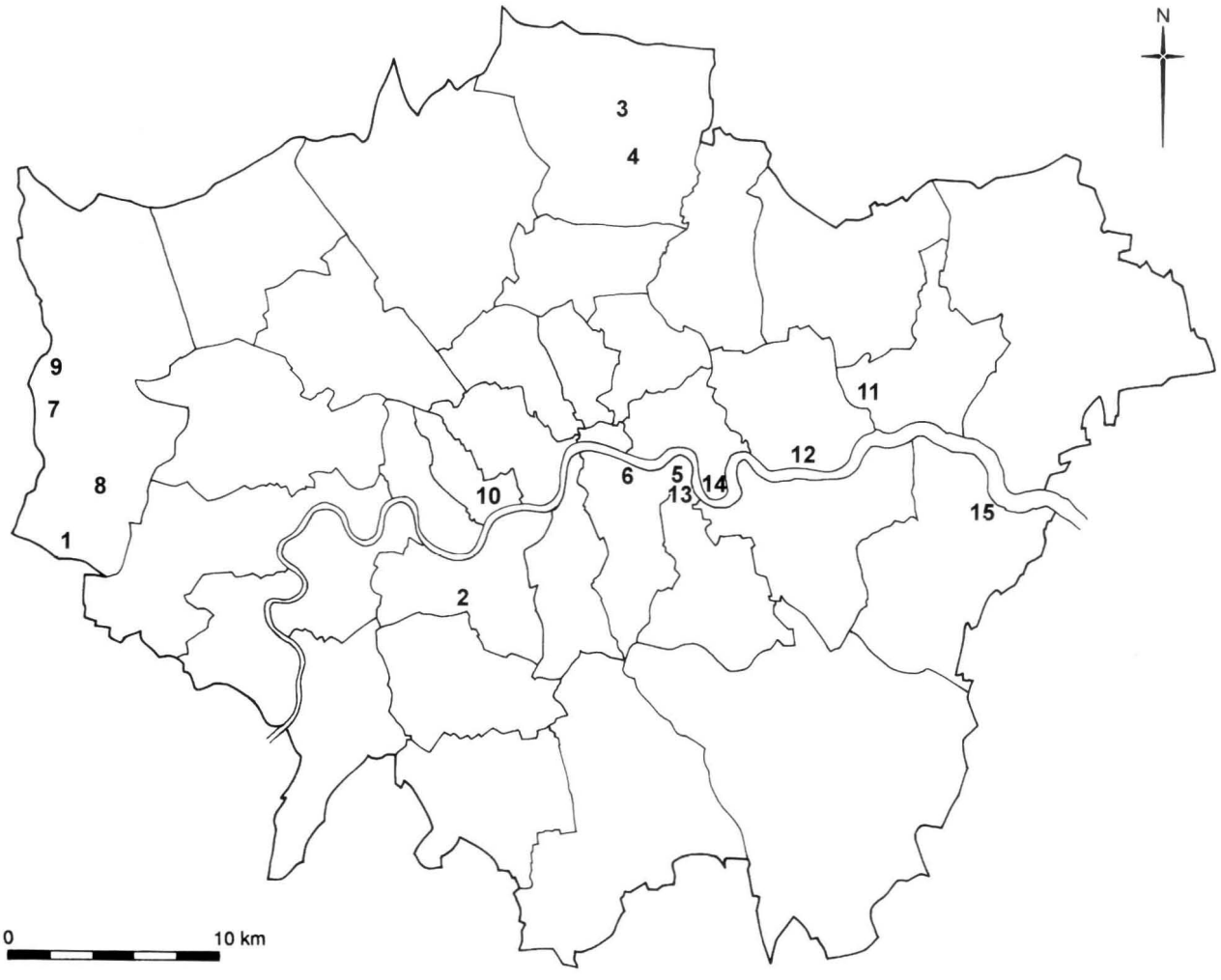

Fig. 1: sites mentioned in the text: 1, Heathrow; 2, Strathville Road; 3, Delta Cables Factory; 4; Meridian Point; 5, Bryan Road; 6, Tower Bridge; 7, Three Ways Wharf; 8, Cranford Lane; 9, Long Lane; 10, St. Mary Abbots Hospital; 11, Uphall Camp; 12, North-east London wetlands; 13, Bramcote Green; 13, Atlas Wharf; 15, Erith

Environmental Archaeology in London 1995-1998, part 1

Jane Sidell, John Giorgi and Alan Pipe

Introduction

ENVIRONMENTAL archaeology seeks to describe the uses that past populations have made of biological resources, both living and dead. It also aims to characterize topographic and ecological conditions, specifically the interaction of people within their landscape and the concomitant changes. This can include deforestation, woodland management, cereal cultivation and subsequent changes such as increased run-off, erosion and waterlogging.

