

Fig. 1: map of sites mentioned in the text: 1, East London cemeteries; 2, Cripplegate Fort; 3, Number 1 Poultry; 4, Suffolk House; 5, Baltic Exchange; 6, Borough High Street; 7, St. Thomas street; 8, Hibernia Wharf; 9, Mayor Sworders Arches; 10, Courage Brewery; 11, Winchester Palace; 12, Great Dover Street

Environmental Archaeology in London 1995-1998, part 2

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The Roman period

THE ARCHAEOLOGY of the Roman period is particularly well represented in London, as a result of the extent and intensity of settlement, the relative protection from modern truncation and the waterlogging found close to the river. Environmental studies researching the use made of biological material by the occupants of Roman London are extremely rewarding, for instance, often recording the first appearance of now familiar species as a result of expansion of trade boundaries. Research has recently been concentrating on the City, *Londinium* and Southwark, with some

limited work on rural Roman occupation. One major research project has been devoted to the eastern cemetery, not only looking at the human population, but also addressing questions of funerary rite and burial practices.

Unfortunately, with the coming of the major urban centre, natural sedimentation is no longer common in the main focus of settlement. This makes it extremely difficult to reconstruct the local ecology associated with the Roman City. This has led to a substantial gap in current knowledge regarding the environment of the city, which

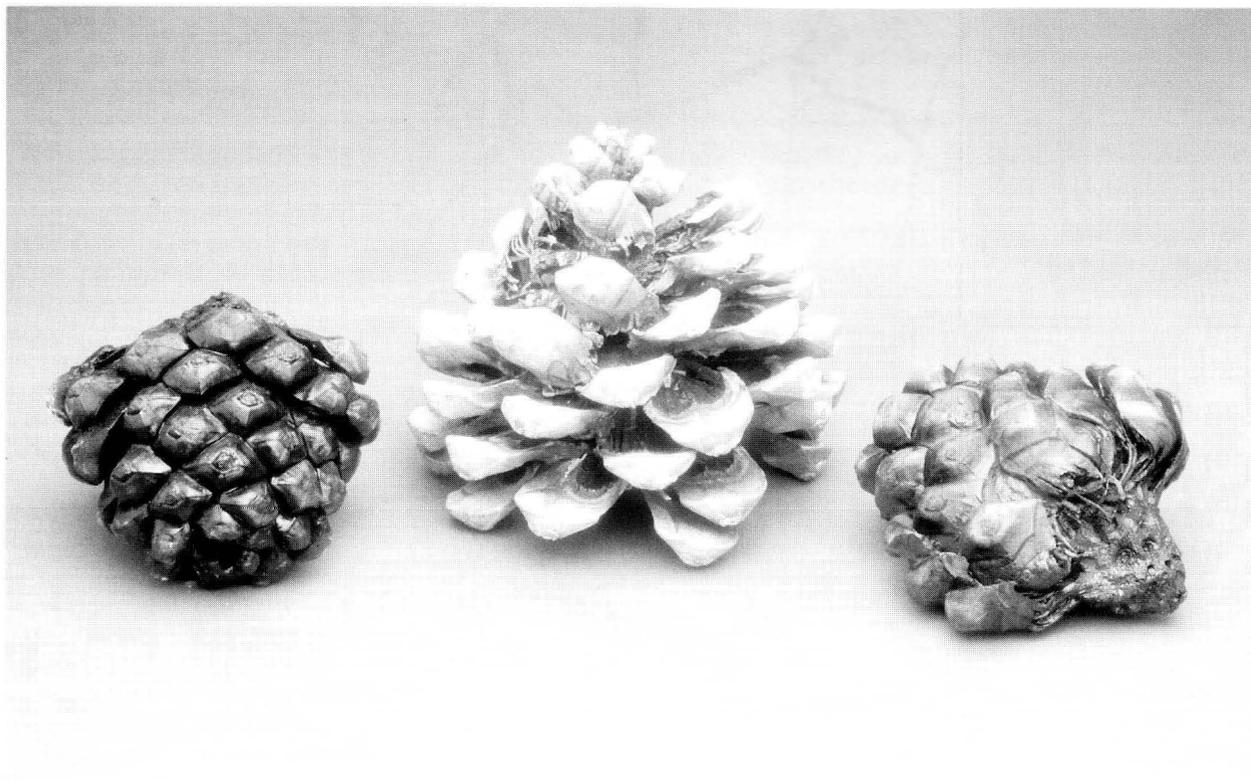


Fig. 2: stone pine cones from No. 1 Poultry

has been highlighted as a priority for future environmental research in London.

