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A ROMANO-BRITISH SITE AT SUMMERTON WAY, THAMESMEAD, LONDON BOROUGH OF BEXLEY

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with contributions from

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The site at Summerton Way, Thamesmead, lies on the south bank of the Thames at Cross Ness Point (Fig. 1). In common with much of the Thames margins in the Plumstead Marshes the site formerly comprised part of the Woolwich Arsenal complex. The gradual reduction in capacity at the Arsenal released much riverside land for redevelopment. The process of reclaiming the released land resulted in the site at Summerton Way being capped by a deposit of imported sand, varying between 1-4m in depth.

An evaluation in advance of housing development by Wilcon Homes at the Summerton Way site was carried out in January and February of 1997 by Pre-Construct Archaeology¹. The discovery of Roman pottery and features during the evaluation led to a requirement for excavation in some areas of the site deemed to be of high potential. Excavation was undertaken in these selected areas by the Museum of London Archaeology Service during June-July 1997. This article presents the results of both evaluation and excavation.

The Summerton Way development covered an area of approximately fourteen hectares. In order to evaluate the site eighty-eight 'prospection pits' were excavated on a grid pattern across the area of proposed construction. Roman pottery was recovered from a number of these pits in the south and eastern parts of the site. In order to properly examine the horizons from which this material had come a small trench was excavated, allowing the deposits to be examined in plan. Subsequent excavation was concentrated in two trenches adjacent to, and north of, the evaluation trench (Fig. 2).

Owing to the considerable depth of loosely compacted capping material on the site the area available for excavation rapidly

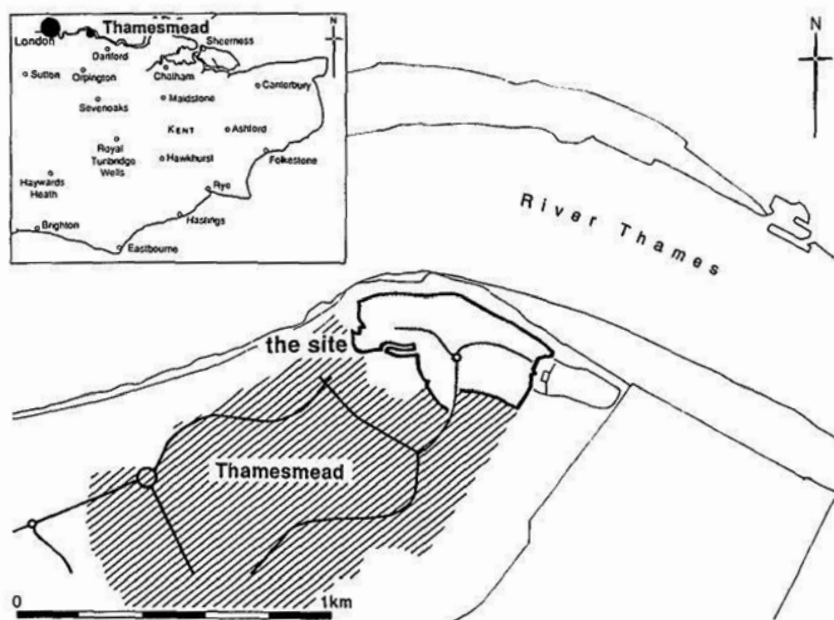


Fig. 1. Site Location (centred upon TQ 4800 8128)

decreased with depth so that although the total surface area of the three trenches was *c.* 1000m², the area available for excavation at the lowest levels was *c.* 225m². In addition the process of excavation was complicated by a high volume of ground water flow which necessitated more or less constant pumping during working hours.

ARCHAEOLOGICAL RESULTS

Geology and Topography

The site lies adjacent to the modern course of the Thames and comprises a sequence of interleaved silts and clays with distinct peat horizons reflecting variations in river level. The outlines of this sequence were established by Devoy (Devoy, 1979) and by study of nearby and comparable observations it is possible to show that from the Mesolithic period onward the site fluctuated between moderately dry land and tidal mudflats.

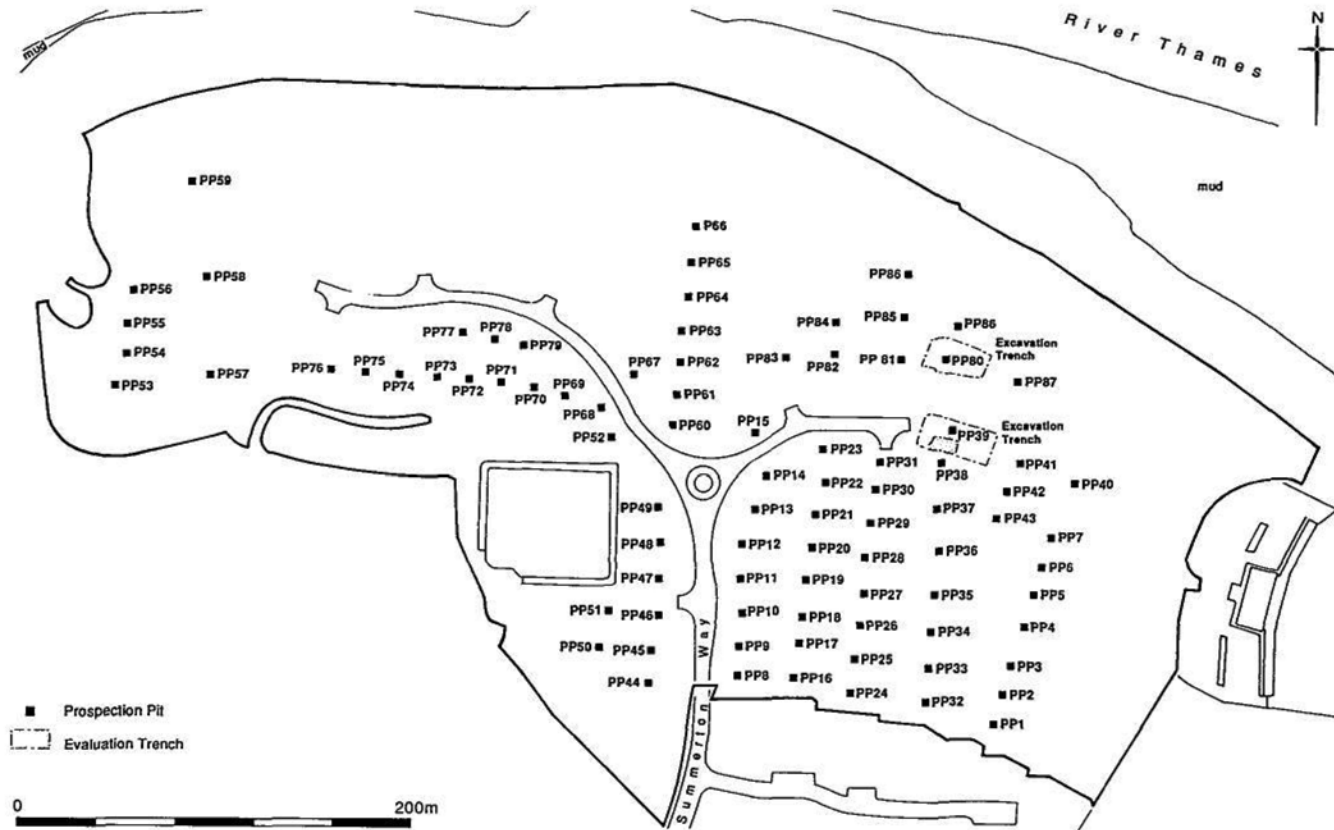


Fig. 2. Trench location; distribution of 'prospection pits'

The modern ground level lies between 2m OD in the south and 6m OD in the north adjacent to the riverside bund. These levels are the result of extensive landscaping in very recent times and prior to c. 1970 the ground level on the site lay at approximately 1.7m OD in the south and 1.2m OD in the north.

Sedimentary Sequence

Excavation revealed the upper surface of a dark brown laminated organic-rich peat deposit in both north and south trenches. Observations made during the evaluation of the site indicate that this peat horizon was present across the entire site. The upper surface of the peat lay at between -1.3m OD and -1.9m OD. A dip in the upper surface of the peat, noted in borehole and prospection pit records and bottoming at -2.5m OD to -3m OD, indicates the presence of a north-south aligned stream channel running through the middle of the site towards the Thames. The peat yielded no artefacts, but samples from the two excavation trenches gave radiocarbon dates of 765-615 (or 600-375) BC and 1215-830 BC.

