MESOLITHIC, NEOLITHIC AND BRONZE AGE ACTIVITY ON AN EYOT AT ADDINGTON STREET, LAMBETH

Andrew B Powell and Matt Leivers

With contributions by Catherine Barnett, Stephanie Knight and Chris J Stevens

SUMMARY

An excavation by Wessex Archaeology in 2004 at Addington Street, Lambeth, uncovered an Early Holocene palaeosol on a gravel island, or eyot. The palaeosol contained evidence of Mesolithic, Neolithic and Bronze Age activity, consisting of worked and burnt flint, pottery and animal bones. Although bioturbation had moved some of the finds vertically through the palaeosol horizon, blurring the stratigraphical sequence, a concentration of Fengate pottery, oak charcoal and charred hazelnut shells was recovered from a tree-throw hole. The palaeosol was subsequently eroded by riverine activity, which was probably part of the general inundation of the floodplain that took place between the Late Neolithic and the end of the Bronze Age. Later, the site was sealed by a build-up of alluvium.

INTRODUCTION

During the Lateglacial period the Thames in London was a wide, braided river with a series of meandering channels flowing around shifting bars or islands of alluvial sands and gravels. As the flow of the river reduced in the Early Holocene, soils and vegetation developed on the more stable ground along the river's edge, and these relatively dry areas appear to have been favoured locations for people exploiting the varied resources available both along the river bank and in the hinterland beyond (Merrifield 1992; Sidell *et al* 2000; Sidell 2003). With the subsequent inundation of the river margins, related to rising relative sea-levels in later prehistory, this landscape was sealed by alluvium, preserving a record of both human activity and the changing riverside environment.

In 1995, an evaluation at Addington Street, in the London Borough of Lambeth (ADD95) (Wessex Archaeology 1995), identified a deeply buried prehistoric land surface of an eyot under alluvium. This was subsequently excavated during January to April 2004 (ADI04). The excavated area, measuring *c.*18.5m by 9m (centred on NGR 530866 179730), lay approximately 260m east of the river's present southern bank (Fig 1). The underlying solid geology consisted of Eocene London Clay.

The project archive is currently held at the offices of Wessex Archaeology in Salisbury under project reference 55350, and will be deposited with the London Archaeological Archive and Research Centre (LAARC) in due course.

SITE FORMATION PROCESS

Phase 1: Pleistocene terrace gravels and the formation of the eyot (*c.*14000–9500 BC)

The land surface of the eyot sloped down towards the north and west, its top surface

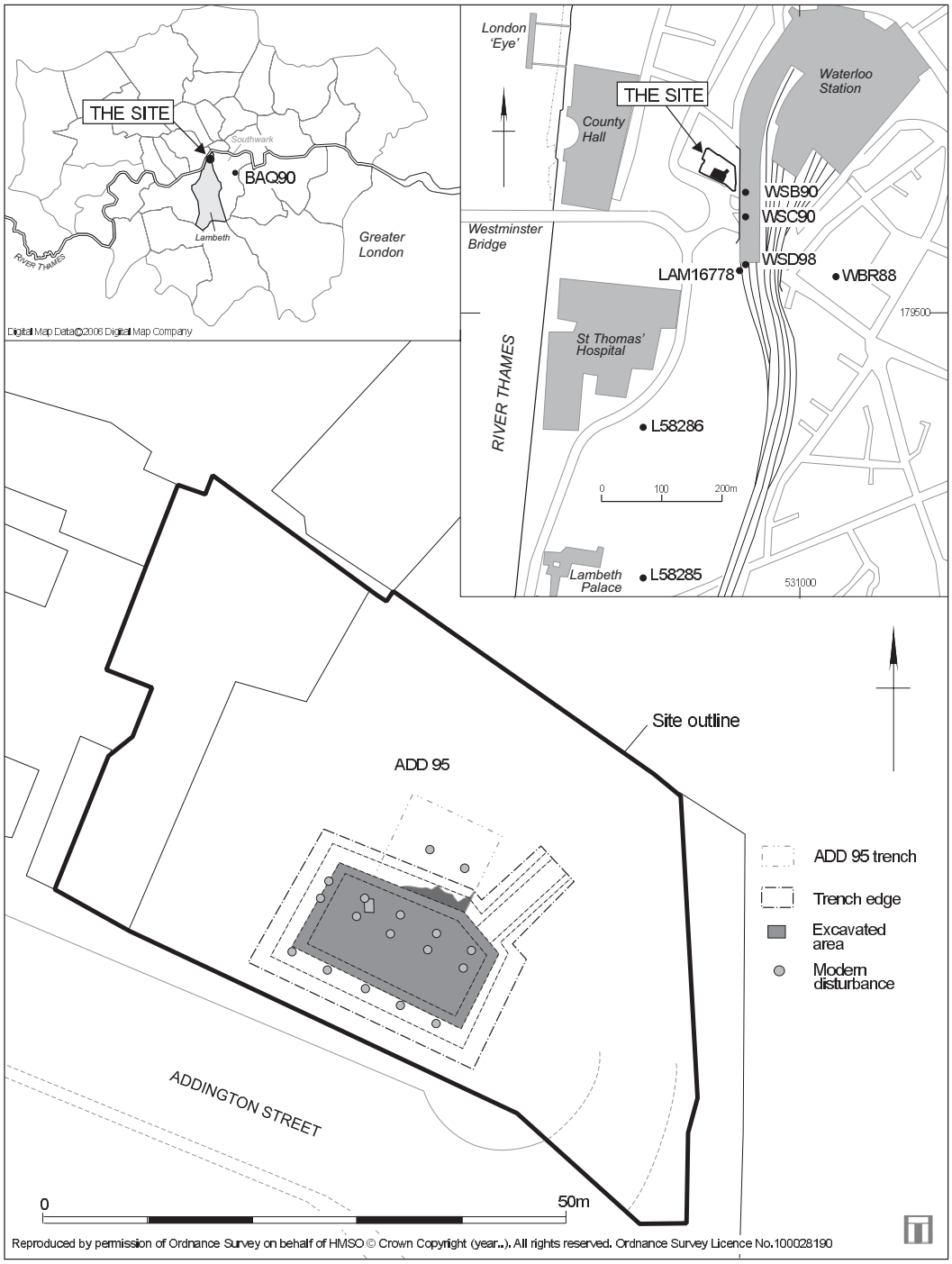

Fig 1. Site location, also showing the position of other sites mentioned in the text; for details see gazetteer in Sidell et al 2002, 56