Londinium

The Cripplegate Fort

A series of sites recently excavated within the boundary of the fort have provided a rare opportunity to investigate military deposits. Both the botanical and faunal material from these sites were in excellent condition. Several rich assemblages of charred wheat, barley and oat grains were recovered. They were generally mixed and also contained charred arable weed seeds including those of brome. Edible fruits were present including grape, fig and elder. Mineralized material was present. This is particularly interesting in the study of diet because human faeces and urine contains phosphate that can replace the organic material of the seed as it decays¹. These mineralized items included apple/pear seeds and coprolite fragments containing plant fragments. The majority of the faunal remains are representative of general domestic waste and show a mixture of primary and secondary butchery discards. Finds included large deposits of frog bones from uncovered pits across the site.

Number One, Poultry

The Poultry site, in the centre of the Roman and medieval city, provided an excellent opportunity to study well preserved organic material. Over 1000 environmental samples were taken with excellent preservation shown. A large range of plants was found including weed seeds, fruit and nut remains, cereal bran, stems, mosses, and occasionally pods and flowers. The remains included exotics such as olive, stone pine (Fig. 2), and walnut, as well as fruits of beet, which have not previously been found from Roman sites in London. Charred remains included several large assemblages of cereal grains, several of which included lentils. Charred fruit remains, pulses, and umbellifer seeds, possibly spices were seen in other samples.

It is hoped that further study of selected samples will provide information on dietary and economic patterns, storage of foodstuffs, use of buildings and external areas, and enable comparisons to be made with contemporary sites in the Walbrook valley and on the Thames waterfront. Study of the insect assemblages in conjunction with the plant remains may provide evidence for the origin of