Samples from this phase were dominated by seeds of plants from damp or marshy habitats. All of the plant remains were preserved by waterlogging. The dominance of the assemblage by semi-aquatic and aquatic plant seeds suggests that the local environment in this area in pre-Roman times was damp marshland with natural ditches and channels.

Also present were large numbers of Alder catkins and seeds. These could have been transported by water and deposited in these contexts and reflect stands of Alder growing in the area. Fragments of waterlogged stem and root tissue were examined and identified. The stem tissue was identified as ash and the root tissue was identified as resembling ash. Ash grows in woods, scrub and is common on base-rich or damp soils.

The seeds of only two plant species which could have been cultivated were present. These consisted of one testa fragment of cabbage and two poorly preserved vetch/tare/pea seeds. It is more likely that they are from plants growing wild in the area rather than having any economic significance.

The peat horizon was sealed by a substantial deposit of clayey-silts marking the inundation of the peats by estuarine overbank deposits in a period of relative sea-level rise, followed by deep water clay deposition. The upper surface of these deposits lay at c. -0.7m OD but demonstrated a slight tendency to slope downwards towards the position of the channel noted in the surface of the underlying peats.

This horizon was artefactually sterile and could only be dated generally to the pre-Roman Iron Age.

First Roman Phase

The upper surface of the clayey-silts was marked by the presence of fine roots and organics and had an iron-mottled appearance. This suggests that it lay at the highest point of a fluctuating ground water level indicating a further change to the river regime and the start of a relative fall in the adjacent river level.

A rectilinear system of field ditches was established, presumably in an attempt to further drain the site. The drainage system was oriented roughly north-south (Fig. 3), the ditches were quite broad and relatively shallow - c. 2m wide and 450mm deep - with U-shaped profiles. The base of the ditches lay at c. -1.1m OD in the south and c. -1.35m OD in the north indicating that the system drained northwards towards the Thames.

Associated with the ditch system were a number of shallow pits containing domestic refuse - animal bone, pottery and charcoal. The pits lay in the eastern part of the excavated area. To the west, divided from the pits by a north-south aligned ditch, lay a hearth. This was composed of flint nodules and irregular cobbles set into a shallow cut, along with some fragments of lava quernstone. The hearth lay partly outside of the area of excavation and had been truncated by a later feature. Thus, its full size and method of construction could not be seen. Two square-sectioned postholes close to the south side of the hearth and burnt daub recovered from its upper surface may indicate the presence of a superstructure associated with the hearth. Close to the eastern edge of the north-south ditch lay a posthole-sized feature containing the cremated remains of an adult sheep.

Pottery from the ditches indicates a date after AD 250 for the construction of the drainage system, which is matched by similar dates for material from the associated pits.

The ditches, hearth and pits were all sealed by a thin deposit of mixed sandy silt and charcoal c. 150mm thick containing a significant quantity of pottery and ceramic building material. This deposit may represent the clearance of domestic refuse and field manuring but could equally well represent dumping to fill hollows in farmyard trackways. This may explain why only flat *tegula* fragments are present, there being few curved *imbrex* roof tiles in this or later Roman phases. The pottery indicates that this activity took place in the last quarter of the third century.

Most of the wild plant seeds from this phase were preserved by

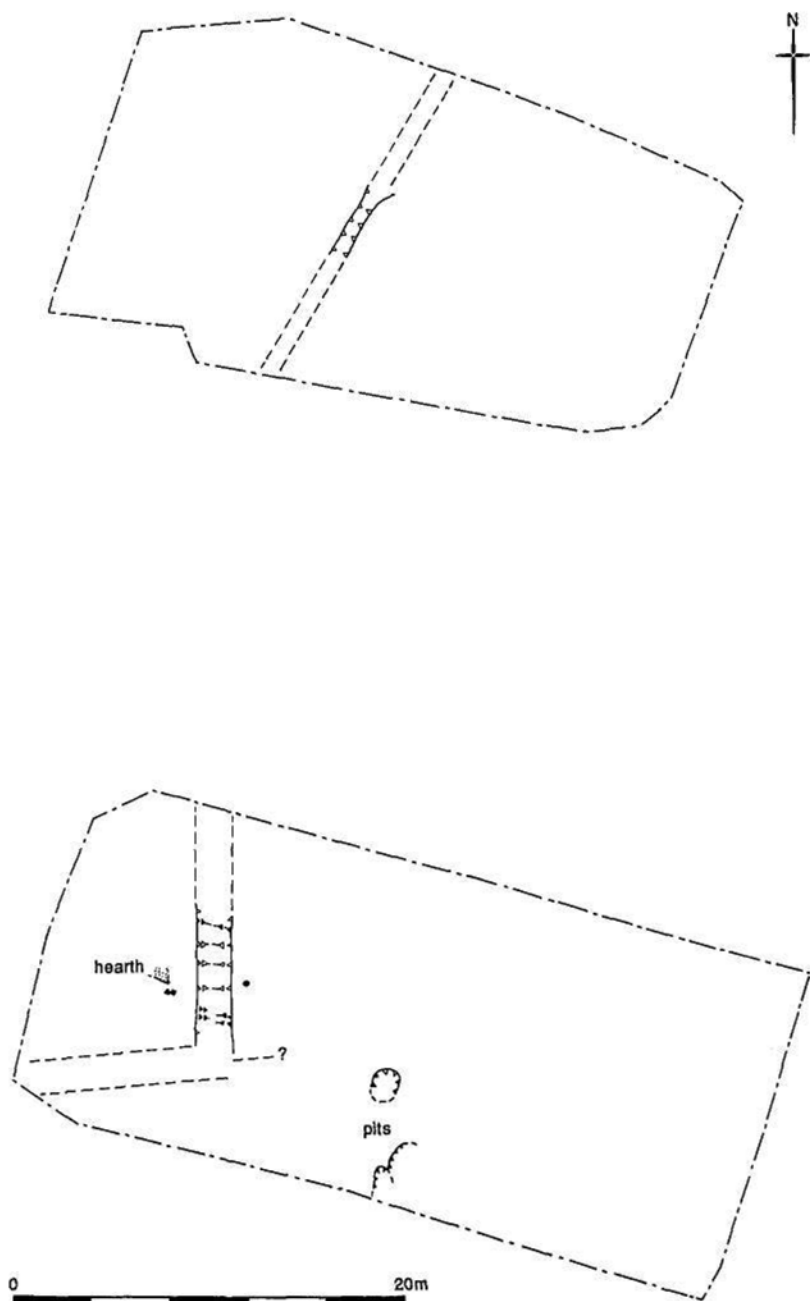


Fig. 3. First Roman phase

charring and as such need to be interpreted along with the charred cereal remains because they may reveal more about the environment of the fields in which the cereals were grown than the local environment at the site. In general the plants represented by the recovered seeds are less dominated by aquatic and semi-aquatic plants than those in the previous phase which could be an indication that drier conditions were prevalent.

It is in this phase that the greatest number of charred plant assemblages were found. These assemblages consisted of cereal grains, chaff and seeds. Two types of wheat were present, spelt (*Triticum spelta* L) and bread wheat (*Triticum aestivum* L). As many of these grains were in poor condition the main diagnostic features surviving were the external morphology of the grain. The spelt wheat grains were clearly more attenuated than those identified as bread wheat. In some spelt grains faint dorsal ridges survived. The bread wheat grains were far more rounded and bloated than the spelt grains. Attempts to examine the cross-sections of grains resulted in disintegration.

When the chaff fragments (glumes, glume bases and rachises) were examined it became clear that hexaploid wheats were present. These hexaploid wheats include the glume wheat spelt and the free-threshing bread wheat. For the glume bases and spikelet fork it was possible to discern a small number of the diagnostic features available. These were the width of the glume and the relative prominence of the primary, secondary and tertiary nerves. The glume bases and spikelet fork identified as spelt had well developed tertiary nerves and clear primary and secondary nerves. The width of the glumes were relatively wider than those of the tetraploid and diploid wheats in the Museum of London reference collection.