Conditions for undertaking environmental archaeology in London are exceptional, and probably unparalleled in Britain. This is a result of dense remains covering the whole span of the Holocene and the diversity of environments preserving archaeological remains. These range from the vast wetlands of east London to the gravel plains of the Heathrow area. No other city boasts this diversity of topography and range of preserved material (although similarities exist at York), and no other region can claim a similar intensity of inhabitation

throughout the archaeological record. The nature of evidence available for environmental analysis includes first the soils and sediments themselves; for instance gravel, peat, tufa, alluvium, estuarine muds, colluvium and brickearth. Biological remains have been preserved within these and other depositional environments by waterlogging, charring and mineralisation, and range from diatoms, pollen, seeds and trees to ostracods, molluscs, foraminifera, insects and bones. There is rarely a situation where environmental studies cannot assist in the interpretation of an archaeological site: occasionally the biological information is central, for instance in the case of cemeteries where analysis of the skeletal remains can provide significant information on demography and disease of past London society.

The value of environmental archaeology as a component part of archaeological research lies in several areas. First, geoarchaeological and palaeoecological analysis can provide models of topographic and environmental systems. These may then be used as frameworks in which to place and understand the development of the archaeological communities. Second, study of the materials directly used by the inhabitants and communities themselves (such as animals, trees, cereals) can lead to detailed interpretations of the developing economic systems, craft, trade, spatial organisation, even ritual practices. The first of these points is fundamental, particularly with reference to the prehistoric period. Without a knowledge of the landscape through which communities are passing and eventually modifying to their own ends, much conventional archaeological interpretation is likely to be flawed, if not invalid. The second area of study adds the detail to the picture, and therefore makes the leap to intimate knowledge of past lives.

Environmental work at the Museum of London Archaeology Service in the last four years has involved sites from every period in the archaeological record of London and has ranged from the analysis of post-medieval exotic imports to the reconstruction of a Palaeolithic camp. Many of the individual sites will shortly be published, where fuller details will be available. Individual reports are held in the Museum of London archive, and may be consulted on request.

The Prehistoric period

The fundamental changes that took place in the prehistoric period, such as the transition from hunting and gathering to a sedentary farming existence can be tracked through the archaeological record, as can more specific aspects of these practices. Additionally, the significant changes that affected the landscape as a result of climate change (which may have influenced patterns of human activity) can be reconstructed through study of sites of this period. ^{14}C (radiocarbon) dates have been presented in two forms: the majority of dates have been given as calibrated calendar years BC. However, several dates are out of calibration range, and have been presented as radiocarbon years Before Present, present being AD 1950.

The Thames regime

Environmental studies within London are directed towards characterizing the effect the Thames and its tributaries has had upon the floodplain. Such development influences human use of the area and so has an impact upon settlement; there is still much to be learnt from sites buried in the Thames floodplain.

At Strathville Road, Wandsworth, a sequence composed of peat, clay and tufa was recorded. These units are all deposited under differing conditions, anaerobic organic decomposition *in situ*, aquatic deposition and generally slow-moving aquatic calcareous formation respectively. No human activity was represented at all, and it was decided in the first instance to date the sequence. The results indicated that the peat formed at about 9300 BP or slightly earlier, and that the underlying waterlain clays were earlier, probably dating to the late Glacial/Post-Glacial (Devensian/Holocene) transition. Preliminary results indicate that the site was marginal to a watercourse with both aquatic and terrestrial environments represented.

