Londinium* (in the late 1st century AD) was probably a cosmopolitan mixture from Britain and the Continent, including veterans, officials, traders, artisans, also freedmen, slaves and the urban poor (Rowsome 2000, 32). However at Long Lane, from the outset of Roman occupation, a Romanised urban life-style seems to have been practised. The use of samian tableware and other imported pottery, the reliance on market-bought food, and the consumption of a typically Roman diet seem to reflect a highly Romanised way of life. However we cannot be certain of the extent to which the population adopted a truly Roman routine, and customs may have varied widely reflecting cultural diversity (Rowsome 2000, 37). In *Londinium* and Southwark a common Roman urban culture may blur the distinction of different ethnic groups.

CONCLUSION

The topography of north Southwark with low-lying eyots separated by braided channels is increasingly recognised as a favourable location for prehistoric peoples; the proximity of both wet and dry environments being particularly advantageous first to hunter-gatherers and then to early farmers. Although the artefactual evidence for early prehistoric activity on the site was slight, comprising only two struck flints, these are nevertheless part of a growing collection of mainly Middle Bronze Age material found in north Southwark.

That the sand islands of Southwark were farmed from the Bronze Age, and possibly even earlier, has been well established by recent discoveries of field ditches and ard marks on a number of sites, although evidence for any associated settlement remains elusive. At Long Lane the discovery of a possible landing-stage and ditch may be an indication of settlement in the close proximity. Here the Bronze Age features were sealed by alluvial deposits, a phenomenon common on the eyots of north Southwark and an indication of rising water levels through the Bronze Age (Sheldon 2000, 128). There was no evidence for Late Iron Age activity on the site and plant remains indicate that at the beginning of the Roman era the local environment was marshland, at least in the immediate vicinity of the subject site. An intriguing but anomalous find from the peaty marsh deposits was a flat strip of gold wire measuring 1mm by 0.3mm.

Despite extensive archaeological investigations on both banks of the Thames, there is no evidence for a tribal centre or *oppidum* in the central London area, but rather isolated farmsteads or small-scale agricultural settlements, probably based on kinship groups, may have been the general pattern. Indeed the evidence seems to suggest that the London region was on the periphery of tribal territories and this may be at least part of the impetus for the siting of the new Roman urban centre of *Londinium* (Millet 1990, 89).

The military origins for Roman Southwark have in the past perhaps been overstated. That there was, in the pre-Flavian period, a military presence in the area is attested by the finds of Claudian coins and military equipment, although the coin dates preclude a military origin for *Londinium* since the legions had long since moved on. The military equipment, although recovered in early contexts, has not been recovered in quantities or concentrations that suggest a legionary base (Milne 1995, 43). Indeed there is no evidence for a pre-Flavian fort within or in the vicinity of north Southwark, nor is there any evidence for any early buildings within the settlement area that can be directly related to military activity (Heard *et al* 1990, 611). *Londinium* was founded only after AD 50, once the road system had been realigned and

after the Roman army had moved forward to Wales and the North, and in what was regarded as a pacified hinterland (Milne 1995, 47).

Nevertheless the Roman army constructed the approach roads and was probably responsible for other engineering schemes including land drainage and revetting the edges of the higher land (Sheldon 2000, 131). That *Londinium*, at the hub of a communications network, provided logistical support for the military seems certain. However, Sheldon (2000) has suggested that timbers found underlying Road 1 on a number of sites, rather than being simply foundations for the road traversing wet unstable ground, may be an earlier 'tactical' version of the strategic route to the bridgehead.

Early Roman timber structures in the London area are still exceptionally rare. At Long Lane the timber 'landing-stage' dated to the mid-1st century AD and such an early Roman date suggests that it was possibly erected by the Roman army, although not necessarily during the invasion phase. This timber structure appears to have been in use for perhaps 30 years and thus a strictly 'tactical' purpose can be discounted. Furthermore the disuse of the structure coincides with a drastic fall in the river level suggesting that it may have been a waterfront facility.

By the beginning of the 2nd century Roman Southwark may have been at the zenith of its expansion, with the site located at the margins of a crowded, busy, urban settlement. Although the excavation was unable to provide a complete ground plan for any of the buildings, detailed information on the types of building techniques used, probable functions and life-span of the buildings was recovered. The pottery and animal bone in particular provided important information on the way of life of the inhabitants. The 150 years of continuous Roman occupation recorded at Long Lane also demonstrated significant changes in circumstances for the population. The crisis of the mid-2nd century seems to have impacted upon the inhabitants of Long Lane with the evidence consistent with a drastically reduced population and an equally dramatic reduction in economic activity and trade. That the site was abandoned in the latter half of the 3rd century and perhaps left as waste land used for the dumping of rubbish and the rummage of swine is also consistent with a gradual reduction of Roman Southwark towards the bridgehead.

Roman Southwark may have ceased to be occupied by the end of the 4th century (Sheldon 2000, 146) and may not have been reoccupied until late in the 9th or early 10th century when the City itself was once again occupied. Occupation in medieval Southwark concentrated around the bridgehead (presumed to be close to its Roman precursor) and expanded along the riverbank eastwards to Horsleydown and westwards along Bankside (Cowan 2000, 24). To the south, roadside development stretched as far as St George's church. Medieval Southwark grew up for much the same reason as Roman Southwark, located at the junction of the two main routes to the south coast and the Cinque Ports, and the final approach to the only bridge crossing to the City. The area would, of course, become famous for its inns providing hospitality and refreshments to travellers. The site at Long Lane appears to have lain in the fields that surrounded Southwark until the post-medieval era.

ROMAN POTTERY

Malcolm Lyne

The excavation produced 3,797 sherds (101,022g) of Roman pottery from 166 contexts, of which the overwhelming majority is of late 1st- to late 3rd-century date.[4] Two of the assemblages are large enough for quantification by Estimated Vessel Equivalents (EVEs) based on rim sherds (Orton 1975). All dating is relevant to Period III only.

Phase 1

From the surface of the peat-marsh 32 pot sherds were retrieved, most recovered from beneath the timber pile structure. It is thought that much of this material was dropped from the platform. The sherds are of mid- to late 1st-century character and include a post-AD 70 sherd from a South Gaulish samian Dressel 37 bowl and a Dressel 36 platter. The rest of the samian includes a fragment from a Dressel 29 bowl. Other fragments include sherds from a small bead-rim jar in North Kent Shelly ware, a cordoned-jar of Type 1.20 in grey Alice Holt/Surrey ware (Lyne & Jefferies 1979), and a Hoo flagon. This would suggest that the structure was in operation *c.*AD 50–80.