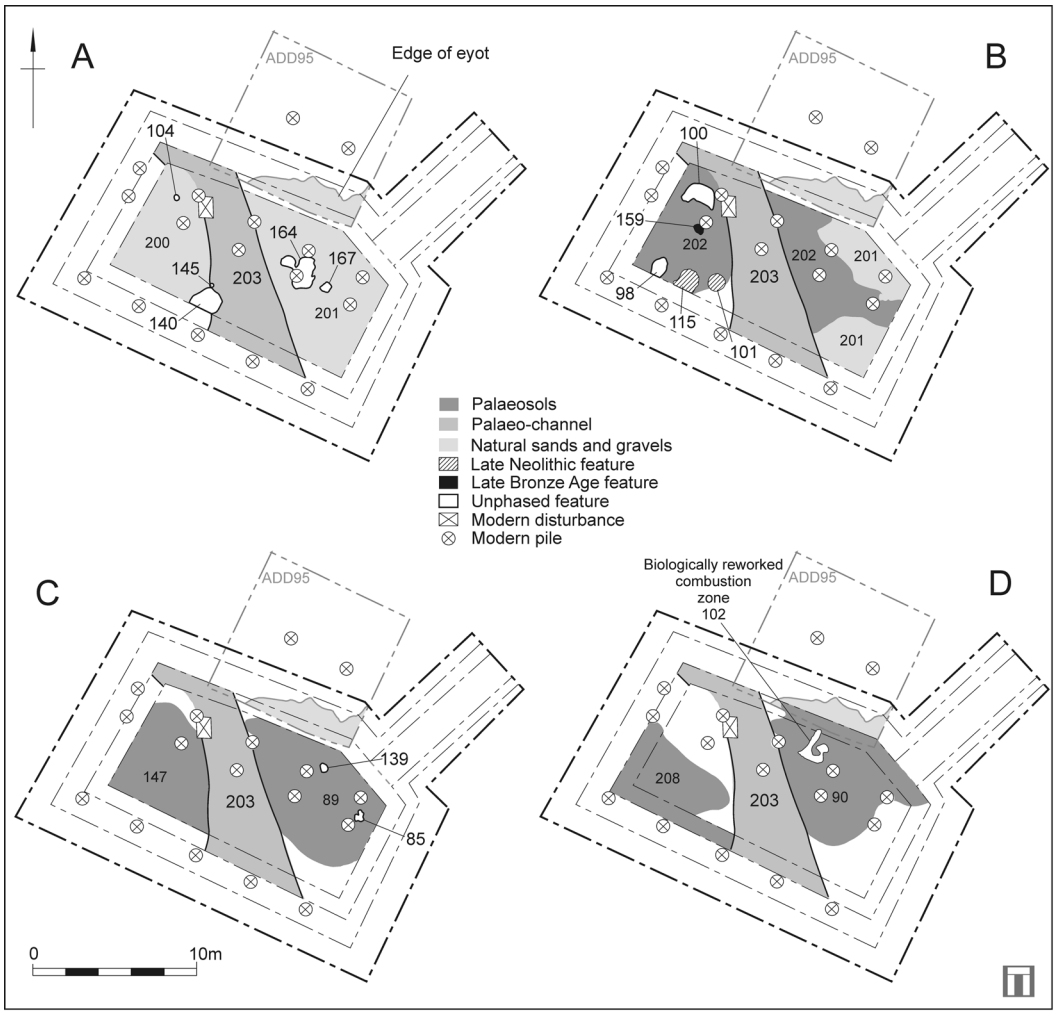

Fig 2. The site sequence. A – natural sand and gravel; B – lower palaeosol-subsoil; C – upper palaeosol-subsoil; D – palaeosol-topsoil

varying from *c.*0.7m to 0.4m above Ordnance Datum (aOD). The coarse sands and gravels (context 200) that formed the eyot were exposed in the western part of the site (Fig 2, A), but they were truncated to the east by a later palaeo-channel (203) running north–south across the centre of the site (the channel joined another to the north, running approximately east–west, recorded during the evaluation). These sands and gravels were part of the late Devensian Shepperton Gravel formation (Bridgland 1994; Gibbard 1994). The northern edge of the eyot had already been identified during the evaluation (Fig 2, A). To the east of the palaeo-channel, this material was overlain by a layer of finer yellow sand (201) (Fig 2, B), possibly the remains of a sandbank washed onto the edge of the eyot margins during the early post-glacial period, the sand deriving from the fluvial fining of exposed gravel deposits upstream.

Phase 2: Palaeosol development (*c.*9500–5000 BC)

The gravel and sand natural of the eyot was overlain by a series of palaeosol horizons, surviving up to 0.4m thick, that developed as its surface stabilised and dried**.** These

Fig 3. The palaeosol showing the one metre square excavation grid; the concrete piles of the previous building remain upstanding; view looking east

comprised coarse loamy soils (sandy loam) (*cf* Swanwick soil series of Hurst association — typical argillic gley soils — as mapped, for example, on the north bank of the Thames in London: Jarvis *et al* 1984). At their base, a lower palaeo-subsoil (202), described in the field as a 'dirty gravel', represents a weathered horizon (Rw) forming in the natural (upper surface between 0.37m and 0.74m aOD) (Fig 2, B). Pedogenesis allowed soil ripening, forming an upper palaeo-subsoil (B or B/C horizon) (context 89, recorded only in the eastern part of the site; upper surface between 0.41m and 0.77m aOD, maximum thickness 0.15m) (Fig 2, C), and a palaeo-topsoil (A horizon) (context 90 at the east and 208 at the west; upper surface between 0.51m and 0.82m aOD, maximum thickness 0.06m) (Fig 2, D). As the soils developed, trees grew on the eyot, as indicated by tree-throw holes.