1. F J Green 'Phosphatic Mineralization of Seeds from Archaeological Sites' *J Archaeol Sci* 6 (1979) 279-284.

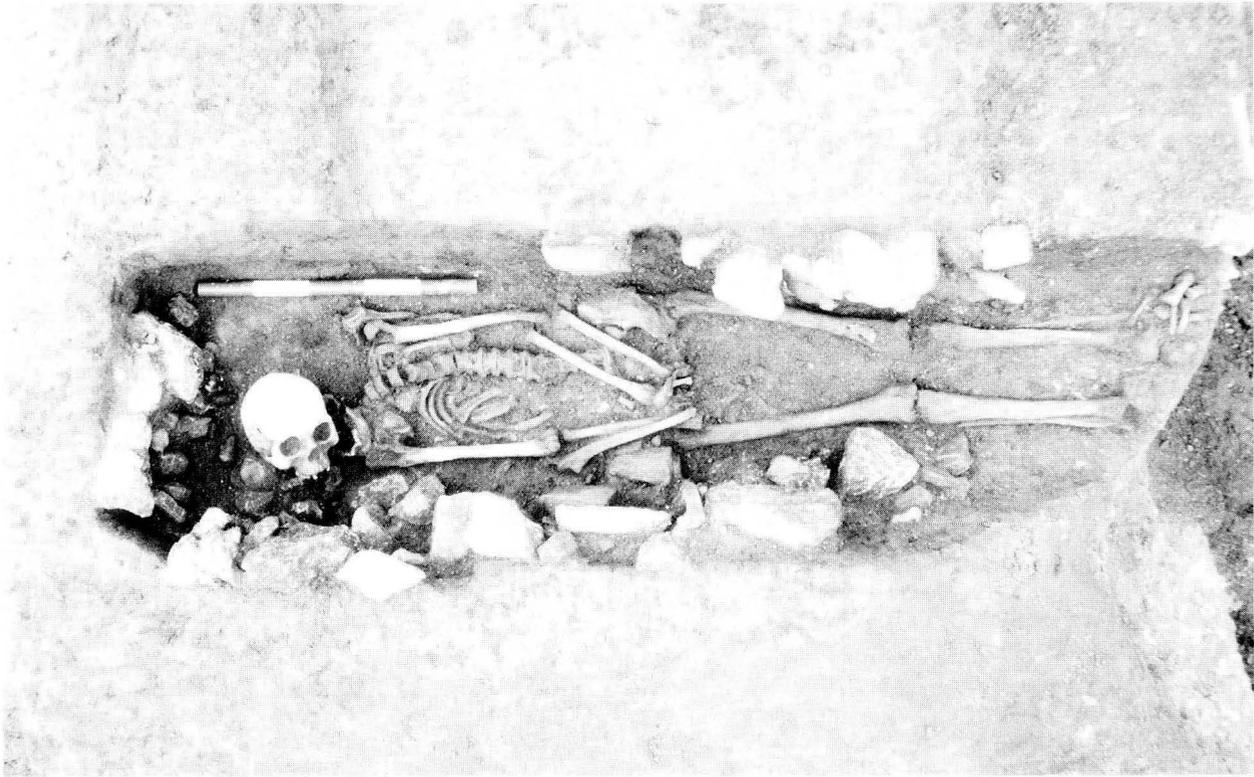


Fig. 3: skeleton from the east London cemeteries

deposits such as stable sweepings, stored crop products and decaying animal or vegetable matter.

Suffolk House

Faunal remains were recovered from a good spread of urban dwellings, and associated occupation surfaces and rubbish pits, which have provided a useful insight into the economic and domestic practices associated with animals from the Roman to the late medieval period. Finds have included a sparrowhawk from the Roman period. Evidence for the wide range of shellfish in their diet was found including oyster, cockles, winkles and possibly cuttlefish. The botanical remains from Roman samples produced rich samples of fruit and nuts, e.g. plum, cherry, brambles, fig, walnut and hazelnut; notable finds were an olive stone and pine scale. Unusually from a Roman peat deposit, a section of sea urchin test was identified which may have originally been a traveler's souvenir.

Baltic Exchange

The most interesting plant remains from this site were those of wild plant seeds and edible fruit seeds. Many waterlogged seeds were present in-

cluding duckweed, rush and sedge seeds. Edible fruit included apple/pear seeds and cherry/plum stones. The majority of the faunal remains were recovered from the large Roman boundary ditch. Found within this feature was a large concentration of cattle and sheep/goat bones; initial analysis of the elemental distribution suggests that they may have been used as dumps of the primary butchery waste which may suggest local slaughtering and splitting carcasses. Also contained within the ditch were dog skeletons of various sizes. It seems likely that the city ditch acted as a large waste disposal area, but a collection of dogs is unusual in one place. Other interesting remains included limb bones of a red kite and very unusually a dorsal fin spine of a spurdog.

Extra-mural sites

East London cemeteries, Tower Hamlets

A number of archaeological sites have been excavated to the east of the city all containing Roman burials of the late 1st to 5th centuries (Fig. 3). Analysis of almost 600 inhumations and 100 cremations was undertaken, the largest sample from Roman London studied to date², placing it on a par

2. J Conheaney and J McKinley (forthcoming) 'The human skeletal remains' in B Barber and D Bowsher (eds) *The Eastern cemetery of Roman London. Excavations 1983-90* MoLAS Monograph.

with important Roman cemeteries elsewhere, such as Poundbury or Trentholme Drive. A relational database was used so that all osteological data could be compared with any other characteristic of the burial, such as grave goods. One of the most striking findings is the marked homogeneity of the sample with little variation between individuals over time or spatially, even given the presence of cremations and inhumations.