Phase 2

From the deposits that buried the Phase 1 timber

structure 516 sherds of pottery were retrieved. Coarsewares include a number of bead-rim jars in Alice Holt/Surrey ware, Early Roman Sandy B, North Kent Shelly and Highgate Wood B fabric, and there are fineware Hoo flagon and Ring-and-Dot Beaker fragments. The large amounts of South Gaulish samian include pre-Flavian forms such as Ritterling 8 and 12C and Dressel 24 as well as roughly equal quantities of sherds from Dressel 29 and 37 bowls; platters include both Dressel 18s and 15/17s but there are no obvious examples of the post-AD 90 form Dressel 18/31. Complete and fragmentary stamps of Masculus (AD 55–75), Martialis (AD 60–80), Modestus (AD 50–70), and Mommo (AD 60–80) are also present. Amphora sherds include a fragment from a Dressel 20 amphora rim of Martin-Kilcher Group C (1987) of late 1st-century date and a rim fragment from a Flavian Gauloise 4 wine amphora (Baudoux 1996, fig 21.3). Fragmentary *c.*AD 65–95 dated stamps of Ripanus and Secundus on Verulamium Region mortaria are also present. None of the forms or fabrics present in this assemblage need be much later than *c.*AD 80.

Phase 3

The best dating for Building 1 comes from the entranceway and the occupational debris spread across it. The tiled entrance produced 152 sherds of pottery. The sherds include a rim fragment from a Hartley Group II or Gillam 238 mortarium (*c.*AD 60–100), a Verulamium Region Whiteware example of Frere Type 363 (*c.*AD 50–90), and a pulley-neck flagon in cream North French/South-East English 1298 fabric (external rim diameter 70mm, *c.*AD 60–120, Fig 16.1).

From a trample layer outside the building, 470 sherds of Flavian and early 2nd-century pottery were recovered, indicating that the building was not destroyed until after AD 100. The assemblage is large and fresh and was quantified by Estimated Vessel Equivalents (EVEs) (Table 1).

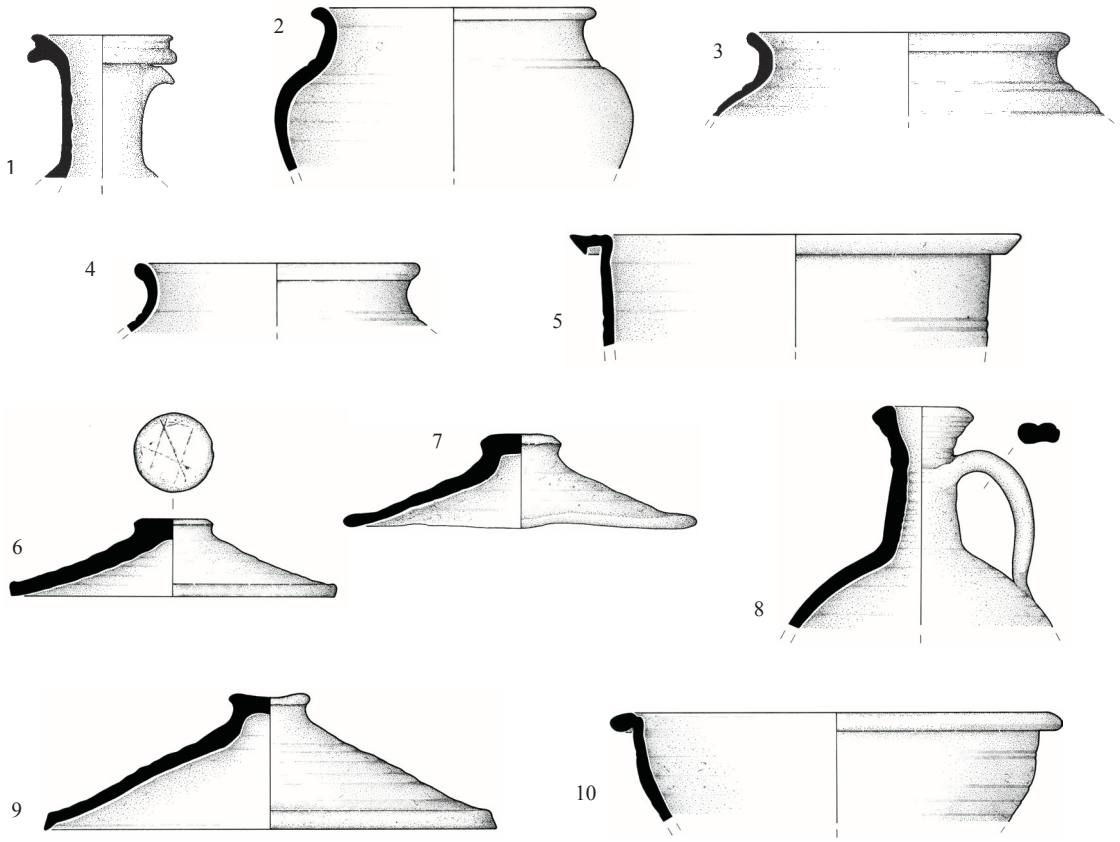

Fig 16. Roman pottery Nos 1–10

Table 1. Pottery from Period III Phase 3 trample layer quantified by Estimated Vessel Equivalents

	Forms								
	Jars	**Bowls**	**Dishes**	**Beakers**	**Store-jars**	**Others**		**Total**	**%**
Coarse Wares									
Alice Holt Surrey ware	1.77	0.16	-	-	-	-	-	1.93	12.7
Early Roman Sandy ware A	P	-	-	-	-	Lid	P.	P.	
Early Roman Sandy ware B	0.14	-	-	-	-	Lid		0.41	2.7
Highgate Wood B ware	-	0.90	-	-	-	Lid	0.08	0.17	1.1
Highgate Wood C ware	0.33	0.97	-	0.20	-	Lids	0.49	1.99	13.1
North Kent Shelly ware	-	-	-	-	-	P.		P.	
Unsourced Sandy Grey wares	0.62	-	0.06	-	-	Lids	1.00	1.68	11.1
Verulamium Region Grey ware	-	0.13	-	-	-	Lids	0.62	0.75	5.0
Verulamium Region White ware	-	0.14	-	-	-	Mortaria	0.53		
						Flagons	2.00	2.73	18.0
Total coarse	2.86	1.49	0.06	0.20	-		5.05	9.66	63.7
Fine Wares									
Hoo ware	-	-	-	-	-	Flagon	P.	P.	
Local Mica-dusted wares	-	-	0.08	-	-	Flagon	0.18	0.26	1.7
London ware	-	-	-	-	-	Lid	P.	P.	
Local Oxidized wares	-	-	-	-	-	Lid	P.	P.	
North French/South-east England wares	-	-	-	-	-	-	P.	P.	
La Graufesenque samian ware	-	0.30	3.22	-	-	Dr 27	1.32		
						Dr 33	0.24	5.08	33.6
Les Martres de Veyre samian ware	-	0.07		-	-	Dr 27	0.07	0.14	1.00
Total fine		0.37	3.30				1.81	5.48	36.3
Total all	2.86	1.86	3.36	0.20	-	-	6.86	15.14	
	(18.9%)	(12.3%)	(22.2%)	(1.3%)	-	-	(45.3%)		
						Cups	1.63	10.8%	
						Flagons	2.18	14.4%	
						Lids	2.52	16.6%	
						Mortaria	0.53	3.5%	