Chaff and weed seeds dominated most of the charred assemblages for this site. The implications for this will be discussed below. Spelt wheat (*Triticum spelta*) dominated the assemblages and was accompanied by a smaller amount of bread wheat (cf. *Triticum aestivum*) grains and chaff. Grain numbers were small unlike the large grain assemblages recovered from other Roman London sites, for example Borough High Street and Regis House. The sample containing largest numbers of charred weed seeds was dominated by red goosefoot (*Chenopodium rubrum*) and nettle-leaved goosefoot (*Chenopodium murale*). Both plants are from wasteland and cultivated habitats.

This mixture of charred seeds, chaff and grain may indicate crop processing was taking place.

Hiatus

A deposit of clay silts entirely sealed the features and deposits of the

earliest Roman phase. This deposit was between 100mm and 200mm thick and its upper surface lay between -0.5m and -0.6m OD, with a distinct slope downwards towards the west and south. This horizon seems to indicate temporary flooding of the site. A thin band of silty charcoal-rich material divided the clay-silts into two bands and indicated that the flooding may not have been confined to a single episode.

The presence, sealed within the bands of silt, of vestigial postholes and patches of scorching seems to indicate that some activity took place on the site despite the flooding. Pottery from this horizon could be dated to the last quarter of the third century - although it is of course possible that this material was residual.

Later Roman Phase

An apparent return to drier conditions was marked by the construction of two further hearths (Fig. 4). The earlier of the two structures was composed of two *lydion* bricks set into a shallow cut wedged into place by further fragments of tile and lava quernstone and apparently fed by a stokehole on its western side. The later hearth slightly truncated the earlier hearth and was composed of brick/tile fragments and flint cobbles (Plate I). There were no signs of superstructure associated with either hearth, although the presence of a flue feeding the earlier hearth implied the existence of some kind of superstructure for that hearth at least. A shallow pit and two isolated postholes were the only contemporary features. All of these features were sealed by a silty, charcoal rich, deposit containing substantial quantities of pottery. This deposit was similar in appearance to the deposit sealing the features of the First Roman Phase and was probably produced by a similar process of rubbish disposal and field manuring.

The small quantity of pottery recovered from the hearths and associated features could be dated to the last half of the third century. However, the substantially greater quantity of material recovered from the sealing deposit was consistently datable to the last half of the fourth century. In view of the probable late third-century date for the earlier phase of activity it would seem reasonable to suggest that the pottery associated with the hearths and other features of this phase was in fact residual and that the late fourth-century date provided by the material from the sealing deposit is a more accurate indicator of the actual date of this activity.

The disuse of the hearths was followed by the reconstruction of a drainage system (Fig. 4) The ditches which composed this system were more substantial than their predecessors, being up to 2m wide

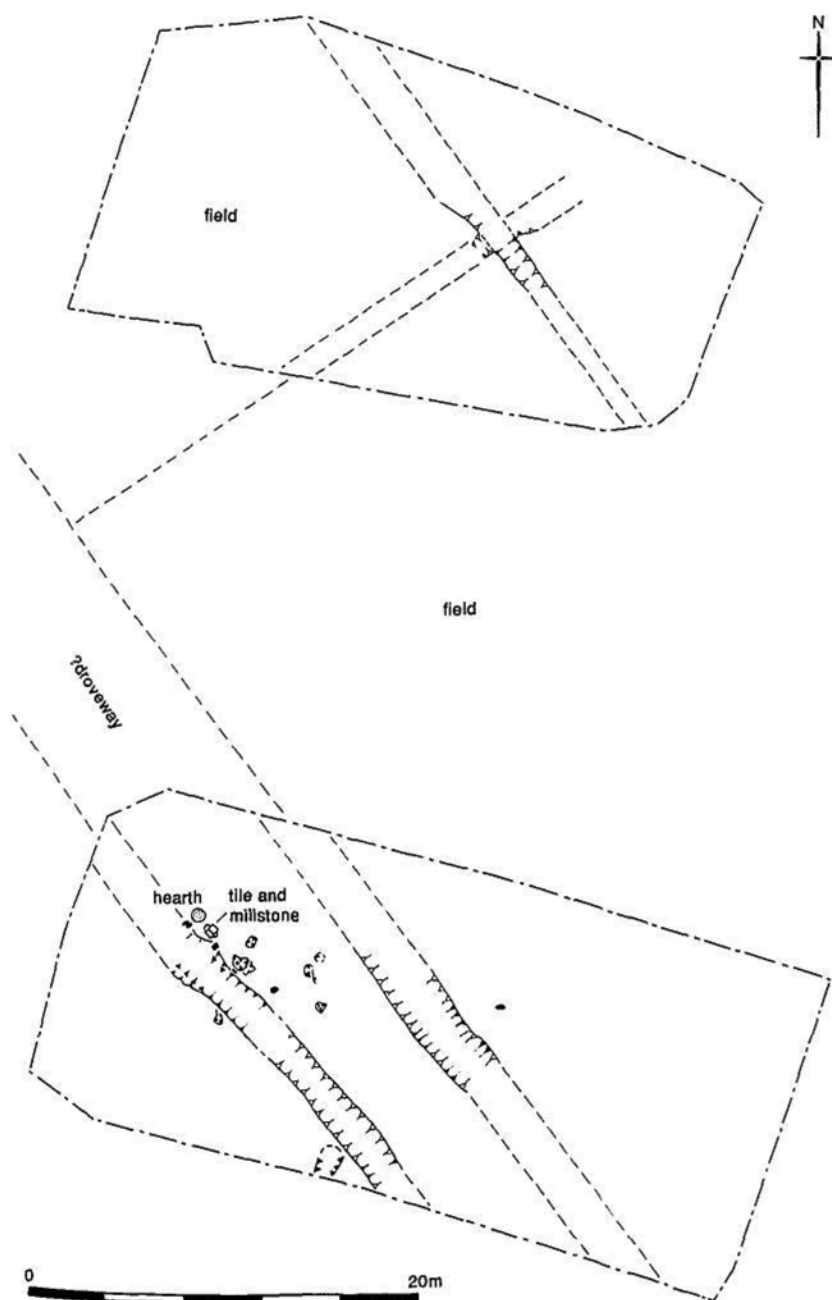


Fig. 4. Later Roman phase: hearths, ditches and associated features (hearths pre-date ditches)



Hearths under excavation

and 600mm deep. The new drainage system was rectilinear, like its predecessor, but was oriented on a northwest-southeast alignment. Somewhat more of the later system can be discerned from the excavated evidence. At least one field, in excess of 30m by 50m in size, is represented along with a 7-8m wide driveway. The presence of other fields to the north and west may be inferred. The bases of the western driveway ditch and the northern ditches lay at c. -1.0m OD. The base of the eastern driveway ditch lay at c. -0.6m OD.

The ditch which defined the western side of the driveway was filled with a single homogenous silty fill possibly indicating a serious flood (evidence for which is elsewhere lacking). Evidently the field system did not cease to be used following this flood since the ditch in question was recut. A number of postholes and pits were associated with the ditch system. But these were rather exiguous in nature and could not be resolved into any definite structures.

The pottery from the primary cuts of the driveway ditches was datable to the second half of the fourth century. The northernmost ditches contained pottery which could be dated generally to the third

and fourth centuries and the recut of the western driveway ditch contained residual late third-century pottery.

Post-Roman alluvium

The latest ditch system and associated features were sealed beneath a clay/silt alluvium between 200-300mm thick with an upper surface at c. -0.4m OD in the northern part of the site and a maximum of 0.1m OD in the southern part of the site. This horizon marks the end of Roman activity on the site (Fig. 5). Further alluvial deposits raised the upper surface of the horizon to c. 1.3m OD.

Some, apparently residual, pottery of late fourth-century date was recovered from this horizon. However the presence of small quantities of medieval pottery throughout the deposit and the presence of twentieth-century material from the upper part of the deposit suggests that the formation of this horizon took place gradually over a very long period of time and was only terminated by recent embanking and landscaping.

ENVIRONMENTAL ASSEMBLAGE

Botanical Remains (by L. Gray-Rees)

This report describes the plant remains in environmental samples recovered during the excavations at Summerton Way. Full details are stored in the MOLAS Botanical ORACLE database which contains habitat and economic codes for each species.