A similar sequence was encountered at the Delta Cables factory, Enfield, where organic and calcareous units were sampled. This sequence formed within the Lea valley, and impacted upon the floodplain stretching north. The presence of peat directly overlying the terrace gravel, sealed by what appeared to be a tufa in turn sealed by a further peat, made this an extremely interesting sequence of marsh and aquatic formation. ^{14}C dating was undertaken on the organic units, and the peats overlying the terrace gravel dated to approximately 7500 BC. This sequence is important as it provides an ecological backdrop to the Mesolithic activity that has been recorded from several other sites in this part of the Lea Valley, such as Meridian Point, Edmonton.

The two sites provide interesting data from systems feeding the Thames, from early and poorly known periods, which are particularly significant

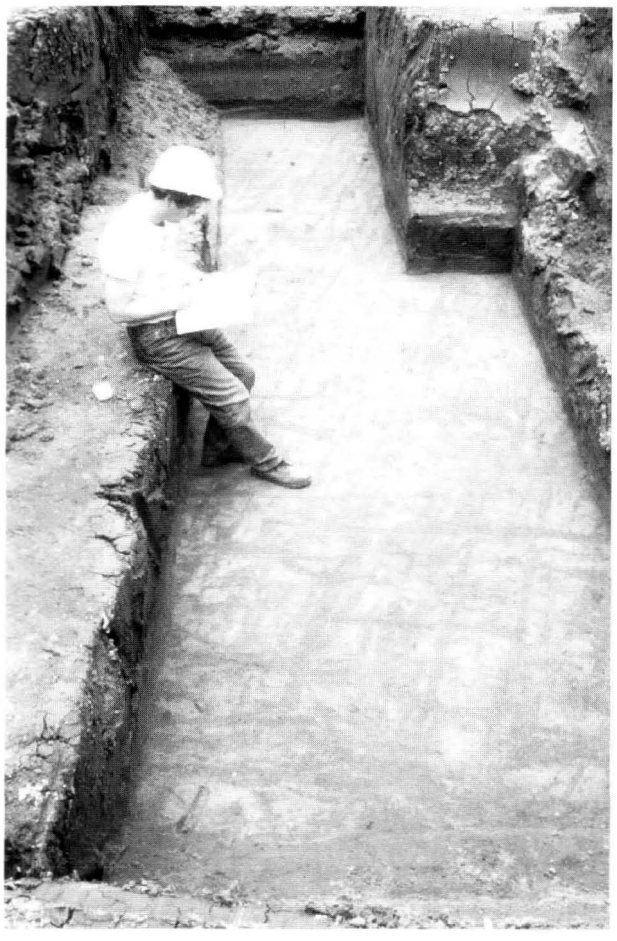

Fig. 2: ard-marks at Lafone Street (James Drummond Murray)

in terms of early Holocene landscape development. A Thames-side site dating to the middle Holocene was recorded at Bryan Road, Rotherhithe. The sequence was composed of clay silts and peat units. Radiocarbon dating indicates that peat began to form *c.* 3800 BC and continued until the Roman period, although there is a possibility of a late hiatus[1]. Pollen analysis was carried out which identified an initial zone of mixed woodland, including large quantities of lime, followed by evidence of the 'Primary Elm Decline'[2], often associated with the opening up of woodland in the early Neolithic. The succeeding deposits indicate localized clearance, probably for cereal cultivation. It appears that this site was not as inaccessible as first thought, and that the area was probably being exploited for timber and farming. This makes sense when compared to several sites slightly upstream near Tower Bridge (for instance Phoenix Wharf and Lafone Street) which have evidence for late Neolithic/Early Bronze Age farming in the form of ard marks cut into the sediments (Fig. 2).

Three Ways Wharf, Uxbridge

Excavations here revealed two extensive scatters of flint artefacts and fragmented animal bones *in situ*, indicative of prehistoric hunter-gatherer activity. From their main faunal and lithic characteristics, one scatter was tentatively ascribed to the late Palaeolithic (Scatter A, composed predominantly horse and reindeer), and the other to the early Mesolithic (Scatter C, composed predominantly of red and roe deer)[3]. This material provided a rare opportunity for a multi-disciplinary study of the poorly understood (at least in the British Isles) transition between the late upper Palaeolithic and the early Mesolithic periods. The absence of cut features, post-holes or hearths at the site posed problems for the interpretation of activity and the detection of any spatial variation in terms of function. Particularly detailed and careful excavation and analysis was needed to pick up subtle patterns in distribution of artefacts, species and carcass parts.