The presence of two complete flagon necks in Verulamium Region Whiteware has led to some distortion of the fabric percentages, but the overall impression remains that the bulk of the coarse kitchen wares were being supplied to the site from the Alice Holt/Farnham and Highgate Wood industries in roughly similar amounts and with a greater emphasis on bowls from the latter industry. There are abnormal numbers of lid fragments from a variety of sources: the significance of this is uncertain.

Supply of Verulamium Region products was largely restricted to flagons, mortaria and lids. A complete absence of Verulamium Region jars suggests that these particular lids may have been used on carinated bowls from that source: fragments from two bowls are present in the assemblage. The illustrated pottery includes:

Fig 16.2. Jar of Lyne and Jefferies Type 1.20 (1979) in grey Alice Holt/Surrey ware fabric. External rim diameter 140mm.

Fig 16.3. Jar of Lyne and Jefferies Type 1.12 (1979) in similar fabric. External rim diameter 160mm.

Fig 16.4. Form 2E jar in grey Highgate Wood C fabric. External rim diameter 140mm.

Fig 16.5. Lid-seated and carinated bowl in cream Verulamium Region White ware fabric fired grey-black externally. External rim diameter 220mm. *c.*AD 100–120 (Davies *et al* 1994, fig 172.1046).

Fig 16.6. Lid in grey Verulamium Region Grey ware fabric with a graffito on the boss. External rim diameter 180mm.

Fig 16.7. Badly warped lid in reddish-brown Early Roman Sandy ware B fabric, fired black. External rim diameter 190mm Nearly half is present. *c.*AD 70–120.

Fig 16.8. Complete top of flagon of Frere Type 241 (1972) in orange Verulamium Region White ware fabric. External rim diameter 50mm. *c.*AD 85–105.

Fig 16.9. Lid in brown Verulamium Region Grey fabric, fired patchy grey/brown. External rim diameter 240mm. Nearly half is present.

Fig 16.10. Much of lid-seated Form 4F bowl in grey Highgate Wood C ware fabric. External rim diameter 220mm. *c.*AD 70–130.

Fig 17.11. Five sherds, four of them joining, of Dressel 29, South Gaul, probably by M. Crestio. The upper zone consists of festoons containing scrolls, with straight pendants between, and is a similar arrangement to Mees 1995, Taf 48, no. 1. The lower zone consists of figured and saltire panels. The *bestiarius* (Hermet 1934, pl 23, no. 253) fights a lion (Hermet, pl 25, no. 12) regularly used by M. Crestio (Mees, Taf 39, no. 6), and the rough lines in the background are probably there to suggest undergrowth (*cf* Mees, Taf 38, no. 3). Most of the saltire motifs are recorded for M. Crestio: the long grass tuft (Mees, Taf 40, no.4), the large four-bladed leaf (Taf 37, no. 3), and the corded motif (*cf* Taf 36, no. 4); the formal leaf is Hermet, pl 10, no. 46. *c.*AD 70–85.

One of the most outstanding features of this pottery assemblage is the abnormally high percentage of samian pottery, amounting to over one third of all of the material and made up overwhelmingly of products from La Graufesenque, with just a few Martres-de-Veyre fragments. The four South Gaulish stamps are of Pontius (AD 80–100), Rufinus ii (AD 65–90), Mont(anus) and Cres(cens) (AD 70–90), and Patricius (AD 75–100).

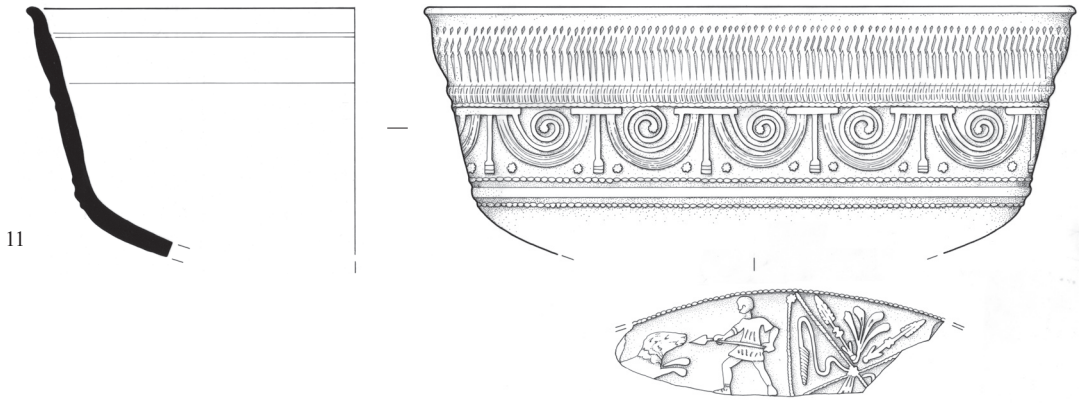

Fig 17. Roman pottery No. 11

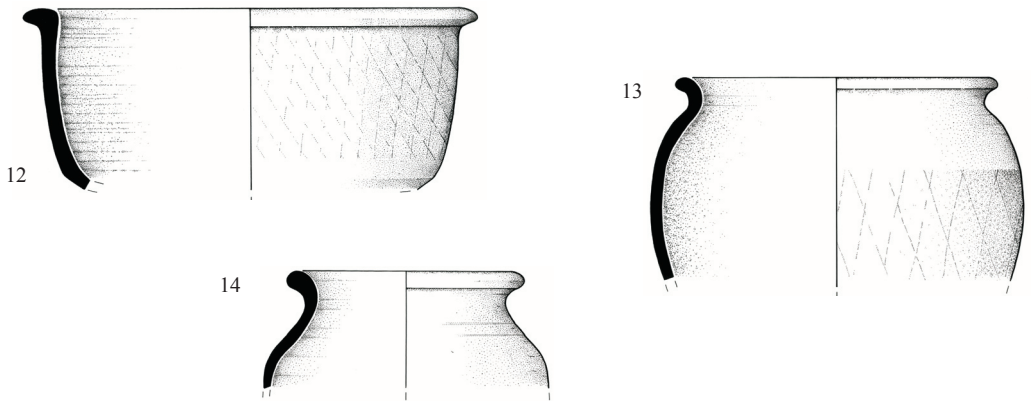

Fig 18. Roman pottery Nos 12–14

Phase 4

Pottery (508 sherds) recovered from the rubbish dumped over the levelled Building 1 was almost entirely residual in nature. The material did, however, include large fresh sherds from vessels which were probably broken at the time that the dumping was taking place, including:

Fig 18.12. Flanged bowl of Gillam Type 57 (1977) in black Dorset Black-burnished ware fabric with acute lattice decoration. External rim diameter 200mm. *c.*AD 120–160.