These palaeosols (and features within them), which in places had been partly eroded by subsequent fluvial activity, contained a range of artefacts. Most of these were flints (almost 2,000 pieces) of mainly Mesolithic (probably Later Mesolithic) date (Table 1), but including also a few of Neolithic date. Also recovered was some very degraded pottery (163 sherds, 375g) dating from the Middle Neolithic to the Late Bronze Age (Table 2), occasional fragments of burnt and unburnt animal bone (138 fragments), and a large quantity of burnt flint (5,780 pieces, over 25kg) recovered from a series of more or less discrete areas that may represent hearths.

In order to establish the spatial distribution, and possible associations, of the artefacts within these layers, the palaeosol profile was excavated in 1m squares, in spits of 0.05m, and with the co-ordinates of each object being recorded (Fig 3). Each spit was sieved through a 5mm mesh for the recovery of further artefacts and debitage, with the exception of part of the palaeo-subsoil in the western half of the site where, due to time constraints, only half of each spit was sieved. This context (147) (Fig 2, C) was recorded as being part of the lower subsoil (202) (Fig

2, B), although the considerable thickness of this horizon, in places over 0.25m, and the large numbers of flints recovered from it, suggest that it may instead have been equivalent to the upper subsoil (89) (Fig 2, C) recorded to the east of the palaeo-channel.

It became clear during the excavation that soil formation processes and biotic activity, such as by roots and worms (bioturbaton), had moved finds vertically within the soil profile, in a small number of instances to the top of the natural gravels, with the result that the vertical separation of artefacts of different periods had been largely lost (although horizontal spatial patterning appears to have been largely preserved). As a result, although minor differences are apparent between the 'topsoil' and 'subsoil' distributions, allowing some suggestion of chronology, in general terms the different layers could not be phased on the basis of their artefactual inclusions. The different recorded layers, therefore, are interpreted as different horizons within the developed (and largely preserved) soil profile, rather than distinct stratigraphical layers or deposits.

Although a comprehensive programme of palaeo-environmental sampling was undertaken on the basis of advice from in-house and external specialists (including English Heritage), the lack of any clear phasing for the horizons within the palaeosol profile has meant environmental materials recovered from them cannot be ascribed to any specific period, and it has not been possible to use the resultant data to address questions of site-formation and use. Monoliths collected for the examination of pollen, foraminifera, diatoms and sediment description, particularly relating to the subsequent estuarine/riverine inundation and the characterisation of the palaeo-environment of the prehistoric tidal regime of the Thames, have not been analysed for the purposes of this report due to constraints on the project budget.

Phase 3: Erosion of the palaeosol (*c.*1100–400 BC)

The palaeosols were subsequently cut through by a high energy erosion channel (203) running north–south across the site (joining another to the north, running approximately east–west) (Fig 2). The subsequent infilling of the channel with fluvial and alluvial deposits suggests the flooding and rapid inundation of the eyot. These deposits contained lenses of possibly residual charcoal (a number of large pieces of unworked timber had been recorded during the evaluation in the channel to the north). The absence from the site of material later than the Late Bronze Age suggests that this process, and the resultant human abandonment, may have occurred during either the Late Bronze Age or the Early Iron Age (*c.*1100–400 BC). The onset of this flooding may be contemporary with the abandonment of Middle/Late Bronze Age fields further downstream in the Jacob's Island and Horselydown areas of Southwark (Bates & Minkin 1999; Sidell *et al* 2002, 44).

Phase 4: Alluviation and reclamation

The flooding eroded the palaeosols to varying degrees across the eyot, before they were entirely sealed by a succession of four layers of light greyish-brown clay (209–212), representing phases of overbank floodplain alluviation, with a maximum depth of 0.7m (upper surface 1.15m aOD), related to the rising relative sea-levels. The alluviation was probably a result of agricultural intensification of Iron Age and later date, equating for instance with that seen in the Romano-British period at Long Lane (McKinley 2006; Allen *et al* 2005) and along the Thames generally (Sidell *et al* 2000).

At the upper interface of the clay there was a mottled deposit indicating the formation of the marsh land surface (212) (at 1.37m aOD). The uppermost archaeological horizon was an organically-rich loam deposit (213), 0.15–0.25m thick (upper surface at 1.37m aOD), representing the desiccated remains of the former marshland, scattered throughout which were artefacts of post-medieval date, with the earliest material possibly dating to the 17th century (not illus). Until the 18th century Lambeth was mostly marshland or fields. On Rocque's map of 1746 the area of the site was a mosaic of fields and orchards criss-crossed by drainage ditches (Hyde 1982, pls 11–12). Following the completion of Westminster Bridge in 1750, the urbanisation of this area began, a process which was

accelerated by the construction of Waterloo Station (1845–48) (Weinreb *et al* 2008, 992, 1009). By 1872 Addington Street had been established and the whole area was already built-up (*Ordnance Survey London Sheet 76, 1872 Waterloo & Southwark*).