Through analysis most of the bone fragments have been quantified by species and skeletal element, and any modifications such as butchery, charring, and burning were described. The lithics have been quantified and allocated to functional groups whilst the spatial distributions of species, carcass parts and flints have been plotted using computer-aided drawing techniques to reveal distinct groupings of material across the site. The species include red deer, reindeer, roe deer, horse,

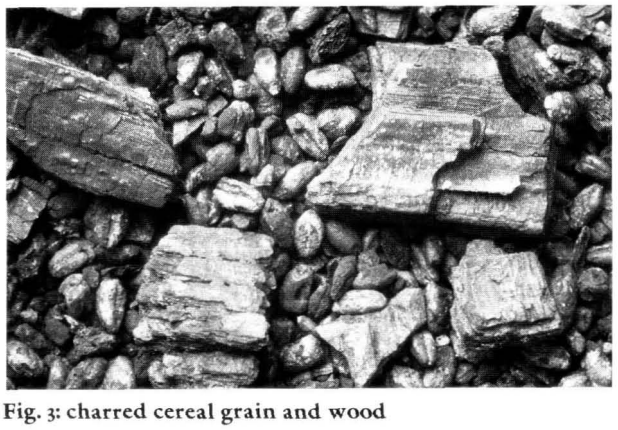

Fig. 3: charred cereal grain and wood

1. E J Sidell, R G Scaife, S Tucker, and K Wilkinson 'Palaeoenvironmental investigations at Bryan Road, Rotherhithe' *London Archaeol* 7 no 11 (1995) 279-85.
2. R G Scaife 'The elm decline in the pollen record of south east England and its relationship to early agriculture' in WHO EDS *Archaeology and the flora of the British Isles* (1988) 21-33 Oxford University Committee for Archaeology.
3. J S C Lewis 'Excavation of a Late Glacial and early Flandrian site at Three Ways Wharf, Uxbridge: interim report' in R N E Barton, A J Roberts and D A Roe (eds) *Late Glacial settlement in NW Europe* CBA Research Report 77 (1991) 246-55.

fox, badger, hare, beaver, teal and swan. Small numbers of very fragmented bones, possibly including pine marten, wolf, and brown bear, remain to have identification confirmed.

The assemblage differs markedly from that at Star Carr, Yorkshire[4] -- no elk, aurochs or in fact any complete bones were recovered from Uxbridge. Red deer contributed the majority of the fragments and weight, followed by reindeer, roe deer and horse. These species provided the bulk of the fragments and bone-weight, and hence probably meat-weight. Each of the remaining species was represented by very few fragments and could probably have derived from one individual of each species.

^{14}C dating indicates an approximate age for horse teeth from Scatter A of 10,000 BP and for red and roe deer teeth from Scatter C of *c.* 9200 BP; by comparison with the Star Carr assemblage which dated to around the middle of the tenth millennium BP[5]. These dating discrepancies, together with observed differences in lithic technology and species-composition, strongly suggest that Scatters A and C may derive from exploitation of faunas from cool open steppe succeeded by warmer deciduous woodland respectively. The larger group represented by Scatter C has allowed considerable study. The generally high representation of prime meat-bearing limb-bones in comparison to the head, vertebrae and toes, suggests a close correlation with ethnographic evidence from areas regarded as hunting camps rather than kill sites. This, together with the evidence of flint knapping, burning, and butchery, tends to suggest an area of occupation, even if short-term and/or seasonal, rather than a chance deposit of bones and lithics derived from a 'one-off' kill and primary carcass processing site.

Cranford Lane, Hillingdon, Long Lane, Ickenham, and St Mary Abbots Hospital, Kensington

The survival of biological remains from sites in west London tends to be limited, due to adverse soil conditions. However, a number of recent excavations have produced small assemblages of charred plant remains, throwing some light on the character of arable farming in the area. At Cranford Lane, Bronze Age samples contained small assemblages of charred grain, with the glume wheat emmer/spelt, and barley being the best represented species; a free-threshing wheat grain was also found in one sample. Other charred cereal debris included barley and wheat chaff and small numbers of possible arable weed seeds, e.g. docks and bromes. Charred legume seeds were also found in two samples. Information on the character of the local environment was recovered from samples taken from organic deposits at the base of pits/wells. Waterlogged plant material included rich seed assemblages, such as rushes, sedges and buttercups. Waste places/disturbed ground species included goosefoots, nettles, docks, while woods/scrub/hedgerow environments were represented by elder, blackberry/raspberry. Leaf, moss, stem and wood fragments were also recovered.