Fig 18.13. Everted rim cooking-pot in Dorset Black-burnished ware fabric with acute lattice decoration. External rim diameter 140mm. *c.*AD 120–160.

Fig 18.14. Cordoned jar of early 2nd-century type in buff Verulamium Region White ware fabric with black patches. External rim diameter 130mm.

Fig 19.15. Eleven sherds, all joining, formed just over half a Banassac Dressel 37, South Gaul bowl. Four panels, probably repeated three times altogether: a hound above a lion (*cf* Hermet 1934, pl 25, no. 8A), a cupid with thyrsus and torch (a smaller version of Hermet, pl 18, no. 29), a stag (Hermet, pl 27, no. 18) above Diana in her *biga* (Hermet, pl 23 no. 230), and a satyr and maenad (Hermet, pl 24, nos 276 and 277). The stag and hound are illustrated by Knorr (1919) among the motifs attributed to Pudens (1919, Taf 67, nos 6 and 7). The rather clumsy trident-tongued ovolo, the heavy basal wreath, and the coarse borders all indicate a date *c.*AD 85–110. A line in the mould below the decoration may be a trace of a signature; the moulding is shallow and blurred, suggesting use of a worn mould, and the footring is worn.

Large fresh joining sherds from a Martres de Veyre Dressel 18/31 platter (*c.*AD 100–130) and a Form 3E beaker in Highgate Wood C ware fabric (*c.*AD 70–160) are also present in the assemblage. The dating of these freshly broken pots indicates that Building 1 was not demolished until sometime between AD 120 and 140.

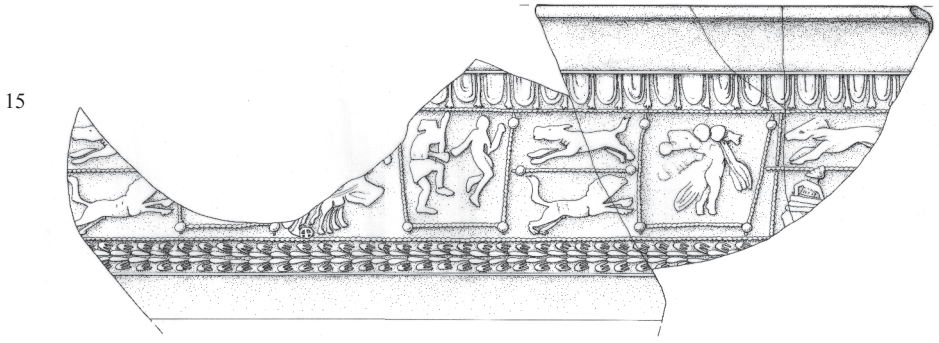

Fig 19. Roman pottery No. 15

The pottery in the metalling of the alleyway (40 sherds) includes further material dated *c.*AD 120–160 but the best occupational assemblages by far are those from the fills of the ditch. The 121 sherds of pottery are too few for quantification by EVEs but are very largely of early 2nd-century date. The pottery from the basal fill includes the following illustrated pieces:

Fig 20.16. Mortarium in cream Verulamium Region White ware fabric with stamp of Castus. External rim diameter 220mm. *c.*AD 110–140.

Fig 20.17. Complete lid-seated flagon neck from vessel of Form 1F in grey Local Mica-dusted ware fabric, fired brown with mica dusting. External rim diameter 100mm. *c.*AD 120–160.

Fig 20.18. Imitation Dressel 37 bowl in pale grey London ware fabric with polished black patches and rouletted and scribed decoration. External rim diameter 200mm. *c.*AD 70–120.

Fig 20.19. Poppyhead beaker of Form 3F in grey Highgate Wood C fabric with rectangular dot-barbotine panels. External rim diameter 100mm. The weakly developed rim suggests a date range of *c.*AD 120–140.