FEATURES

Twelve potential features were excavated. Because their definition was poor, it cannot be assumed that they were cut or formed from the levels within the palaeosol profile at which they were first observed, although they are shown in Fig 2 in relation to these levels. They included six features characterised as tree-throw holes (or related tree disturbances). Features 104, 140, 145 and 164 (Fig 2, A) were observed cutting the natural gravel and sand, while features 100 and 115 (Fig 2, B) cut the lower palaeo-subsoil; these latter two both had charcoal-rich fills, 115 also containing sherds of Neolithic pottery. An irregular feature (98) (Fig 2, B) interpreted as a natural erosion channel or gully also cut the lower palaeo-subsoil.

Five features were interpreted as small pits or possible postholes, although none formed any recognisable structure. Feature 167, observed cutting the natural sand in the eastern part of the site (Fig 2, A), was trapezoidal in plan, 0.3m wide and 0.25m deep, with an irregular concave profile and a single fill. Two features were observed in the lower palaeo-subsoil — pit 101 (adjacent to tree-throw hole 115 and also containing a sherd of Neolithic pottery) was 0.45m in diameter and 0.35m deep with a U-shaped profile; feature 159 (which was truncated and possibly disturbed by a modern concrete pile) was oval in plan, measuring 0.7m by 0.5m and 0.35m deep, with moderately steep sides and a slightly concave base (Fig 2, B). Feature 159 had two fills, the upper of which produced a single sherd of Late Bronze Age pottery. Two features (85 and 139) were observed in the upper palaeo-subsoil towards the north-east corner of the site (Fig 2, C); neither contained ceramic dating evidence but both had charcoal in their fills.

A large spread of charcoal, although with no concentration of burnt flint (context 102), was recorded within the palaeo-topsoil towards the northern edge of the excavation (Fig 2, D). Due to its uncertain origin it was characterised as a 'biologically reworked combustion zone'.

MESOLITHIC

In total, 1,993 pieces of predominantly Mesolithic flint were recovered from the site, most of them distributed throughout the palaeosol profile, although a small proportion (149 pieces) came from the features (Fig 2). Because the quality of the raw material was relatively poor, often with inclusions, incipient thermal fractures and a thin worn cortex, it probably derived from river gravel nodules collected from the riverbank. The predominant colour of the visible surfaces was a dark grey-brown to dark brown with some sandier brown pieces. The majority of the assemblage had a cream/white patina (many pieces were entirely patinated); there was a small component of unpatinated, mainly dark brown pieces.

Flint assemblage

Flakes, blades and bladelets formed *c.*94% of the assemblage with only 4% core material and products of core maintenance, and 2% retouched material (Fig 4; Table 1). These figures are comparable to other Later Mesolithic (*c.*7600–4000 BC) and Neolithic sites from Thames-side locations. At Tank Hill Road, Essex, there was less flake/blade material (69%) and a much higher proportion of cores (27%), but retouched tools again accounted for 2% of the assemblage (Leivers *et al* 2007).

Debitage and cores

There were 1,864 pieces of unretouched debitage (flakes, blades and bladelets); 17.7% of flakes were broken, 66.7% of blades, and 63.7% of bladelets. The flake element was notable for the total lack of chips (flakes with a length of <5mm).

There were also 43 cores and 16 core fragments. Of the 30 classifiable cores 83% were blade/bladelet cores (Fig 4.16–17), ranging from 31mm to 56mm in length, of which approximately three quarters had prepared striking platforms; preparation, maintenance and rejuvenation were attested by crested

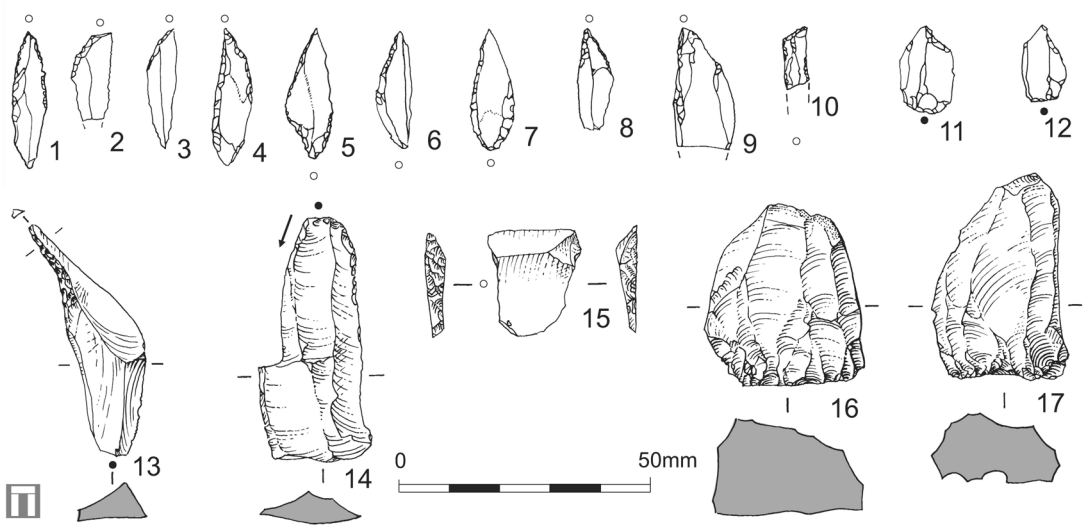

Fig 4. Flints referred to in text: microliths (1–10), microburins (11–12), piercer (13), burin (14), petit tranchet projectile point (15), cores (16–17)

pieces, trimming flakes and core tablets. All the blade/bladelet cores retaining portions of the striking platform showed abrasion and/or isolation, and in general indicate soft hammer or soft stone hammer percussion. Only two cores did not have at least one cortical surface. There were no complete cores of unpatinated flint showing hard hammer percussion, although there were some unpatinated hard hammer core fragments.