Charred wheat grains and chaff were present in several samples. Modern reference material was used as well as the criteria for the identification of charred wheat designed by Hillman (pers. comm. and Hillman, 1972). No other types of cereal grains were present. Where diagnostic features were unclear but it was apparent that the chaff or grain was wheat, these remains have been identified as *Triticum* sp.

It is clear from the botanical evidence that human activity was most intensive during the First Roman Phase. The charred assemblages for this phase suggest that some form of cereal processing was taking place. It is possible to determine what type of processing this was by examining the ratios of chaff to grain and weed seeds.

Van der Veen (1992, 81) lists five stages of processing for cereal crops and an additional four for glume wheats. These are as follows:

Harvesting = the removal of crop from field

Threshing = the releasing of grains from straw and chaff

Winnowing = the removal of light chaff, straw fragments and light seeds

Coarse-sieving = the removal of weed heads, large weed seeds, unthreshed ears and straw nodes and for glume wheats after coarse-sieving

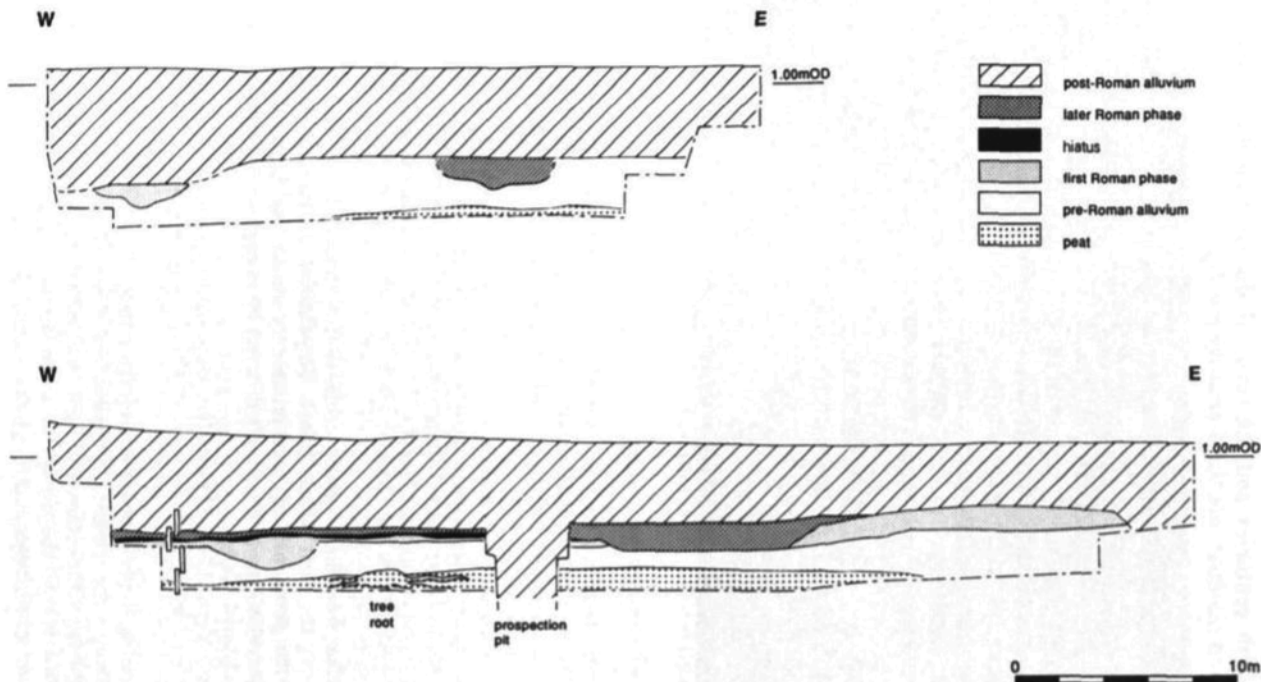


Fig. 5. South-facing section of southern excavation trench

Parching = to render glumes brittle

Pounding = to release grain from glumes

Second winnowing = to remove light chaff fragments and light weed seeds

Second coarse-sieving = to remove remaining weed heads, large weeds, straw nodes

Fine-sieving = remove glume bases and small weed seeds.

The ratios of grains, weed seeds and chaff and the assemblage for each sample were analysed, based on the methods of van der Veen. Only the grains identified as free-threshing (bread wheat) or glume wheats (spelt) were included in the calculations. All of the samples contain remains which could be interpreted as being from the final stages of crop processing. It is most likely that winnowing and fine-sieving was taking place in this area during the First Roman Phase or that this waste was dumped here with other farm waste. These remains could indicate the exploitation of marginal land for growing cereal crops. The cereal types identified here are tolerant of damp and heavy soils (Jones, 1982, 98).

Animal Bone (by K. Rielly)

A study was made of sheep bones discovered within a posthole-like feature situated within an area of pitting in the First Roman Phase.

A total of 148 bones (weighing approximately 100g) were recovered from the soil sample taken from the posthole. All the bones had been burnt and the great majority are less than 25 per cent complete. It is clear that these bones represent the remains of a single adult sheep. While it is possible that some shrinkage of the bone took place during burning, it seems that the size of this sheep is not dissimilar to those represented at numerous Roman sites in London and indeed throughout much of England (Maltby, 1981, 190). The deposit is unusual in view of a) the presence of a whole carcass, b) the calcined nature of the bones and c) the absence of burning within the posthole.

The remains of whole carcasses are not uncommon on Roman sites, their presence undoubtedly indicative of a non-food status. Dog and cat skeletons are most common, although those belonging to the major mammalian domesticates are also occasionally found. It can be surmised that the meat of the latter species may have been regarded as inedible if the animal was diseased. This brings the discussion to the second and third point. If this animal had been diseased, it may have been thought necessary to burn the carcass (assuming that the Romans understood that burning carcasses could diminish the spread of disease). There is no doubt that this carcass was indeed very thoroughly burnt, calcined bones generally occurring following a prolonged exposure to high temperatures (Lee Lyman, 1994, 389). In the absence of any signs of burning within the posthole, it can be assumed that the bones were burnt elsewhere. These appear to have been carefully removed from the burning site, as shown by the presence of most parts of the skeleton and the absence of any remains of the material used to burn the animal e.g. charcoal. This evidence clearly undermines the disease interpretation, the very nature of the carcass precluding the careful handling of the bones.

Without any obvious mundane interpretation, the possibility of a ritual interpretation should be entertained. The degree of burning is certainly similar to that shown by both human and animal bones found in numerous cremation burials. Sheep and goat have been found in several such deposits in South-East England, in some cases, particularly within a number of Hertfordshire sites dated to the first and second centuries AD, providing the majority of specimens (Philpott, 1991, 1996). As with the Summertown Way example, a number of these specimens are represented by a wide distribution of skeletal parts. This suggests either the burning of whole carcasses or of the bones following the removal of the meat. At this site, the absence of butchery marks may be indicative of the former scenario. In contrast to the latter sites, the third/fourth century cremations from Roman East London, provided just one example of burnt sheep/goat remains (Rielly, forthcoming), this perhaps suggesting regional or chronological differences. However, none of these sites provided cremated deposits solely containing animal bones. Indeed, it would appear that such deposits are relatively rare. A pit dated to the second century AD, which produced the remains of at least two fragmentary and very juvenile pig skulls plus a few fishbones (all calcined), was found within one of the Southwark Jubilee Line Extension sites, i.e. Escalator Shaft/Ticket Hall, Mayor Sworders Arches. No other clear examples have been recovered to date from any other Roman London sites. Elsewhere, a scattering of calcined sheep/goat remains were found within an early Roman ditch, possibly associated with a temple, from Betchworth, Surrey (Pipe, forthcoming).

It is suggested that this deposit at Summertown Way is more likely to be related to a ritual rather than a mundane event. The rarity of this type of deposit could possibly signify that it represents a relatively uncommon ritual occurrence. However, the possibility of such deposits being misinterpreted should not be overlooked.

Geo-archaeology (by E. J. Sidell)

The trenches at Summertown Way revealed a sedimentary sequence consisting of alternating organic and minerogenic units. These were described for the assessment and may be found in the archive report. Samples were submitted for radiocarbon assay and the results indicated that the organic sediments were laid down in the late Bronze and Iron Ages. Diatom sub-samples were sent to the Environmental Change Research Centre, University College London, and examined by Simon Dobinson. The results of this work have been incorporated into the discussion of the sedimentary sequence. An archive report is available for consultation.