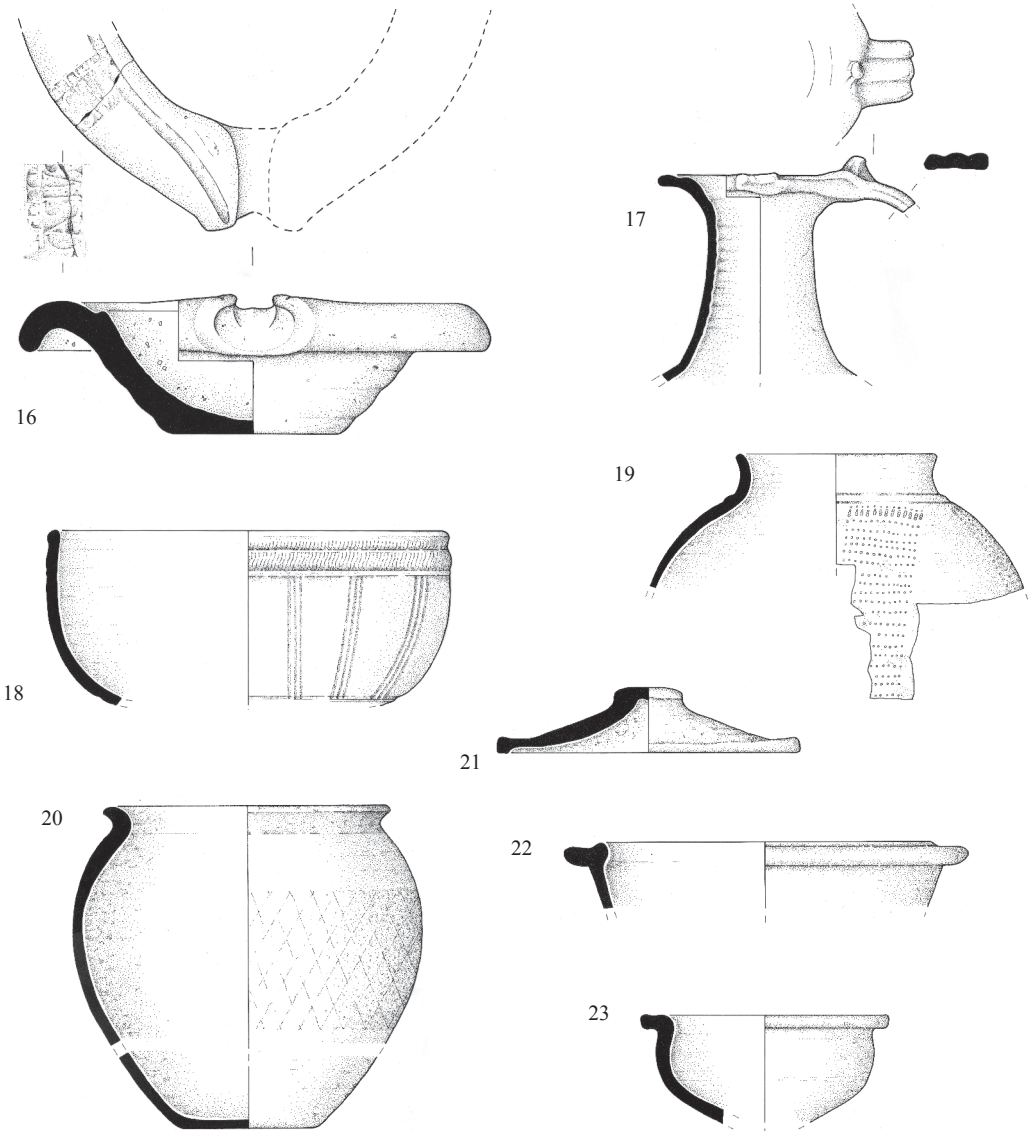

Fig 20. Roman pottery Nos 16–23

The upper fill of the ditch produced large, fresh fragments from the following vessels:

Fig 20.20. Dorset Black-burnished ware everted-rim cooking-pot of similar form to Fig 18.13, with internal lime-scale. External rim diameter 140mm. *c.*AD 120–160.

Fig 20.21. Small warped lid in dull red Local Oxidized wares 2599 fabric with occasional limestone eruptions. External rim diameter 160mm. *c.*AD 100–200.

Fig 20.22. Lid-seated carinated bowl of Frere Type 684 in heavily blackened brown Verulamium Region White ware fabric. External rim diameter 200mm. *c.*AD 135–170.

Fig 20.23. Another such bowl, of Frere Type 326, in buff-pink Verulamium Region White ware fabric with blackened exterior. External rim diameter 140mm. *c.*AD 85–105.

Other sherds from the ditch include part of a Verulamium Region White tazza of Frere Type 309 (*c.*AD 75–105) and fragments from Martres de Veyre samian Dressel 18/31 platters and Dressel 37 bowls (*c.*AD 100–130). A total absence of Lezoux samian, (wheelmade) Black-burnished wares, and other wares of 2nd-century date suggests a short life of *c.*AD 120/30–140 for this phase.

Phase 5

The 457 sherds of pottery include 184 of residual material from floor and road make-up deposits. A sherd of (wheelmade) Black burnished ware is present for the first time but this material otherwise fails to add any further dating information for the end of Phase 4 or the commencement of Phase 5. However a repair to the road includes a Thameside greyware jar fragment, which should be later than AD 150.

The pottery from trample layers includes a Central Gaulish Curle 23 platter fragment of *c.*AD 140–200 and a piece from a North Gaulish Pentice beaker. Vessels of the latter type were imported into the South-East in small quantities between AD 70 and 250 or later but the bulk of the British finds are dated *c.*AD 150–250. These pieces, combined with a lack of the early 3rd-century Thameside greyware forms characteristic of *c.*AD 200–270 London assemblages and 3rd-century Dorset Black-burnished ware forms, suggest that the occupation of Building 3 did not continue much after *c.*AD 200.

Also included in the occupation debris were 28 sherds, all joining, of a Dressel 37, Montans, perhaps by Attillus (Fig 21.24). The profile, with an internal pair of grooves and a neat 29-type foot, is characteristic (*cf* Martin 1986, fig 8, no. 13), as is the rather thin matt brownish slip. Approximately three-quarters of the design is present: panels divided by vertical rows of arrowheads. A row of partly impressed grass tufts replaces the ovolo (for similar use of a foliage motif, *cf* Simpson 1968, pl 83, no. 55, probably by Attillus, and Simpson 1976, fig 10, nos 41 and 43). The larger panels contain individual animals below wide chevrons: a lioness (Hermet 1934, pl 25, no. 29), a hound bitch (pl 26, no. 25), and a hare (*cf* pl 26, no. 70). The narrower panels contain a grass tuft and arrowheads below a griffon (a smaller version of Hermet, pl 25, no. 6, with wings as pl 25, no. 7) or a row of

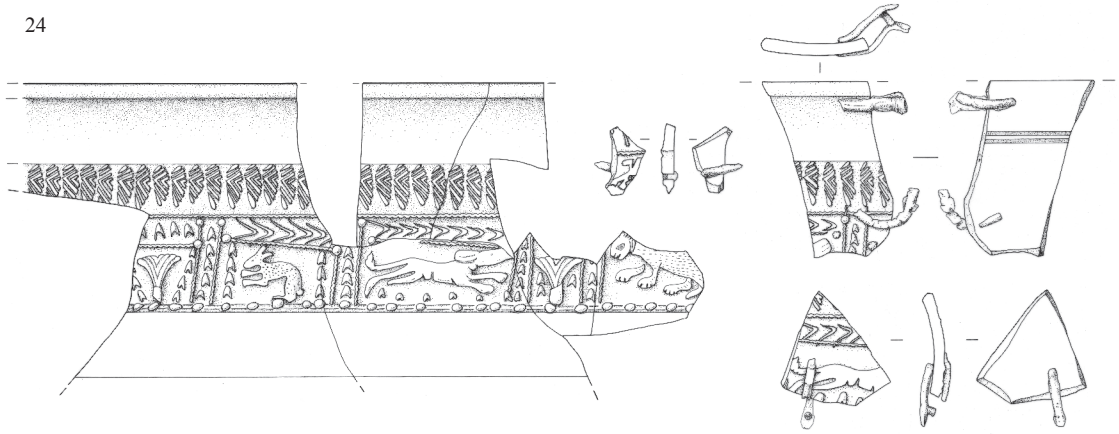

Fig 21. Roman pottery No. 24

arrowheads; there are further arrowheads below the hound and flanking the hare. The grass tuft was used complete and partially by Florus, who also used the hare (Mees 1995, Taf 246, nos 1 and 4). For the small arrowheads, *cf* Simpson 1976, fig 7, no. 29; similar chevrons were regularly used by a number of Montans potters (*eg* Simpson 1976, figs 4, no. 14; 7, nos 28 and 32; 8, no. 35). Martin 1986, fig 8, no. 11, has the griffon and chevrons, no. 17 the chevron and basal band of rosettes; both are attributed to Attillus *c.*AD 110–140; there are three lead-strip repairs, though the footring is not very worn.