A variety of mammal, bird and fish species were found in the cremation deposits. Most of the bones were burnt, and a great proportion was found within pottery vessels. Pig and chicken form the majority of the burnt bones found in these cremations, often represented by partial or whole disarticulated skeletons. Other species identified from burnt bones include cattle, sheep/goat, goose, thrush, duck, plaice/flounder and whiting. Unburnt bones were also found (both within urned and unurned cremations), these representing a large number of species. The presence of a few of these could be classed as accidental, either introduced from the surrounding contexts, e.g. horse, or naturally introduced such as rabbit, small rodent and frog/toad. Those remaining include all the burnt species, plus finch, shad, dab, sprat, herring, eel, smelt and cyprinid fish. The ritual significance of a proportion of the unburnt bones is obviously less clear in comparison to those that are burnt (unless they were found within an urn). However, the range of species and concentration of fragments in the cremations differs significantly from those in the surrounding deposits. Assuming a ritual significance for all these species, it can be suggested that the form of the ritual may have involved the burning of offerings with the body followed by the inclusion of other unburnt offerings before burial³.

Unlike the cremations, relatively few of the inhumations contained gravegoods and far fewer species are represented. This may be partly due to the difficulty of recognition of ritual significance. The clearest indicators are the presence of articulated remains and their proximity to the human skeleton. Such species include pig, chicken and goose, where pig is represented chiefly by articulated forelimb elements and chicken and goose by partial or whole skeletons. There is no clear evidence for any patterns regarding the distribution of these species or any obvious links with the age or sex of the accompanying human remains.

The botanical assemblage included charred seeds of lentil, pea, and Celtic bean from features containing cremated human bone. These species are rarely found in abundance from Roman sites, although they are known to have been widely eaten. Their concentration here strongly suggests their use as pyre goods, and the deliberate burning would account for their unusual survival. Documentary evidence suggests that Celtic beans enjoyed religious and magical significance in Roman civilization, and were commonly eaten at funerals⁴. The features tended to contain lentil or pea rather than a mixture, with lentils found almost exclusively on one site while peas occurred mainly on two others. A few charred wheat and barley grains were present in many samples, but these are common in features of all sorts from the Roman period and may not be directly related to the cemetery activities. Occasional fruit remains preserved by waterlogging (including a peppercorn, not previously found from Roman London), may have been part of the funeral offerings or feasts. Most of these, however, were very common species and may have been derived from domestic waste.

The information from this complex has provided clear evidence of ritual activity using food species, however, the purpose and philosophy behind the ritual is uncertain and clearly an area for future research.

Southwark

A number of sites have recently been the subject of several major projects involved with gathering information on the Roman occupation of this area. A large proportion of the sites were situated either side of Borough High Street (which was constructed on the line of the old Roman road into the city), and especially in the area adjacent to London Bridge.

Animal bones were found in deposits dating to the earliest (pre-Boudican) Roman levels, as well as within numerous levels dating to the 1st/2nd centuries and 3rd/4th centuries AD. A large proportion was recovered from occupation deposits associated with buildings, in particular from the extensive excavations at the Borough High Street Ticket Hall. Much of the later material was found in a variety of dumps and deep features, especially from the pits and well at St Thomas Street and the wells at Hibernia Wharf. The meat diet through-

3. E J Sidell and K Rielly 'New evidence for the ritual use of animals in Roman London' in B Watson (ed) Roman London. Recent Archaeological Work. *J Roman Archaeol Sup*

Series 24 (1998).

4. D Stuart *The Kitchen Garden* (1987) Alan Sutton.

out the Roman period was clearly met largely by cattle, sheep/goat and pig, with a lesser though significant amount of chicken and goose, plus a wide variety of wild animals, birds and fish. A small number of sites provided a relatively large and diverse assemblage of wild species e.g. Mayor Sworders Arches, where a long species list included all three deer species, hare and sturgeon. Other sites appeared to be dominated by pig rather than the general pattern of cattle, for instance, Hibernia Wharf. In both these cases (wild species and pig dominance), a possible interpretation is that these deposits contained the waste from high status households. Certainly there is good evidence for the overriding use of pig in the meat diet amongst the affluent members of Romanized society during this period⁵.