Retouched tools

Microliths (Fig 4.1–10) were the most significant classifiable component of the retouched tools in the assemblage (Table 1), comprising 4% of all tools (and 1.1% of the flint assemblage as a whole). Obliquely blunted points (Type A) (Fig 4.1–4) were the largest single class, but did not dominate. Sub-geometric and geometric forms (Type D) (Fig 4.6–7, 10) were almost as common, suggesting a later Mesolithic date supported by the two Horsham points (Type F) (Fig 4.9). Horsham points and other Late Mesolithic microlith types occurred nearby in Addington Street (WSC90) (Sidell *et al* 2002, 17, and fig 16.2).

While the occurrence of obliquely blunted and Horsham points may indicate more than one phase of Mesolithic activity, the occurrence of obliquely blunted points throughout the Mesolithic means that they are not a definite indicator of Early Mesolithic activity. Reynier (1994) analysed the obliquely blunted points from a variety of sites in South-East England and concluded that it is possible to distinguish between an earlier component of the type with an average length of 40mm, and a later component on average 22mm long. On this basis it is possible to suggest that the Addington Street assemblage is more likely to belong to a single phase of Later Mesolithic date, as the nine complete obliquely blunted points have an average length of 23.22mm (length range: 17–31mm).

Manufacture using the microburin technique appears to have been practised exclusively, although only two microburins were recovered (Fig 4.11–12), which may indicate that the area was one of tool use, rather than manufacture. Two further pieces appear to be microliths in the process of manufacture — one a Type D (crescentic) microlith (the shape is complete but there is no blunting), the other a probable unfinished oblique (the proximal end removed via microburin technique, but with no blunting). Three broken microliths were present (two probable crescents and an unidentifiable fragment).

Table 1. The composition of the flint assemblage

Flint types	**No.**	**% of assemblage**	**% of retouched**
Debitage			
Flakes (including broken)	1168	58.60	-
Blades (including broken)	208	10.43	-
Bladelets (including broken)	488	24.48	-
Utilised flakes, blades, bladelets	*(161)*	*(8.07)*	-
Core preparation / rejuvenation pieces	22	1.10	-
Cores / core fragments	59	2.96	-
Microburins (Fig 4.11–12)	2	0.10	-
Retouched tools			
Microliths (Clark 1934)	22	1.11	47.8
Type A (Fig 4.1–4)	*(10)*	-	*(21.7)*
Type D (Fig 4.6–7, 10)	*(9)*	-	*(19.6)*
Type F (Fig 4.9)	*(2)*	-	*(4.3)*
Type G	*(1)*	-	*(2.2)*
Scrapers	2	0.10	4.3
Burins	3	0.15	6.5
Piercers	3	0.15	6.5
Projectile points	1	0.05	2.2
Core tool	1	0.05	2.2
Miscellaneous retouched pieces	14	0.75	30.4
Retouched tools sub-total	*46*	*2.31*	*100%*
Total	1993	100%	

The range of other tools is very limited. The scrapers (both from subsoil 89) are end scrapers (one made on a core-trimming flake), with no particular significance to their location. Two piercers are tentative identifications, although a third is certain (Fig 4.13), being a tertiary blade-like flake retouched at the distal end to a long tapering point. All three came from the subsoil, two associated with the major worked flint cluster on the western side of the palaeo-channel (see below). The same reservations apply to the three burins (all from the upper palaeo-subsoil, 89) (Fig 4.14) — two may be truncations and one dihedral. There are no burin spalls. The core tool is of rod-type, with terminal and lateral crushing and abrasion. Of the retouched material, 30% had miscellaneous undiagnostic retouch, often marginal and located along one edge, that is too consistent to be accidental edge damage and may be the result of use. The retouched tools are far fewer in number than pieces with edge damage indicative of use (46 retouched pieces: 161 utilised). The latter figure is a minimum count; further utilised pieces undoubtedly occur in the assemblage, but as the assemblage was not subject to microscopic examination, it was not possible in some cases to distinguish between deliberate retouch and natural edge-damage.

Catalogue of illustrated worked flint (Fig 4)

1. Microlith A2d (89673002)
2. Microlith A2a (89712803)
3. Microlith A2a (89672801)
4. Microlith A2d (91623001)
5. Microlith C1a (90732801)
6. Microlith D1ai (94)
7. Microlith D3 (98)
8. Microlith A2d (89702801)
9. Microlith F1bii (111)
10. Microlith D6 (90712901)
11. Microburin (147582902)
12. Microburin (147613002)
13. Piercer (89673003)
14. Burin (89732601)
15. Petit tranchet projectile point (111)
16. Bladelet core (94)
17. Bladelet core (94)

Spatial analysis

Spatial analysis of the flint assemblage by square metre was undertaken in an attempt to identify and characterise any foci of activity, with distinctions being made between the distributions of the assemblage as a whole and of specific types separately (in particular cores and microliths), and between the palaeo-subsoil horizons and the palaeo-topsoil.

For the subsoil, the analysis indicated two clear concentrations of worked flint in the central part of the site, probably representing one activity area subsequently bisected by the palaeo-channel. The distributions of cores and microliths corresponded closely to that of worked flint as a whole. In contrast, all three burins came from the eastern edge of the site, in an area with no flint concentrations; although the very small number precludes the identification of a specialised work area, their distribution may still be significant.

There was a similar pattern in the topsoil, although the main concentration of flints east of the palaeo-channel lay some 4m north of that in the subsoil, on the northern edge of the site. The reasons for such a difference are unclear. If the material was clearly later in date it would have had less time to be moved vertically within the soil profile before bioturbation had been affected, and eventually halted, by the flooding of the site. The concentration of material in the topsoil, however, is to a large degree chronologically indistinguishable from that in the subsoil.

Another contrast between the subsoil and the topsoil was the far greater number of microliths in the subsoil compared to the topsoil. While this might suggest a real chronological difference between these two horizons, it could also point to the greater susceptibility of microliths (and micro-debitage) to movement down through the soil profile and to removal from the site by erosion during flooding episodes, and even winnowing by wind.