Phase 6

The 468 sherds of pottery from this phase include 123 sherds of residual material from levelling-up dumps and constructional deposits. The buildings of this phase, like those of the previous one, produced little if any contemporary pottery. The most significant assemblage by far comes from the rubbish dumped in the ditch. From the ditch 250 sherds of mainly mid- to late 3rd-century pottery with some residual material were recovered. The assemblage was considered to be just large enough for quantification by EVEs, although the presence of a complete flagon top in North Kent White Slipped ware has led to some distortion of fabric and form percentages (Table 2).

Dorset Black-burnished ware is the most common single fabric (20%), and a lack of developed beaded-and-flanged bowls in that ware, together with the presence of freshly broken (wheelmade) Black-burnished ware 'pie-dish' fragments, suggests that the ditch was back-filled between AD 240 and 270. Phase 6 can therefore be dated to *c.*AD 200–240/70.

The assemblage included the following illustrated pieces:

Fig 22.25. Incipient beaded-and-flanged bowl in Dorset Black-burnished ware fabric with burn-

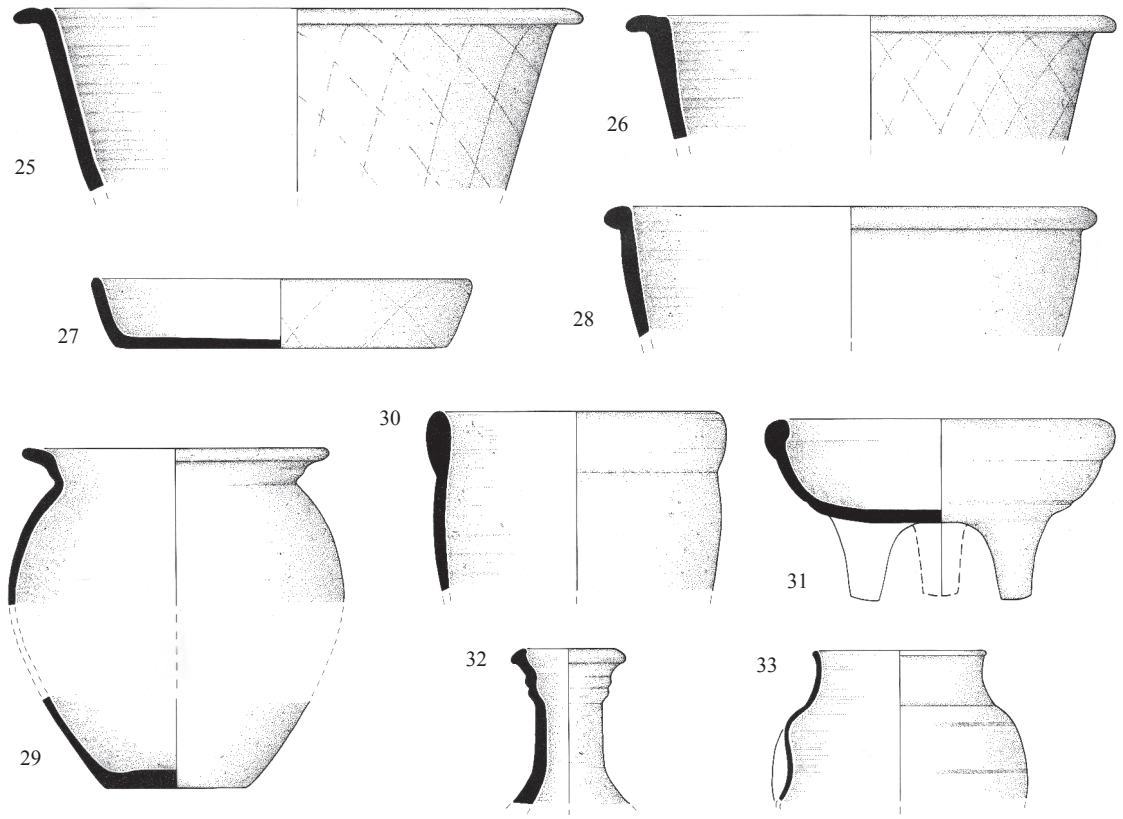

Fig 22. Roman pottery Nos 25–33

ished arcading on its exterior. External rim diameter 240mm. *c.*AD 220–290.

Fig 22.26. Another example in the same fabric with similar decoration. External rim diameter 240mm. *c.*AD 220–290.

Fig 22.27. Straight-sided dish with steep burnished arcading in similar fabric (one of two). External rim diameter 200mm. *c.*AD 200–270.

Fig 22.28. 'Pie-dish' of Monaghan Type 5C3.1 (1987) in fine (wheelmade) Black-burnished

Table 2. Pottery Period III Phase 6, ditch fill, quantified by Estimated Vessel Equivalents

	Forms								
	Jars	**Bowls**	**Dishes**	**Beakers**	**Store-jars**	**Others**		**Total**	**%**
Coarse Wares									
Alice Holt Surrey ware	0.28	-	-	-	-	-	-	0.28	3.8
Dorset Black-burnished ware	0.31	0.73	0.46	-	-	-	-	1.50	20.4
Black-burnished 2 ware with fine fabric	0.15	0.14	-	-	-	-	-	0.29	3.9
Black-burnished-style ware	0.24	-	-	-	-	-	-	0.24	3.3
Highgate Wood C ware	0.11	0.07	-	0.12	-	-	-	0.30	4.1
Unsourced Sandy Grey wares	-	-	-	-	-	Tripod	0.55	0.55	7.5
Thameside Kent ware	0.87	0.17	-	-	-	-	-	1.04	14.1
Verulamium Region White ware	0.16	-	-	-	-	Ungentarium	-	-	-
						Lid	0.12	0.55	7.5
Total coarse	2.12	1.11	0.46	0.12			0.94	4.75	64.6
Fine Wares									
Cologne ware	-	-	-	0.37				0.37	5.0
Moselkeramik	-	-	-	0.20				0.20	2.7
North Kent White-slipped ware	-	-	-	-		Flagon	1.00	1.00	13.7
Nene Valley colour-coated ware	-	-	-	-		Box	0.17	0.17	2.3
Central Gaulish samian ware	-	-	0.09	-		Mortarium	0.08	0.17	2.3
East Gaulish samian ware	-	-	-	-		Mortarium	0.14	0.14	1.9
Les Martres de Veyre samian ware	-	-	0.55	-				0.55	7.5
Total fine			0.64	0.57			1.39	2.60	35.4
Total all	2.12	1.11	1.10	0.69			2.33	7.35	
	(28.8%)	(15.1%)	(15.0%)	(9.4%)			(31.7%)		

ware fabric with white margins. External rim diameter 200mm. *c.*AD 150–250.