Magnetic susceptibility measurements were taken in order to consider the likelihood that deposits had been modified or affected by human influence. This technique has been occasionally undertaken on archaeological sites, and is becoming more common (Wilkinson, 1993). Magnetic susceptibility is commonly related to sediment organic content and so it is important to interpret these results in the light of the sediment type.

In the south trench the basal unit contains a high proportion of organic material, and as such, low magnetic readings are to be expected. As the sequence

developed, the organic component was replaced by more minerogenic sediments, which would account for the gradual increase in susceptibility. However, the reading obtained from unit 3/-0.8m OD does not match this ascending curve, but is contemporaneous with the first phase of Roman activity and indicates that this activity is indeed affecting the sediments accumulating on site. It may also suggest that there was no human activity taking place on site before this phase, that may otherwise have been unrecorded in the stratigraphic record. The relative levels drop after this peak but start rising and this would appear to indicate decreased activity immediately after the first phase. This indicates that the second phase of Roman occupation was less intense, or of a different nature to the earlier activity. The final two samples come from post-Roman inundation, however, the readings indicate levels of modification comparable with those generated during periods of occupation. This may suggest that there was some activity, or possibly that the units were subject to drying and weathering which could influence the magnetic susceptibility (Gale and Hoare, 1991).

The examination of phosphate measurements was recommended in the assessment in order to examine the possibility that some surfaces may have been subject to direct human occupation or an imposed agricultural regime. The samples from the basal units in the south trench give very low readings, relative to the upper units. This is consistent with the evidence showing human activity was not taking place until later in the sequence. It also indicates that the marsh lands were not used for seasonal pasturing of animals. The third sample is by far the highest reading and corresponds with the initial Roman occupation. It seems possible, given the ditches found, that this could represent a substantial period of agricultural activity, with the readings derived from either animal manure being used on fields, or manure accumulating in pasture. The three upper samples are broadly comparable and indicate that the second phase of Roman occupation only contained as much phosphate as can be found in fluvial silts. This suggests a very different type of activity in this location in the later Roman period, perhaps with much less or no agricultural activity.

The sequence in the north trench appears comparable, with low readings at the base of the sequence, however, a large peak is shown at -0.9 OD in context [78] through which the horizons containing Roman activity are placed. It may be stratigraphically possible that part of this context was exposed during the Roman occupation and was subject to growing crops, pasturing animals or for standing material such as dung heaps. It seems unlikely that such a high reading relative to those below in the sequence could be derived naturally. This may support the interpretation of the peak in the south trench which formed during the early phase of Roman activity. The figure for phosphate in the post-Roman alluvium is also relatively high: possibly the initial silting was slow and the land could still be used for farming activities which may have generated this reading.

FINDS ASSEMBLAGE

Pottery (by Dr R. P. Symonds)

Although the pottery indicates that there was first- and second-century occu-

pation in the area, which would account for the presence of many pre-Antonine pottery types, none of the few contexts which do not contain late Roman pottery consists of more than a dozen or so sherds, and all of these could be residual. One substantial context, SNY97 context 31, is dated AD 200-250. It seems likely that there were two main phases of late Roman occupation, of c. 250-300 and of c. 350-400.

Table 1 shows that the bulk of the material from SNY97 is slightly earlier than that from SWY97, or perhaps may be said to belong more to the earlier phase of occupation. It is important to recognise, however, that the actual amount of late Roman pottery upon which the dating of each context is based is almost always a relatively low proportion of the context as a whole. All of the larger contexts contain a heavy majority of pottery which is either strictly residual (i.e. it ceased to be produced before the earliest date of the context) or probably residual (its dates may overlap with those of the context, but either its dating is fairly uncertain or it began to be produced much earlier and is normally found in much earlier contexts).

In terms of the regional orientations of Roman pottery, Thamesmead might at first view seem to be in a kind of no-man's land, which is tantalisingly unknown. The site lies about 10 miles east of the City of London, but almost twice that distance from the production centres of Upchurch and Hoo in northern Kent, and equally well away from the larger known Roman settlements on the northern side of the Thames. All of the nearest sites mentioned in Pollard (1988), for example, can be associated with Watling Street, the main London-Canterbury thoroughfare, rather than with settlement alongside the Thames, or river transport. The Roman roads in the vicinity all seem to radiate outwards from London, where there is known to have been a river crossing. However, the pottery assemblage at Thamesmead seems to indicate that ma-

TABLE 1. DATE-RANGES REPRESENTED, BY NUMBERS OF CONTEXTS, IN THE TWO SITES

SWY97							SNY97				
Late date							Late date				
Early date	160	200	250	300	400	Total	Early date	250	300	400	Total
50		1	1		3	5					
70	1					1					
120			2			2					
							150	1			1
180					1	1	180	1			1
200					3	3	200	1		1	2
250				6	5	11	250		11+	6	17
270				2	1	3	270			5	5
350					10	10*	350			3	3
Total	1	1	3	8	23	36	Total	3	11	15	29

*includes context 46, which may be 250-300; + includes context 38, which may be 180-250.

terial was arriving from north of the river directly, without passing via London, as well as arriving in small quantities from Germany and in larger quantities from other parts of southern Britain.

Perhaps the most important remark to make is that, contrary to a suggestion made in an initial evaluation of the pottery (prior to MoLAS involvement), there is no evidence in the pottery itself of production at the site, and there is no evidence of any particular connection with Oxfordshire wares. On the former point, while there is much burnt material, this includes the full range of the pottery present, including wares brought from some distance, and there is no predominance, burnt or unburnt, of any fabric which might have been locally produced. On the latter point, for a late Roman site in southern Britain there is in fact a perfectly normal proportion of Oxfordshire wares present, but there is also, by contrast, a surprisingly high proportion of Much Hadham wares. Whereas in London Hadham ware is, on average, outnumbered by both Oxfordshire wares and by Nene Valley wares by more than 6 to 1, and even by Portchester 'D' ware by about 3 to 2, at Thamesmead, as can be seen in Table 2, Hadham ware is the most numerous of any of these categories. Table 2 compares only these wares by themselves; the data for London is derived from tables generated for all London pottery in the MoLAS Oracle database. Although it may contain some material from some small sites in Greater London,

TABLE 2. COMPARISON OF THE RELATIVE PROPORTIONS OF SOME LATE ROMAN POTTERY TYPES FOUND AT LONDON AND THAMESMEAD

	London			Thamesmead		
	Sherds	% Late types	% All wares	Sherds	% Late types	% All wares
Oxfordshire wares	1694	38.9	1.0	89	39.6	2.8
Nene valley wares	1830	42.0	1.1	3	1.3	0.1
Late-imported wares	67	1.5	0.1	14	6.2	0.4
Portchester 'D' ware	492	11.3	0.3	24	10.7	0.7
Much Hadham ware	271	6.2	0.2	95	42.2	3.0
Totals	4354	(100)	2.5	225	(100)	7.0

Oxfordshire wares: OXMO = Oxfordshire mortaria, OXMOB = Oxfordshire burnt white ware (Young, 1977, Chapter 8, 113-116), OXPA = Oxfordshire parchment ware, OXRC = Oxfordshire red/brown colour-coated ware, OXWC = Oxfordshire white colour-coated ware, OXWS = Oxfordshire white-slipped red ware, OXWW = Oxfordshire white ware.

Nene valley wares: NVCC = Nene Valley colour-coated ware, NVCCP = Nene Valley colour-coated ware; pink fabric, NVCCW = Nene Valley colour-coated ware; white fabric, NVMO = Nene Valley mortaria, NVPA = Nene Valley parchment-type white ware, NVWW = Nene Valley white ware (also self-coloured ware).

Late imported wares: EIFL = Eifelkeramik, MAYEN = Mayen ware.

the overwhelming majority of that data is from Southwark and the City of London, and it includes data from contexts dated to all phases of the Roman period.

The very low proportion of Nene Valley wares is equally interesting: Table 2 seems to suggest that whereas Oxfordshire wares are remarkably constant between London and Thamesmead, Nene Valley wares are almost completely displaced by Much Hadham wares at Thamesmead. The logic of such a displacement might seem to be geographically obvious, since Hadham lies almost on a direct line between Thamesmead and the Nene Valley, with London off to the west. However, that view must include the assumption that the pottery from Hadham crossed the Thames well below London, rather than via the bridge at London.