There were two main concentrations of burnt flint in the subsoil, probably representing the locations of hearths — one at the north-east corner of the site, the other on the western edge of the palaeo-channel. As the western concentration, also recorded in the topsoil, coincides with a concentration of worked flint, this may indicate a relationship between them (although it is likely that this was a location for discard or clearance of worked flint debitage rather than an *in situ* activity area). It is notable, however, that there was no concentration of burnt flint within the biologically reworked combustion zone (context 102) in the palaeo-topsoil (Fig 2, D). Because the burnt flint is undated, it is not possible to associate it specifically with the Mesolithic flints (as opposed to, for example, the Middle Neolithic activity which, as described below, can be shown to have included burning). Nonetheless, it is possible that the Mesolithic activity was undertaken in proximity to hearths.

MIDDLE NEOLITHIC

Tree-throw hole 115, on the south-western edge of the site, produced 33 sherds (144g) of Middle Neolithic Impressed Ware in a flint-tempered fabric (FL2), from its charcoal-rich fill (Fig 2, B). A further 45 sherds were scattered throughout the overlying palaeo-topsoil horizon (208) in the same area (Fig 2, D), and a single sherd was recovered from the middle of three fills in pit 101, immediately adjacent to the tree-throw hole (Fig 2, B).

In total, 149 sherds (341g) in fabric FL2 were recovered from the site (Table 2). Fifteen of them were laminar and appeared burnt, with reddened surfaces, of which four came from the biologically reworked combustion zone (102) recorded in the palaeo-topsoil *c.*6m north-east of the tree-throw hole (Fig 2, D). The remaining 11 burnt sherds were recovered from the soils within 5m of the combustion zone.

Ninety-six of the FL2 sherds (258g) were identified as coming from a single Fengate jar (Fig 5). The remaining sherds were too small to be identified with certainty. The sherds recovered from the tree-throw hole included the jar's base, which had a diameter of 45mm, and much of its lower wall, suggesting that this feature may have been the original location of the vessel's deposition. Most of the sherds from in and around the combustion zone were plain body sherds and angled sherds from the shoulder and neck, suggesting that this feature may have been a second location of deposition, although the sherds had been

Table 2. The prehistoric pottery

Period	Fabric	Description	No.	Weight (g)
Middle Neolithic Impressed Ware	FL1	Fine matrix, only slightly sandy; sparse fine to very coarse moderately well-sorted angular calcined flint	2	9
Middle Neolithic Impressed Ware (inc. Fengate jar)	FL2	Sandy matrix; sparse to moderate very fine to coarse well-sorted calcined flint	149	341
Late Neolithic/Early Bronze Age	GR1	Fine matrix, only slightly sandy; sparse grog	1	3
Late Bronze Age	FL3	Fine sandy matrix; sparse fine calcined flint	5	14
?Late Bronze Age	FL4	Fine sandy matrix; sparse fine calcined flint, sparse grog	6	8

subject to some post-depositional movement. The vessel wall was decorated from the base angle upwards (for an unknown height) with a twisted cord herringbone topped by a single horizontal twisted cord line. The shoulder and lower half of the neck bore vertical twisted cord maggot impressions, and the twisted cord herringbone began again on the upper portion of the neck, continuing onto the collar. The inner side of the rim bore columns of very fine, closely-set horizontal impressions.

Two sherds (9g) from a second Impressed Ware vessel, in a coarse fabric (FL1), were recovered from near the north-east corner of the site, one from the upper palaeo-subsoil (89), the other from the palaeo-topsoil (90) (Fig 2, C & D). They were of indeterminate

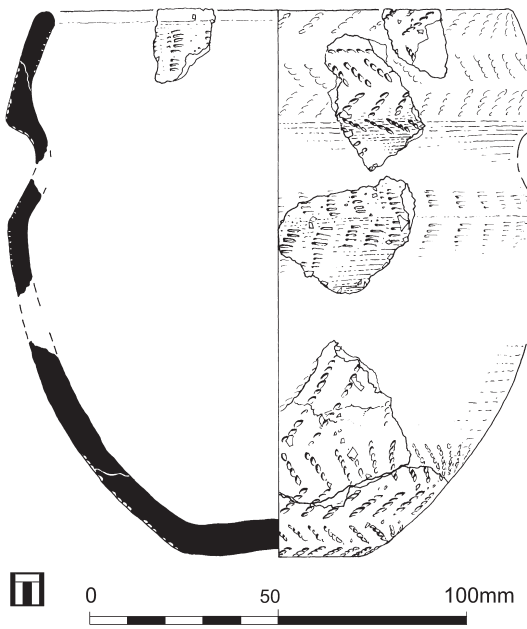

Fig 5. Fengate jar

form and were decorated with rows of staggered raised crescents formed with a thumb-nail or spatulate-ended implement.

Charcoal and charred plant remains

Catherine Barnett and Chris J Stevens

Most of the charcoal (92%) from tree-throw hole 115 was oak (*Quercus* sp.) (Table 3), possibly derived from the fallen tree, which may have been burnt *in situ*. This feature appears similar to the probable remains of a burnt-out tree bole, possibly of Neolithic date, discovered at Hopton Street, Southwark (Ridgeway 1999, 74 & fig 3). The impression is that during the Neolithic the drier areas of the central London Thames floodplain were covered by oak woodland, including some elm, lime, hazel and alder (Sidell & Wilkinson 2004, 42). The charcoal from tree-throw hole 115 was dominated by mature trunk wood, with no twig or roundwood noted; several fragments were twisted and knotwood was common, and some fragments may represent the upper part of mature roots. Small quantities of field maple (*Acer campestre*) and Pomoideae were also identified, as were seven fragments of hazelnut shells (*Corylus avellana*), reflecting the continued exploitation of wild foods during the Neolithic (Moffett *et al* 1989). These are common taxa of deciduous woodlands and were presumably available locally, but such a small and perhaps specifically selected assemblage provides limited information about the nature or structure of the local woodland. A single seed of vetch/tare (*Vicia* sp.) may indicate an open grassy, waste area.