Fig 22.29. Handmade everted-rim cooking-pot with burnished obtuse latticing, in very-fine-sanded black fabric with pink margins. External rim diameter 160mm. The vessel is clearly imitating a contemporary Dorset Black-burnished ware type both in form and fabric. A tendency for the fabric to laminate and the surface to peel off is paralleled in the imitative East Sussex Brown-Burnished ware industry (Lyne 1994, Industry 2A) and the vessel is probably from that source and dated *c.*AD 250–300.

Fig 22.30. Neckless jar with oval-section bead-rim in pink Verulamium Region White ware fabric fired cream-buff with grey patches. External rim diameter 160mm. The form is paralleled at 1–7 St Thomas Street, Southwark (Hammerson & Murray 1978, fig 165.1264). Late 2nd century.

Fig 22.31. Greater part of tripod bowl in very-fine-sanded rough grey fabric with three feet. External rim diameter 140mm. Very similar to examples from the 3rd-century La Boissière-Ecole kilns north-west of Rambouillet in France (Barat *et al* 1994, pl 1.207) and other potteries of similar date in the Île de France around Paris.

Fig 22.32. Complete screw-neck flagon top in North Kent White-slipped ware. External rim diameter 60mm.

Fig 22.33. Moselkeramik beaker of Symonds Group 34 (1992). External rim diameter 100mm. *c.*AD 200–276+.

The ditch also produced fragments from a bulbous Dorset Black-burnished ware cavetto-rim cooking-pot (*c.*AD 200–290), an East Gaulish samian Dressel 45 mortarium (*c.*AD 170–260), a Thameside grey ware jar of Monaghan Type 3H5.3 (*c.*AD 170/190–210/230), and a small Lower Nene Valley Colour-Coat box (*c.*AD 230–300).

From the fills of postholes that formed the south (external) wall of Building 3 a large fragment from a Dorset Black-burnished ware incipient beaded-and-flanged bowl similar to Fig 22.25 (*c.*AD 220–290) and a sherd from a similarly dated, straight-sided dish in the same fabric were recovered. This suggests that the wall was dismantled at the same time as the back-filling of the ditch.

Phase 7

There was no stratified 4th-century pottery from the site but residual pottery recovered from a post-medieval horticultural soil horizon produced a few sherds, which are certainly later than *c.*AD 270 and probably post-date AD 300. These pieces include fragments from a black-slipped Alice Holt/Farnham industry Type IA.14 liquid storage-jar (*c.*AD 270–350), 4th-century cavetto-rim jar sherds from the same source, and a developed beaded-and-flanged bowl of uncertain origin. It seems probable that these sherds are unrelated to the Roman occupation on the Long Lane site but were present in soil brought on to the site from elsewhere, probably for horticultural purposes.

ANIMAL BONE

Philip Armitage

A total of 1,314 animal bone elements were submitted for analysis. The majority of these bones were hand-collected routinely during excavation. Small quantities of bones were additionally recovered from residues of sieved soil bulk samples, which for Period III Phase 4 produced a useful spectrum of the fish eaten by the inhabitants.[5]

From the peat-marsh surface a single horse radius (LL 325mm) from an individual of withers height 141cm (calculated after the method of Kiesewalter 1888) was retrieved; a tall horse by Roman standards, falling within the size-range documented by various authors (see Prummel 1979, 434 and also Lauwerier & Hessing 1992, 92) for horses from military sites throughout the Roman North-West Provinces. However as discussed by Luff (1982, 136), horses of such stature are also found at 1st- to 4th-century villa and farmstead sites where ranching of cattle and sheep was carried out. Three similarly tall horses were identified among the equid remains from Swan Street, Southwark, retrieved from early 1st- to mid-2nd-century deposits, where it was suggested these represented animals employed in agriculture (Armitage 2000).

Although the deposits from Period III Phases 3–6 yielded relatively modest quantities of food bones (compared with very much larger samples from many other contemporary Roman sites), analysis of these provides some insight into the dietary habits and the foodways of the Southwark inhabitants during the 1st–3rd centuries AD.

Analysis of animal bone identified as discarded food debris reveals a diet dominated by beef, supplemented by mutton/lamb, pork/sucking pig and domestic fowl, goose, duck and fish. It is uncertain whether the duck (represented

by a single ulna) was a mallard taken in nearby marshes or a domestic duck raised locally. The evidence for fish (both estuarine/marine and freshwater) comes from bulk (sieved) samples, which produced pharyngeal teeth of roach (identified using modern comparative specimens and with reference to Libois & Hallet-Libois 1988, 4). This was the only freshwater fish species represented as all the other fish bones are recognised as those of estuarine/marine species, comprising nine caudal vertebrae of plaice and a single quadrate of cod.

The dietary pattern established for the later Roman deposits in which beef and pork clearly predominate, with a concomitant decline, evident as early as the 2nd century, in the relative importance of mutton (Table 3), fits very well into the general profile for the changing foodways of Romanised Britain. By the 3rd/4th century, the high ox-pork military dietary-regimen/preference had apparently been widely adopted by civilians throughout the country (as discussed by King 1978 and 1984). No wild game (deer and boar) or wildfowl were apparently eaten. Again, there is no evidence of extravagance or eating of rare delicacies as would be expected if the refuse had derived from wealthy households.

Table 3. Period III Phases 2–6, Roman animal bone assemblages: relative proportional frequencies of the main domesticates/meat-yielding species by NISP and by bone-weight data (% of the total)

	Cattle	Sheep/goat	Pig
1. Based on NISP			
Phase			
2	55.9%	29.1%	15.0%
3	61.5%	17.3%	21.2%
4	54.8%	16.4%	28.8%
5	58.0%	9.9%	32.1%
6	47.8%	23.9%	28.3%
2. Based on bone-weight			
Phase			
2	75.8%	11.3%	12.9%
3	61.9%	7.7%	30.4%
4	58.1%	9.2%	32.7%
5	68.0%	1.9%	30.1%
6	60.4%	10.2%	29.4%

Table 4. Period III Phases 3–6, domestic fowl. Proportional frequencies of the domestic fowl bones expressed as a percentage of the total number of bones for all the principal meat-yielding species (cattle + sheep/goat + pig + fowl) in comparison with other Roman sites in Southwark and London

Sites		Frequency of fowl bones
Southwark		
Long Lane		
	Phase 3	7.0%
	Phase 4	10.2%
	Phase 5	11.8%
	Phase 6	10.7%
	Overall	10.3%
Swan Street		1.2%
199 Borough High Street		1.6%
London		
General Post Office site		0.9%
Billingsgate Buildings		1.6%
Bishopsgate		20.0%

Reference sources: Swan Street (Armitage 2000); 199 Borough High Street (Locker 1988); General Post Office site (West 1983); Billingsgate Buildings (Armitage 1980); Bishopsgate (Armitage 1984).