Although the numbers are obviously very small at Thamesmead, the proportions of late imported wares and of Portchester 'D' shown in Table 2 are also interesting. Whereas (like Oxfordshire wares) Portchester 'D' ware is remarkably constant at London and Thamesmead, the percentages of Eifelkeramik and Mayen ware are significantly higher at Thamesmead. This could imply two conclusions: (a) the distribution of these late coarse wares, which all have similar typological ranges, clearly did not function in the same manner; and (b), in the late Roman period, a site as far away from contemporary urban centres as that at Thamesmead need not have been any less rich in status.

Another aspect worth addressing is the possible role of the site at Thamesmead as a stopping place for boats or ships heading up-river towards London. While the presence of Eifelkeramik and Mayen ware might be thought to encourage that view, the actual numbers of sherds are really too low to support this idea with any confidence. The total (by sherd count) of 91.2 per cent Romano-British wares compared to imported wares for both Thamesmead sites (see Table 1) is substantially higher than for almost any London site - for the whole of London the figure is 70.2 per cent, but interpretation of such figures must be qualified by noting that imported wares are substantially less important in the late Roman period. In fact this is an extremely difficult question to address using the evidence of the pottery alone; it can only be said that unlike some port sites at London, there is no evidence for large-scale unloading of pottery at Thamesmead.

By contrast with the late fine and coarse wares discussed above, the interpretation of the statistics becomes somewhat more difficult when it comes to regionally produced wares which began to be produced and distributed much earlier. Table 3 shows that the overall proportion of wares thought to have been made in Kent is significantly higher at Thamesmead than at London, but, not surprisingly, this is particularly true of the later types, such as BB2F and TSK. The earliest Kent wares - Eccles and Hoo wares - are either absent altogether or not significantly more common than in London.

So far, Tables 2 and 3 seem to suggest that all the wares made nearer to Thamesmead, such as Hadham ware, the German coarse wares, and Kent wares, are more common at Thamesmead, from which one might deduce that the quantities of pottery which arrived at the site are directly related to the proximity of the production sites. In Table 4, however, the two Alice Holt fabrics (AHSU and AHFA) are probably from the same source, some 50 miles

to the south-west of London, near Farnham, but at opposite ends of the chronological spectrum: AHSU is normally dated AD 50-160, while AHFA is dated AD 250-400. The high percentages of the latter ware at Thamesmead are

TABLE 3. COMPARISON OF PERCENTAGES OF FABRICS FROM KENT FOUND IN LONDON AND AT THAMESMEAD

Kent fabrics		London		Thamesmead, SWY97 & SNY97	
		Sherds	% Sherds	Sherds	% Sherds
Black-burnished ware, type 2, fine	BB2F	923	0.5	144	4.5
Eccles ware	ECCW	302	0.2		
Hoo ware	HOO	968	0.6	28	0.9
North Kent grey ware	NKGW	114	0.1	61	1.9
North Kent shelly ware	NKSH	1325	0.8	125	3.9
North Kent white-slipped	NKWS	2	0.0		
Thameside, Kent ware	TSK	401	0.2	48	1.5
Total		4035	2.3	406	12.7

The statistics for London are the totals for all pottery represented in the MoLAS Oracle database as of 14.5.98.

TABLE 4. COMPARISON OF PERCENTAGES OF FABRICS FROM ALICE HOLT FOUND IN LONDON AND AT THAMESMEAD

Alice Holt fabrics	London		Thamesmead, SWY97 and SNY97	
	Sherds	% Sherds	Sherds	% Sherds
Alice Holt, Surrey ware (AHSU)	10772	6.3	23	0.7
Alice Holt, Farnham ware (AHFA)	3291	1.9	323	10.1
Total	14063	8.2	346	10.8

The statistics for London are the totals for all pottery represented in the MoLAS Oracle database as of 14.5.98.

therefore almost entirely due to the fact that it is a late site (especially compared to most London sites), and are unrelated to the distance from the production site.

In the more detailed report (Symonds [2], forthcoming), five assemblages have been selected from the Thamesmead Roman pottery for detailed quantification and analysis. Two of these, SNY97 context 33 and SWY97, context 52, belong to the earliest phase of Roman occupation, probably dated ad 250-300. The latter three contexts, SWY97 contexts 46, 39 and 16, all belong to the latest phase of occupation, dated 350-400. These contexts are used to illustrate the character of late Roman pottery in the London region - with particular emphasis on its Kent border - following the approach of earlier reports which have also concentrated on specific assemblages of late pottery (notably Green, 1980; Richardson, 1986; Symonds and Tomber, 1991 and Symonds [1], forthcoming). The five selected contexts do seem to reinforce the suggestion in the stratigraphical sequence that there was a hiatus between the earliest identified occupation in the third century, and a later re-occupation in the fourth, although all five contexts include residual pottery of a broadly similar character.

Other Finds

A small quantity of registered finds were recovered from the site, quantified in **Table 5**. All of the accessioned finds were recovered from the deposits assigned to the Roman phases of the site. The bone pin shaft was the only accessioned object to be recovered from SNY 97. The stamped and decorated Samian has been reported on elsewhere (Symonds [2], forthcoming).

The small range and domestic nature of these finds cannot for the most part contribute greatly to our understanding of the date and function of the site. The most significant group of finds were the quernstone fragments and only these remains will be dealt with in detail here.

A total of sixty-two fragments of quernstone were recovered from seven contexts. All but one were made of an imported lava, probably from the Mayen quarries in the Eifel Hills of Germany. The exception was a fragment of coarse grained sandstone (grit stone) of uncertain provenance (identification by Dr. I. Betts). Of the lava quernstones both upper and lower stones are represented. Some of the fragments show signs of wear, although it is not clear if this was the result of post-depositional activity. Most of the fragments were quite small with one exception which represented approximately half a quernstone and the three joining fragments.

Regardless of whether the quernstones had ever been used it is clear that the majority of the fragments had served a secondary function as part of the construction of the hearths noted in both the first and later Roman phases. The relative abundance of quernstone fragments, in contrast to other categories of finds from the site, suggests that they were easily available at the time at which the hearths were constructed. In view of the evidence for crop processing recovered from environmental samples it is possible that the quernstones were derived from a nearby processing area - a mill or bakery. However, it should be noted that the majority of the charred cereal remains were derived from the

TABLE 5. REGISTERED FINDS

Material	Number	Remarks
Ceramic	14	Includes stamped and decorated Samian, sherd with graffito and gaming counter rough-out
Flint	1	
Glass	1	Vessel glass fragment
Leather	1	Shoe sole fragment
Bone	1	Shaft of bone pin
Stone	8	All quernstone, total of 62 fragments

first Roman phase whilst the majority of the quernstone fragments were found in deposits associated with the later Roman phase. An alternative possibility, that the quernstones were derived from another source - shipboard ballast or damaged trading stock - should at least be considered. The quernstones and the Eifelkeramik pottery have a common origin and their appearance in tandem on the site might be explained by the use of the quernstones as 'tradable ballast' in shipments otherwise composed of smaller volume higher priced goods.

Prolonged use as ballast might also explain the degree of wear noted on some of the quernstone fragments (pers. comm. T. Brigham).

Finally, it may be pertinent to note that although the nature of the trade between the Rhineland and Britain in the Roman period is well established (du Plat Taylor and Cleere, 1978) the place of Eifel lava quernstones within that trade is less clear. There are concentrations of quernstone finds from East Anglia and the Thames Valley the majority of which are datable to the first two centuries AD - very few examples (three only in 1980) are securely datable to the later Roman period (Peacock, 1980, 50).

Building Material (by Dr. I. M. Betts)

The building material was quantified by fabric, form and weight using the standard Museum of London recording sheet and fabric codes. Samples of these fabrics are held at the Museum of London.

The majority of tiles found at Summerton Way are in local London area fabric types (fabric group 2815). These tiles come from a number of kilns situated within 20 miles of London (Betts, 1987, 27-8), most of which were situated along Watling Street between London and St Albans. These kilns were in operation between the first and mid-second centuries, which would suggest the presence of an early building somewhere close to the site. However, the possibility of the re-use of earlier tile to construct a later building cannot be discounted. In London building material recovered from the deliberate demolition of early buildings was used extensively in the third and fourth centuries.