Though the majority of the bone assemblages recovered constitute mixed dumps of general refuse, there are a number of deposits which were clearly taken from specific activities. Thus it is possible to suggest that a large proportion of the animals entering Roman Southwark were taken to specialist abattoirs and/or butchers prior to consumer purchase e.g. the evidence for a butchers shop at the Borough High Street Ticket Hall site. Concentrated amounts of cattle bones were found in dump deposits situated both within and next to a Roman building. In one of these dumps, the cattle bones were almost entirely composed of skull and lower limb parts, while in each of the remaining dumps the assemblages were composed of heavily butchered upper limb fragments. Thus there is clear evidence for the major division of the carcass into the meat-rich and meat-poor parts, as well as consistent evidence for the efficient removal of meat (mainly using the cleaver) from the meat-rich parts. From this evidence it can be assumed that this building was very likely a butcher's shop where animals were (probably) killed and jointed, and the meat sold.

There is also some data for artisan activities in this general area, probably involving antler, bone and hornworking. It is also worth mentioning the presence of possible 'ritual' deposits, including the well deposits from St. Thomas' Street and Hibernia Wharf and a pitfill from Mayor Sworders Arches. The lower fills of the wells are very similar in both their pot and bone contents to numerous other wellfills found at Roman Southwark and City sites, in that the pottery is generally of good

quality and the bones are invariably represented by whole cattle skulls. The Mayor Sworders Arches pit was found within one of the buildings and contained the burnt remains of a pig and several burnt fish bones. The species present and the nature of the bones (burnt white) both point to a ritual rather than a mundane/domestic interpretation for this feature. Indeed, direct comparisons can be made with the animal offerings found within various Roman cremations from excavations in East London.

Botanical assemblages show that preservation of plant remains was variable, with reasonable recovery on four sites, including seeds of ruderal and segetal weeds, damp-ground and aquatic plants, and fruit remains. Samples from a burnt 1st century building on Borough High Street contained large quantities of clean charred cereal grain, mainly wheat, suggesting that the building was used for grain storage. Similar large Roman grain deposits were found elsewhere at Borough High Street. Some areas were dominated by unusually large assemblages of charred material. These included chaff, wild plant seeds as well as grains and coincided with burnt layers, floors and industrial areas. The large quantities of grain, mainly wheat and barley, could represent deposits of grain stored for baking or brewing. Those containing more chaff and seeds than grain may have come from working areas where the grain was dried or sieved prior to use or storage.

Rich botanical assemblages for detailed information on diet and economic activities (crop husbandry) were present in two samples from Mayor Sworders Arches, which contained a large quantity of charred grain and weed seeds and a large amount of mineralised fruits. A sample from a channel fill from London Bridge Station, produced a large botanical assemblage containing grain and fruit remains, which can be used to draw up a picture of diet and also economic practices. Some of the food plants, e.g. a possible cucurbit (cucumber family) seed, may be indicative of trade. Further evidence of trade comes from a possibly charred fragment of an olive stone.

The Courage Brewery

Plant remains included charred deposits of fully cleaned, hulled six-row barley, associated with the demolition of a cellared building. Previously studied grain deposits from London have consisted

5. A C King 'Animal bones and the dietary identity of military and civilian groups in Roman Britain, Germany and Gaul' in T C Blagg and A C King (eds) *Military and civilian in Roman Britain: cultural relationships in a frontier province* Brit Archaeol Rep, British Series 136 (1984) 187-218.

mainly of spelt wheat, but scattered barley grains are common on most Roman sites, and it was probably used as animal fodder and for brewing. Seeds of damp-ground and aquatic plants dominated waterlogged assemblages from earlier phases, while later samples contained mainly seeds of disturbed-ground weeds, a high proportion of these being from nitrogen-loving plants. Pips and stones of fruits such as grape, fig, mulberry and plum/bullace were also concentrated mainly in samples from the 3rd century and later. This suggests an increase in domestic activity in the later phases, as well as better drainage of the marshy land. The high frequency of seeds from nitrogen-loving species suggests the presence of organic rubbish or manure heaps.