Two other sites in west London produced small assemblages of charred plant material from late Iron Age/Roman deposits. Samples from St Mary Abbots Hospital contained cereal grains -- emmer, spelt, bread wheat, hulled barley, oat, small amounts of wheat chaff and weed seeds. The weed seeds were largely from plants of waste places and cultivated ground, e.g. bromes. At Long Lane, Ickenham, late Iron Age/Roman samples produced cereal grains including bread/club wheat.

The importance of the west London prehistoric sites lies in the scarcity of prehistoric occupation in London as a whole. Although the environmental data is limited due to the acidic conditions, what evidence is forthcoming about farming practices is nevertheless valuable.

Uphall Camp, Ilford

Uphall Camp is the first middle Iron Age camp in the lower Thames basin to be extensively sampled for archaeobotanical remains, with a unique collection of charred plant material providing an opportunity to investigate the arable agricultural economy of the settlement. Almost 1000 soil samples were systematically collected, with the bulk of the samples coming from the fills of gullies/ditches, pits and post-holes. Variable quantities of charred plant assemblages were found, consisting of cereal grains, which included emmer/spelt wheat, barley, free-threshing wheat, oat, and possibly einkorn. Chaff fragments (wheat glume bases, spikelet forks, and occasional barley rachises), legume seeds and charred weed seeds were also found. Charred plant assemblages with a high species diversity of arable weeds may be used to examine specific aspects of crop husbandry, such as the range and character of soils cultivated around the site, and methods of harvesting. The richer assemblages may also reflect different stages of crop-processing, associated with the threshing, winnowing, sieving and storage of crops, and hence the nature of activities in different areas of the site and the use of different features and/or structures.

4. A J Legge and P A Rowley-Conwy *Star Carr revisited* (1988).

5. *Op cit* fn 4.

Fig. 4: trackway at Atlas Wharf

If it can be established that particular buildings were used for storage, it may be possible to use the richer plant assemblages to examine possible storage patterns within these structures (i.e. whether crops were stored separately or together).

North-east London wetland sites; Newham, Havering, Barking and Dagenham

The group of sites is situated in an expanse of buried peat beds, and a number of Bronze Age timber trackways have been found[6], contained within substantial peat deposits. ^{14}C dating of the sequences has shown that they generally span the Mesolithic to the later Iron Age.

The trackways have been dated to between roughly 1500-1200 BC, and were constructed of alder roundwood bundles held in place by diagonally positioned stakes. This pattern varies slightly, but on the whole there is a consistency of approach in this area. Other Bronze Age trackways in London, for instance those at Bramcote Green, (Bermondsey)[7], Atlas Wharf (Isle of Dogs) (Fig. 4) and the Spine Road, Erith[8], are constructed in different ways. Some of the timbers used in the northeast London sites appear to be from managed stands, coppiced cyclically. This indicates a higher level of resource management than simple opportunistic gathering of available material, and is particularly interesting in this area where little prehistoric evidence has been recovered. Additional structures have been found on some of the sites, for instance the timber revetment apparently at the side of a creek at Barking. As yet, no information has been recovered about any settlement associated with the trackways, or in fact where they were leading. It is assumed that they were leading into the marshlands to exploit additional resources such as wildfowl and fish. It seems likely that any settlements would have been on the higher ground on the edge of the gravel terrace, slightly to the north. Further excavation in this area, therefore, is of potentially great significance for studies of the Bronze Age.

6. F M Meddens 'Sites from the Thames Estuary wetlands, England, and their Bronze Age use' *Antiquity* 70 (1996) 325-34; F Meddens and E J Sidell 'Bronze Age trackways in east London' *Current Archaeol* 12 (1995) 412-16.

7. C Thomas and J Rackham 'Bramcote Green, Bermondsey: a Bronze Age trackway and palaeoenvironmental sequence' *Proc Prehist Soc* 61 (1996) 221-53.

8. M Bennell *Under the road. Archaeological discoveries at Bronze Age Way, Erith.* Bexley Council (1998).