LATE NEOLITHIC AND EARLY BRONZE AGE

A single featureless sherd of grog-tempered pottery (3g) (fabric GR1), recovered from palaeo-topsoil 208 in the western part of the site, appears to be typical of the Late Neolithic or Early Bronze Age (*c.*2250–1500 BC, Table 2).

In addition, a petit tranchet projectile point of Clark's Type A (Clark 1935) (Fig 4.15), recovered from the palaeo-topsoil, is likely to be a Middle/Late Neolithic (post-3400 BC) form (Green 1984). The unpatinated condition of the piece is noteworthy — although patina is not a reliable indicator of age in itself, there does appear to be a division between unpatinated pieces of predominantly hard-hammer percussion, and patinated pieces mostly made with soft hammers. The division is not exclusive, but does indicate a broad technological difference that may have a chronological significance. The presence of the petit tranchet in unpatinated flint supports this contention, although the lack of the platform, bulb and termination make the identification of hammer type impossible.

LATE BRONZE AGE

In the western part of the site, feature 159 produced one piece of flint and seven of burnt flint from the lower fill, and seven pieces of flint and nineteen of burnt flint, as well as a sherd of pottery, from the upper fill (Fig 2, B). The sherd was a simple rounded rim in a flint-tempered sandy fabric (FL3), probably of Late Bronze Age date (*c.*1150–650 BC). Four sherds (13g) in the same fabric were recovered from the palaeo-topsoil across the site. Six sherds in a fabric tempered with grog and flint (FL4), also probably of Late Bronze Age date, were found in a single 1m square near the north-east corner of the site (Table 2).

The recovery of these sherds predominantly from the palaeo-topsoil (90 and 208) may reflect the fact that they would have

Table 3. Wood charcoal identifications from tree-throw hole 115

Identification	No. of fragments	Comments
Acer campestre (field maple)	2	-
Quercus sp. (oak)	65	All mature, no sapwood noted
Pomoideae (pomaceaous fruits)	2	-
Unidentifiable	2	-
Total	71	

had only a limited time to be worked down from the ground surface into the soil profile before biotic activity was halted by fluvial inundation (Fig 2, D).

Animal bones

Stephanie Knight

A small and fairly undiagnostic assemblage of animal bones (138 fragments) was recovered from the palaeosol profile and features, the material occurring in equal amounts in contexts 90 and 89, with only two recovered from context 147. It consisted almost entirely of small, unidentified fragments, with a minimum number of one individual each for cattle and sheep/goat. Medium mammal and large mammal bones were noted in the fragments that could not be identified to species, with a predominance of large mammal bones. Only ten bones could be aged, nine of which are tentatively assigned as cattle and one as sheep/goat, indicating a Neolithic or later date. Two cattle specimens could be aged to around 12 months, suggesting that cattle was not exclusively used for the supply of milk, but also provided meat.

Forty per cent of the bone was in fair condition, with a slightly smaller proportion in poor condition and a smaller but still significant proportion (28%) in very poor condition. No gnawing by canids or rodents was in evidence and there was no evidence for butchering marks. However, 65% of the assemblage had been burnt, mostly at very high temperatures so contributing to their fragmentation, possibly due to food preparation or to the use of these remains as fuel. Two of the cattle long bones in the palaeo-topsoil (90) may have been deposited in articulation, indicating that some material may have been directly deposited and not extensively reworked.

DISCUSSION

The site at Addington Street has similarities to other early prehistoric sites in the Boroughs of Southwark and Lambeth (Sidell *et al* 2002; Lewis 2000) (Fig 1) and beyond (*eg* Thorney Island, Westminster; Thomas *et al* 2006). These similarities include the preservation of Early Holocene land surfaces as charcoal-rich sandy deposits containing artefactual assemblages that are overwhelmingly Mesolithic in date, but which include a small Neolithic component, and the absence, due to erosion, of later prehistoric stratigraphy. Isolated, poorly defined features with doubtful stratigraphic associations are also common. The phases of site formation at Addington Street, which include soil formation and a distinct erosion episode, do not sit easily, however, within previous models for estuarine development in southern England and the broad chronological evolution of the lower Thames valley (*eg* Long *et al* 2000; Bates & Whittaker 2004), as these primarily involve sequences of peat formation (absent at Addington Street) alternating with mineralogenic alluviation.

Eyots situated within the braided Thames river channel would have provided attractive locations for mobile Mesolithic hunter-gathers exploiting the new temperate environment. Food resources could have included woodland species such as aurochs, elk, red deer, roe deer and wild pigs grazing the floodplain margins, as well as birds and fish from the Thames estuary. There would have been a wide range of plant resources, including hazelnuts (which continued to be exploited during the Neolithic).

The impression is that these riverine sites were probably occupied over a long period of time, but on an intermittent or seasonal basis. The flint assemblage from Addington Street, although containing a limited range of tools, must be considered to be only a partial sample of more extensive Mesolithic activity within the immediate vicinity of the site. In *c.*1910, ground works on the site of County Hall in an area of former marshland produced three perforated antler axes and an antler 'netting' needle of Mesolithic date (Wymer 1977, 192). Previous excavations in Addington Street (WSB90/WSC90: Filer 1991; Sidell *et al* 2002; and ADD95) have recovered worked flint of a similar character, as well as Later Mesolithic features at WSC90 (Fig 1). The flint assemblage, however, appears to be later than that from some of the other riverine sites, such as the Earlier Mesolithic lakeside settlement site at the B&Q depot in Bermondsey (BAQ90), which produced 1,500 struck flints, and where several hearths were recorded (Sidell *et al* 2002). Later Mesolithic assemblages have been recorded in north

Southwark (*eg* Cowan 1992) and Thorney Island, Westminster (Thomas *et al* 2006, 25–8), as well as further downstream, as at Fords Park Road, Canning Town (Corcoran *et al* forthcoming) and Erith (Taylor 1996). Despite the quantities of burnt flint at Addington Street, there was no definite association between the concentrations of worked flint and any hearth.