Seven rarer fabric types are present, all of which are probably imports from tileries situated outside the London area, although only one the source can be identified. This is the shelly fabric tile (type 2456) from the kiln site at Harrold

in Bedfordshire. The tile probably arrived by boat from a building supplier sited somewhere in London. The same supplier may well have supplied the shelly tile used for building work at Kingston on Thames, Lympne in Kent and Bradwell in Essex. This movement of Bedfordshire tile to sites in southern England took place during the late third - mid- fourth century at a time where more local tile kilns had fallen out of use. The origin of the other Roman fabric types (3028, 3057, 3060, 3222, 3226) present is uncertain, although tiles in one fabric (a less sandy version of 3060) are known from certain sites in Kent. Most of these rarer fabric types are believed to date from the first through to the mid-second century, although precise dating is lacking.

With the exception of a solitary fragment of curved imbrex all the roofing tile recovered was flanged tegula. Two *lydion* bricks measuring approximately one by one-and-a-half Roman foot were used as hearths in the Later Roman Period together with a half complete *bessalis* brick measuring 210mm across. All the other brick fragments are too fragmentary to say which types are present. The occurrence of brick in so many fabric types is of interest, suggesting that bricks were being brought in (either new or from demolished buildings), from a number of different sources.

Two fragments of box-flue tile were recovered. They would have been used as flues set in to the walls of a building with a hypocaust heating system. Both have combed keying.

The majority of the stone building material was found with Roman tile, and so is probably of Roman date. Most comprised rubble blocks. Fragments of chalk and Hassock sandstone were found in the Later Roman Phase. The chalk is from somewhere in south-east England whilst the Hassock sandstone was obtained from quarries in the Maidstone area. One Hassock block has a ridge running along one surface which suggests it may have been worked, but it is too abraded to be sure.

Associated with Roman tile in the Later Roman Phase was a fragment of fairly fine-grained laminated sandstone measuring 13-14mm in thickness. The thickness suggests it was probably intended to be used as stone roofing although its smoothed top suggests use, or re-use, as paving. The quarry source of this laminated sandstone is uncertain, although it presumably comes from somewhere in southern England.

DISCUSSION AND CONCLUSIONS

The presence of prehistoric artefacts within the clay/peat sequence of the modern Thames margins had been noted in the nineteenth century by F. C. J. Spurrell and his contemporaries. The potential for discovering buried prehistoric landscapes on sites in the Thames estuary has been amply demonstrated in recent years by the results of excavations in both Kent and Essex (e.g. Taylor, 1996; Meddens, 1996). The site at Summertown Way exhibits many of the factors which might suggest a high probability of encountering prehistoric material - a riverside location, a great depth of interleaved alluvial deposits and a compar-

ative absence of significant modern truncation. That evidence of prehistoric date was limited to the collection of C14 and environmental samples was the result of the conditions of excavation. The great depth at which the uppermost prehistoric peat horizon was encountered meant that excavation had to cease before deposits of earlier date could be reached and only a small area of the latest deposits could be examined in plan.

The defining factor in subsequent, historic period, activity on the site was the effect of fluctuations in average river levels. The position (level) of the Thames would have played a large part in the siting of the activities taking place. The pre-Roman units indicate that fresh-water conditions prevailed on site, whilst in the post-Roman period, marine influence is distinctly indicated. Recent detailed consideration of Devoy's system of sea level change, insofar as it concerns the Roman period, has examined the evidence afforded by excavations in the City of London and Southwark (Milne *et al.*, 1983; Brigham, 1990 and Sidell, forthcoming). This work suggests that average Highest Astronomical Tide (HAT) levels dropped significantly between the first and the mid-third century AD (Fig. 6). The construction levels of roads and quays indicate that in the first century the HAT in what is now central London was not expected to exceed *c.* 1.25m OD. By the third century this had dropped to *c.* -0.5m OD. Peat deposits reflecting this regression were noted at Tilbury (Devoy, 1979, Tilbury V) in the middle reaches of the estuary. These deposits lay at between 0.4m and 0.9m OD and were formed at or after AD 200. Peat formation generally occurs in saturated conditions no more than 1m above prevailing high water mark (Brigham, 1990), suggesting that the prevailing high water mark at Tilbury in the third century lay at between -0.6m and -0.1m OD. At Mar Dyke in Essex similar formations of peat were noted and were dated as late as the sixth century indicating that the Tilbury V regression did not end until after the Roman period.

The results of excavation at Summerton Way seem to conform to this general pattern. The fall in sea level may have been felt to a greater extent here than in the City and may have made more land available for settlement and farming, as well as an increase in freshwater availability. Initial occupation of the site can be dated to the second half of the third century and continued to be viable until at least the end of the fourth century. The land surface on which the ditches and hearths of the first phase were laid out lay at between, *c.* -0.5m OD and -1.0m OD, indicating a prevailing high water mark below -1.0m OD. The transgressive overlap recorded in the sediments sealing the Later Roman Phase dates the reversal in relative sea-level

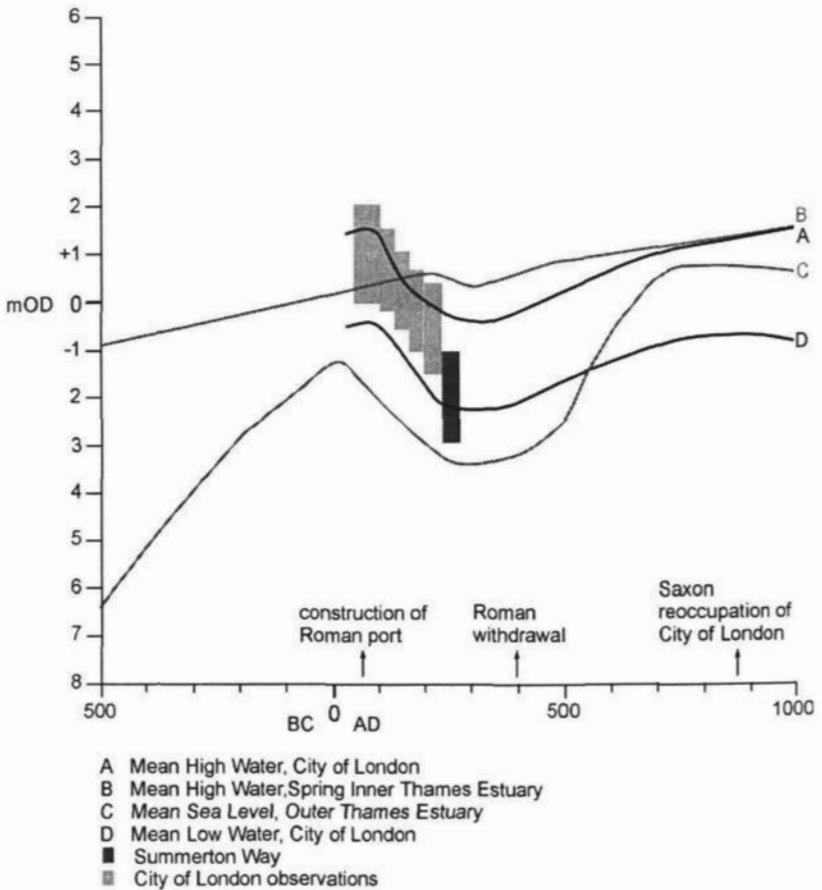


Fig. 6. River level variations in Roman times and post-Roman periods (after Brigham, 1990, *Britannia*, xxi, fig. 12.2, 133)

movement, and as such is a significant index point (Shennan, 1986) in the sea-level curve for the Thames estuary. This appears to have terminated any possibility of occupation on the site.

It is pertinent to consider next why the Roman occupation was in what was obviously a marginal location, in terms of quality land. Either specific resources (such as water) were needed for whatever activities were taking place, or pressure on land was particularly heavy. In view of the known concentration of Roman settlement in the area of the modern City of London, with limited settlement in the hinterland, the premise that pressure on land meant that marginal land was settled does not stand up. This leaves the suggestion that whatever activities were taken place here required resources that could be found in such a location. The artefactual evidence does not provide any indication of specific resource exploitation. Therefore the wider landscape may be the key to the reason this site was occupied.