Analysis of the animal bone concentrated on several well-preserved groups primarily derived from consumption and disposal of cattle, sheep/goat, pig, chicken, duck, and goose. There was also sparse recovery of horse, dog, and wild species particularly brown hare, red deer, roe deer and edible wild birds e.g. teal, coot, woodcock and crane. This has given an insight into diet, butchery techniques, and the nature of animal exploitation. Although the presence of butchered red and roe deer limb-bones indicates consumption of venison, these species probably provided only a minor dietary component. Recovery of offcuts from large, mainly shed, red deer antlers gave an opportunity

to examine the utilization of this seasonally available and presumably deliberately collected resource. It was possible to identify selection and processing of particular antler areas in addition to the methods and tools used in their preliminary preparation. All the off-cuts had been sawn from the complete antler, indicating the use of at least three thicknesses of blade: 1.5, 1.9, and 3.0 mm. One piece also showed shallow knife-cuts suggesting removal of thin shavings; possibly tests of readiness for further working during softening in either water or a mildly acidic solution⁶. Beam sections were sawn lengthwise to give flat strips and plates suitable for manufacture of small articles e.g. gaming-pieces and combs. When beam fragments were

6. A MacGregor Bone, antler, ivory and horn. *The technology of skeletal materials since the Roman period* Brit Archaeol Rep (1985).

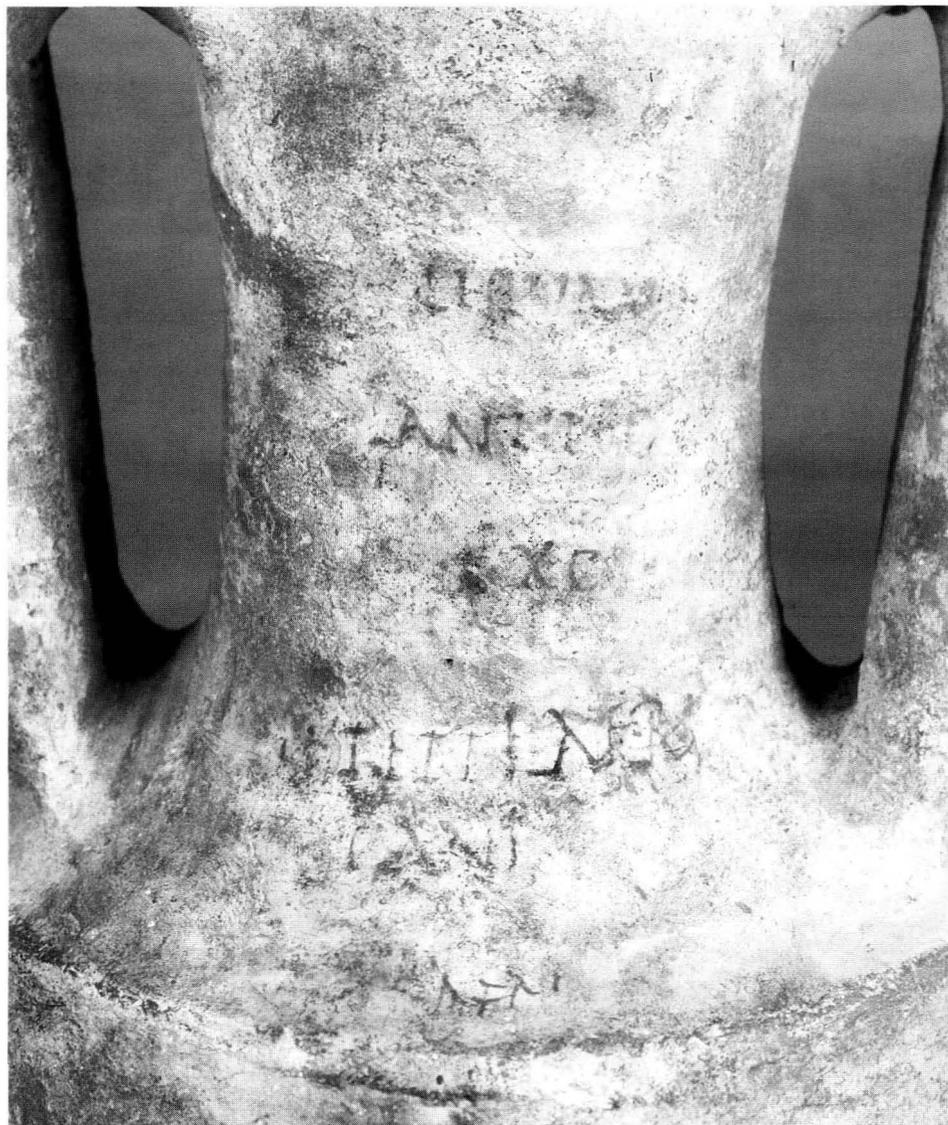


Fig. 4: the Winchester palace amphora

recovered, they were always broken, indicating accidental breakage and wastage during preparation.