In each of the principal Roman phases (Table 4) there was an unusually high incidence of domestic fowl bones for a Romano-British site. While the overall frequency (10.3%) is nowhere near as high as that recorded for the Bishopsgate assemblage in London (20%) (analysis by Armitage in Tyers 1984), it nevertheless stands out from the 'normal' situation in which chicken at Roman settlements throughout the North-Western Provinces generally represent only 2% (or less) of the total food bones, according to Lauwerier (1993, 79).

Lauwerier further points out that there is a discrepancy between the archaeological evidence showing a low level of consumption at most Roman settlement sites and the historical sources relating to dietary practices/preferences. For instance, in the 1st-century cookery book by the 'well-known gastronome' Apicius the number of recipes based on domestic fowl greatly outnumber those for beef, mutton, or pork. Apicius' book shows that domestic fowl held a high gastronomic status among Roman epicures and was a luxury food item when specially prepared in an elaborate fashion at feasts.

The inclusion of fowl in the foodways of the wealthy in Roman society is significant in regard to the extraordinarily high relative frequency of this particular species represented among the food refuse bones found in a 1st-century AD pit at Bishopsgate, London. Here the animal bone was interpreted as debris from the 'kitchen of a substantial private dwelling' (Tyers 1984, 374).

At Long Lane it would be tempting therefore, in the light of the observations by Lauwerier and the Bishopsgate evidence, to interpret the high incidence of domestic fowl bones as reflecting the high socio-economic status of the households producing the refuse. There is, however, an equally plausible explanation for the higher than 'normal' incidence of domestic fowl, backyard poultry production for home-consumption. Such enterprises also possibly involved the keeping of a few pigs for the table (as suggested by the presence of bones of sucking pigs in the same food debris deposits).

Both the cattle and sheep generally appear to have been of small stature and build, as exemplified in the cattle from the Bronze Age by a complete adult metacarpus (GL 178mm) representing an individual whose height at the withers is calculated at 109cm (method of Fock 1966). In the sheep this was illustrated by a complete adult metatarsus (GL 116.3mm) from an individual with a withers height of 52.8cm (method of Teichert). Fragmentation (in antiquity) in the other cattle and sheep bone elements precludes calculations of stature, but from visual appraisal of these it is believed that all the animals represented were probably of similar small size. Measurements taken of the bones of the domestic fowl also show these to have been of comparatively small size.

As well as those of small, bantam-sized adult birds, the assemblage included the bones of immature individuals. It may be that the presence of the immature individuals reflects the backyard rearing of domestic fowl by the site inhabitants, an interpretation perhaps supported by the apparently inferior 'scraggy'-size of some of the adult birds. An alternative interpretation is that the immature fowl denote that the inhabitants were sufficiently wealthy to buy in (from local markets) pullets as a luxury food item. According to this scenario, it may be that the bantam-sized adults, instead of being of inferior quality, were preferred for their smaller-boned and more succulent carcasses.

In marked contrast to these somewhat diminutive cattle and sheep, and the 'scraggy' domestic fowl, the pigs of Period III Phase 7 appear to have been large and robust, as evidenced by an adult metacarpus IV whose greatest length (GL 82.1mm) falls within the size-range (78–85mm) of modern wild pigs (Noddle 1980, 407). However the bone here probably derives from an extra-large domestic male. Further skeletal evidence of another large male pig (probably also domestic) is provided by a lower canine tooth ('tusk'). As discussed by Noddle (1981, 392) such large domestic pigs were a feature of Romano-British livestock farming and were the product of improved husbandry practices that included the keeping of pigs intensively in sties. It seems anomalous however that such improved domestic pigs are represented in a phase associated with the decline in the Roman settlement in Southwark.

Butchering evidence in the food bones conforms to the standard Roman pattern documented from other contemporary sites throughout Britain. In pig some of the features of this butchery may be illustrated by reference to the following elements: a pig cranium split (chopped) in half along the sagital plane, indicating extraction of the brain for food, and a piece of spiral-fractured shaft of a pig femur, representing debris from the smashing open of longbones for either marrow extraction or in preparation for boiling/making soup/broth.

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NOTES

[1] Results of the radiocarbon dating (calibrated according to Bronk Ramsey 1995; 2001; Stuiver *et al* 1998).

Beta-150623	37–45cm (from top of sampled sequence)
Radiocarbon age	3070 ±70 BP
Calibrated age 2 sigma	3440–3070 BP
	BC 1490–1120
C13/C12 ratio	-29.3‰
Material dated	Peat
Beta-150622	0–10cm (from top of sampled sequence)
Radiocarbon age	2100 ±70 BP
Calibrated age 2 sigma	2320–1900 BP
	BC 360–AD 50
C13/C12 ratio	-28.8‰
Material dated	Peat

[2] Poaceae 23%, Cyperaceae 10% and Apiaceae 22% dominate but the assemblage also includes *Plantago lanceolata*, *Artemisia*, *Filipendula*, *Rumex*, and *Chenopodium* types.

[3] Three of the pile tips submitted for dendrochronological spot-dating by the Archaeological Research & Consultancy at the University of Sheffield produced the following dates:

Sample 543	Interpreted felling date AD 40–76
Sample 614	Interpreted felling date AD 17–53
Sample 616	Interpreted felling date AD 20–56

[4] All of the pottery assemblages were quantified by numbers of sherds and their weights per fabric. Fabrics were classified according to the codes created by Museum of London Archaeological Services (Davies *et al* 1994; Symonds & Tomber 1994), by means of a x8 magnification lens with built-in metric scale for identifying the nature, form, frequency and size of added filler inclusions. Fine fabrics were additionally looked at through a x30 pocket microscope with artificial illumination source.

[5] Employing standard archaeozoological ethodological procedures, 1,004 (76.4% of the total) bones are identified to species and part of skeleton and 310 (23.6%) remain as unidentified fragments. The identified portion comprises 910 (90.6% of the total) mammalian, 81 (8.1%) bird, 12 (1.2%) fish bones with a single (0.1%) amphibian bone. 291 (93.9% of the total) unidentified fragments are recognised as mammalian, 5 (1.6%) bird, and 14 (4.5%) fish.

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