The nature and scale of the remains encountered on the site are not untypical of the Romano-British rural sites encountered in London's immediate hinterland (for examples, see Bird, 1996; Lakin, 1994 and Mason and Lewis, 1993) although the location immediately adjacent to the river is somewhat unusual. The remains at Summerton Way indicate a landscape division into rectilinear fields at least 25m by 50m in size, served by droveways. It is possible that the northern limit of the field system was marked by river defences. This question of a river embankment was raised during the earlier stages of research on this site. It seems unlikely that river defences would be needed during a period of falling sea-level. However, the earliest occupants may not have been aware that this was the case. By the second phase of occupation it seems to have been apparent to the settlers that the river levels were dropping as occupation progressed further out in the floodplain. It seems unlikely that large stretches of foreshore would be revetted against floods at any point as this would be impractical and possibly undesirable. Landing points may have been constructed to aid loading and offloading of boats, although there is no evidence for this occurring here.

The question of embankment or other river defences in the vicinity of the site is one which cannot at the moment be answered. However, it may be pertinent to note that it is possible that the deposits indicating a hiatus in the use of the site could be regarded as pointing towards the practice of 'warping' - the deliberate deposition of fluvial silts in order to improve soil fertility by means of opening sluices - a practice certainly attested in the medieval period (pers. comm. T. Brigham).

There is a certain amount of evidence which points towards farming being undertaken at Summertown Way. The palaeobotanical studies of the deposits associated with the first phase field system suggest that the final stages of crop-processing were taking place at this site. This indicates that arable fields were located in the near vicinity as it is unlikely that unprocessed cereals would have travelled far to be threshed, winnowed and sieved. The phosphate analysis supports the premise that some form of farming was taking place, although it is not possible to state whether this would be arable or pastoral (or both). There are parallels for the seasonal grazing of livestock on marshland (Whittaker, 1991; Bowler, 1969) and this may have been the case here. This evidence, combined with stratigraphic evidence for field ditches and boundaries, may be the key to why this apparently marginal land was occupied.

The presence of a quantity of quernstone fragments, recovered from both earlier and later phases, reinforces the probability that crop processing was undertaken. The distinction between arable and pasture may in any case be somewhat artificial since a careful farmer raising both crops and livestock would be likely to use the gleanings and stubble of arable fields for pasture (Varro, *De Re Rustica*, I 53 quoted in White, 1970, 183).

Drying of the heads of grain and the avoidance of showers during threshing were material considerations in the processing of cereal crops. Even in the dry conditions of the Mediterranean provinces of the Roman empire, drying rooms were sometimes used to get round this problem. Perhaps unsurprisingly corndriers are relatively common features on Romano-British rural sites.

The hearths which formed notable features of both earlier and later Roman phases of activity on the site do not seem to have been used for corndrying. They were much smaller and less substantial than classic corndriers (Morris, 1979), seem to have been surface rather than sunken features and yielded no evidence of burnt residues. The absence of slag, hearth rakings or any other metalworking residues and the absence of the intense scorching which might be associated with the high temperatures argues against their use as furnaces. The form of these features most closely resembles that of domestic hearths. Even allowing for the probable presence of light superstructure the absence of any shelter or structure associated with the hearths seems a little unusual. Whatever function was served by these features it was one which continued throughout the period of Roman activity on the site.²

Where then was the settlement which provided the focus for the field system recorded at Summertown Way? The presence of otherwise

unexplained hearths and the evidence for the later stages of crop processing suggest that it lay quite close by - no one is likely to go very far from home to grind corn or do their cooking. An indication may be given by the remains Spurrell noted in the marshes just to the east of the site "*When the southern outfall works were being dug twenty years ago (1865) at Crossness, a very exposed situation, I saw much Roman pottery, mortar, tiles, rubbish and portions of wood, lying at about 9 feet below the surface (which was there at OD 5 feet) (i.e. c. -1.20m OD) on the upper part of a layer of peat, which showed unmistakably that hazel and birches were growing on it, while moss, etc., covered the surface.*" ... Spurrell also noted the presence of animal bones, snail and oyster shells and an apparent 'cinerary urn' containing bones. Whilst these observations are capable of sustaining more than one interpretation, when taken with the results of recent excavations at Summerton Way they are highly suggestive of the presence of a farm or settlement of Roman date beneath the Cross Ness works, approximately 300m east of the site.

Stone and ceramic building material recovered during the excavations at Summerton Way conforms with Spurrell's observations and suggests that the settlement contained at least one substantial masonry building. Chalk, sandstone and split flint rubble may have been used as walling material. As noted previously, a fragment of fine-grained sandstone seems to indicate that the building may have been at least partially stone roofed. Ceramic tiles may have been used for wall or roof construction. Box-flue and *pila*-stack tiles indicate the presence of hypocaust heating. Although small in quantity the building material remains from the site are strongly suggestive of the presence nearby of a well-made and relatively high status building.

We are faced with some difficulty in defining the function of this hypothetical settlement since it is clear that the remains observed at Summerton Way were derived from a peripheral area on its margins. It is striking, however, that there is little or no indication of use or exploitation of the most obvious local resource - the Thames. Admittedly the cultural assemblage from the site is not extensive. Although this may be a result of the conditions of deposition and recovery rather than a true reflection of the material status of the site, it does not aid the interpretation of the site. It might have been expected that some artefactual or ecological remains relating to fishing, wildfowling, boat building or sailing would have been encountered, but there are none.

The environmental evidence seems to indicate that the function of the site was identical to inland rural sites of this period. The artefactual assemblage is not wide ranging or varied. For example, there

are few non-ceramic finds. What finds there are indicate domestic use. It is noteworthy that the pottery from the site, allowing for the minor divergences in the proportion of individual fabrics, which may well be a statistical fluke resulting from the small sample size, is more or less the same as that which would be encountered on a comparably dated urban site from the City of London or Southwark. The exception to this, as noted above, is the larger than usual proportion of Hadham ware which, it is suggested, indicates a distribution route by-passing London. This, taken together with the presence of a higher than normal (although still small) quantity of Eifelkeramik and the Mayen lava quernstone fragments raises the possibility that this material was traded directly to the site rather than redistributed via London. Certainly the site could be considered well situated for an exchange between sea-going vessels entering the Thames estuary and riverine craft plying tributaries such as the Darent and Lea.³

In conclusion, the results of the recent excavations at Summerton Way might be deemed to shed a valuable light on a number of aspects of the Roman period in London's hinterland. Data about the river regime has added both spatially and chronologically to the information discussed by previous authors. The riverside location of the site is one where previously settlement has not been expected, and so it has proved possible to add to the range of landscape types known to have been exploited in the period - a point which is likely to be valid for both Kent and Essex banks of the river. The fact that, as far as can be determined, the exploitation of the site did not differ greatly from inland sites suggests that when conditions were favourable, or need great enough, even relatively marginal land might be exploited. The date and type of remains encountered has potential for furthering the debate about the relationship between London and its hinterland. In particular the exploitation of marginal land late in the Roman period might be thought to be at variance with the view that London and its hinterland saw a decline in the third and fourth centuries (see, amongst others, Marsden and West, 1992).

It is to be hoped that the discoveries from this site along with possible future ones in the North Kent and Essex marshes will allow a considered study of the Romano-British exploitation of the Thames estuary equivalent to that recently undertaken for the Severn (Fulford *et al.*, 1994; Allen and Rippon, 1997).

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Editor's Note. This article is an abridged version of the report prepared by the Museum of London Archaeology Service. A copy of the full report is held in the Society's Library. Further information about the site can be found at Bexley Museum.

NOTES

¹ Material from the evaluation is denoted by the sitecode SNY97; that from subsequent excavation by SWY97.

² The proximity of these features to the contemporary riverside has suggested a possible line of enquiry. The nature of Roman shipbuilding was such that frequent caulking was necessary, to which end fires would need to be lit for pitch boiling. This activity might possibly take place on, or near, the foreshore (pers. comm. D. Goodburn). No pitch residues were noted during excavation.

³ Until relatively recent times, sail- and oar-propelled vessels occasionally congregated at certain locations in the Thames estuary to await favourable wind and tide conditions before proceeding upstream. It is possible that Cross Ness was one of the favoured locations (pers. comm. D. Goodburn). If this was the case during the Roman period, then such occasions might be seen to provide an ideal opportunity for transshipping cargoes.

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