Winchester Palace

Two major phases of occupation were identified on this site. From the Roman phases the bones provided information on the use of animals in this area; one particular point of interest is the dominance of pig bones in the early and late Roman deposits, which may suggest a high degree of Romanization. This inference is based on the work of King⁷ who demonstrated that while pig dominance is rare in this country (the notable exception being Fishbourne), it is relatively commonplace amongst the villa sites in Italy. The early deposits also produced significant quantities of wild species, including deer and six bird species. The fish assemblage is restricted to a few Spanish mackerel vertebrae found within an amphora that, by its inscription, had contained fish paste (*liquamen*) imported from Antibes (Fig. 4).

Plant remains from waterfront dumps and foreshore deposits at this site have provided information on the nature of the local environment and human activities in the area. Virtually all the assemblages were characterized by large numbers of seeds of aquatic and bankside/marshland species, indicative of the local environment, while the residues of food plants included small numbers of charred grains (e.g. bread/spelt wheat, barley), fruits (e.g. fig, strawberry, apple/pear, hazelnut) and dill. The reclamation dumps contained arable and disturbed/wasteground weed seeds.

165 Great Dover Street

Animal bones were scattered throughout this cemetery site, including the gravefills, the associated buildings and within the ditches of Watling Street. Ritual activities may have included gravegoods, separate animal burials and graveside feasting, this following the pattern of events discussed in connection with the much larger bone assemblage found amongst the East London Roman cemetery sites. Gravegoods were limited to just one of the inhumations (out of 24), while none were found within the five cremations. A near complete skeleton of an adult female chicken represents the single example. Records were insufficient to establish whether the bird was articulated when found, and therefore no suggestion can be made concerning the status of this offering, i.e. a whole bird or perhaps the remains of a meal. Though various domesticated bones were scattered around and

within the graves, these were not sufficiently different from Roman food dumps found in more urban situations, to ascertain whether they represented feasting activities or the redeposited remains of domestic refuse. A substantial amount of horse bones were recovered, previously observed to be most abundant on cemetery sites. A ritual aspect, however, was refuted for the greater proportion of the horses represented at the East London cemetery sites. Clearly these animals had been dumped on the surface, or possibly very casually buried, were ripped apart by scavengers and then the bones were scattered. There is no reason to suppose that the same argument cannot be applied to the Great Dover street horses. It can, in fact, be suggested that the abundance of horse bones is not so much related to the burial use of these sites as to their location. At a time when horses were generally not eaten, and therefore would not have found their way into the general city food dumps, a suitable place would have been needed to dispose of them. One option would have been to cart these animals out of the city, and dump them at the nearest convenient spot, probably not far from the road, which coincidentally is exactly where the cemeteries were located. It is not suggested here that carcasses were dumped alongside mourning relatives. The two events may not have been contemporary.

The ongoing analysis of environmental material from Roman London should provide detailed information on the types of settlement and activity taking place both within the city walls and in the Southwark. However, although this remains important, it is to the hinterland that we need to look. One of the benefits of PPG 16 is a more even geographic spread of developer funded sites coming up through the planning process, enabling archaeologists to examine in greater detail the relationship between the City and its hinterland, for instance Roman Staines. The other vital research topic lies in the ecology of the Roman City that is currently poorly understood: it is notoriously difficult to establish local conditions within settled areas because the anthropic effect masks the natural signal. Nevertheless, it is this modification of the 'virgin' pre-Roman environment into a new 'human ecology' that is one of the most interesting aspects of environmental archaeology in Roman London.

Acknowledgments

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7. A King 'A comparative survey of bone assemblages from Roman sites in Britain' *Bull Inst Archaeol* 15 (1978) 207-32.