Interestingly, the local Early Neolithic communities often chose similar locations, suggesting that they were exploiting many of the same resources (Sidell *et al* 2002, 22). The presence of Neolithic tree-throw holes may suggest that the area was dry enough to be wooded. The small animal bone assemblage, which is assumed to be of Neolithic or later date, was dominated by cattle. A concentration of Neolithic material, including flintwork, Peterborough Ware pottery, burnt flint and animal bone, as well as some features described as pits and (potentially structural) postholes, have also been previously recorded in sites around Addington Street (WSC90 and WSB90), suggesting the presence of a settlement site in the locale. A possible Middle Neolithic pit has been recorded on the foreshore at Chambers Wharf, Bermondsey (Cotton & Green 2004, 145). Neolithic flints were also recorded at Upper Marsh Street to the south-east (WSD89) (Filer 1991). However, given the overall dearth of Neolithic material in this area of London, the relatively large Addington Street ceramic assemblage is of some significance, contributing to localised concentration in the area (Cotton & Johnson 2004, fig. 15.5). While Mortlake bowls are the more common form of Peterborough Ware in Southwark and Lambeth, Fengate Ware is often difficult to isolate, and much material is best described as Mortlake/Fengate Ware because of its incompleteness. The nature of the activity on the site is unclear — no cereal remains were recovered from tree-throw hole 115, and the only evidence of subsistence activity (excluding the undated animal bone) was provided by the fragments of hazelnut shells.

The limited evidence for Late Neolithic/Early Bronze Age activity reflects that from nearby sites, such as the transverse, barbed-and-tanged and triangular arrowheads from Southwark and Lambeth (Sidell *et al* 2002, table 7, 77–8), pottery from Lambeth Palace North Garden (L58286: Richardson 1986), and the possible Collared Urn from WSB90. The dating of the Late Bronze Age material is also tentative, but consistent with a period of activity previously recorded at Upper Marsh Street (WSD89) and Lambeth Palace Kitchen Gardens (L58285: Richardson 1986). Its presence suggests a Late Bronze Age *terminus post quem* for the site's inundation.

ACKNOWLEDGEMENTS

The excavation was commissioned by CgMs Consulting, acting on behalf of Galliard Homes Limited, and the support and advice of Duncan Hawkins, of CgMs, is gratefully acknowledged. It was directed for Wessex Archaeology by Brigitte Buss and managed by Lawrence Pontin. The charcoal was analysed by Dr Catherine Barnett, the charred plant remains by Dr Chris Stevens and the animal bone by Stephanie Knight. The illustrations were drawn by S E James. The authors are grateful to Jon Cotton for his input during the compilation of this paper.

p.bradley@wessexarch.co.uk

BIBLIOGRAPHY

Allen, M J, Scaife, R, Cameron, N, & Stevens, C J, 2005 '211 Long Lane, Southwark: Part 1. Prehistoric Neckinger-side environment and its implication for prehistoric communities' *London Archaeologist* 11(3), 73–81

Bates, J, & Minkin, J, 1999 'Lafone Street, Southwark – prehistoric farming and a medieval bridge' *London Archaeologist* 8(12), 325–30

Bates, M R, & Whittaker, K, 2004 'Landscape evolution in the Lower Thames Valley: implications for the archaeology of the earlier Holocene period' in Cotton & Field 2004, 50–65

Bird, D G, Crocker, G, & McCracken, J S, 1991 'Archaeology in Surrey 1990' *Surrey Archaeological Collections* 81, 147–67

Bridgland, D R, 1994 *The Quaternary of the Thames* Geological Conservation Review Series 7, London

Clark, J G D, 1934 'The classification of a microlithic culture: the Tardenoisian of Horsham' *Archaeological Journal* 90, 52–77

Clark, J G D, 1935 'Derivative forms of the *petit tranchet* in Britain' *Archaeological Journal* 91, 32–58

Corcoran, J, Eastbury, E, Cotton, J, Scaife, R C, Whittaker, J E, Macphail, R I, Cameron, N, & Stewart, K, forthcoming 'A prehistoric eyot at Canning Town, Newham: a geoarchaeological investigation' *Essex Archaeology and History*

Cotton, J, & Field, D, (eds) 2004 *Towards a New Stone Age: Aspects of the Neolithic in South-East England* CBA Res Rep 137, York

Cotton, J, & Green, A, 2004 'Further prehistoric finds from Greater London' *Trans London Middlesex Archaeol Soc* 55, 119–51

Cotton, J, & Johnson, R, 2004 'Two decorated Peterborough bowls from the Thames at Mortlake and their London context' in Cotton & Field 2004, 128–47

Cowan, C, 1992 'A possible mansion in Roman Southwark: excavations at 15–23 Southwark Street, 1980–1986' *Trans London Middlesex Archaeol Soc* 43, 3–191

Filer, J, 1991 'Excavation round-up 1990, part 2: London boroughs' *London Archaeologist* 6(11), 301–9

Gibbard, P L, 1994 *Pleistocene History of the Middle Thames Valley*, Cambridge

Green, S, 1984 'Flint arrowheads: typology and interpretation' *Lithics* 5, 19–39

Hyde, R, (ed) 1982 *The A–Z of Georgian London* London Topographical Society Pub No. 126, London

Jarvis, M G, Allen, R H, Fordham, S J, Moffat, A J, & Sturdy, R G, 1984 *Soils and their Use in South East England* Soil Survey of Great Britain Bulletin 15, Harpenden

Leivers, M, Barnett, C, & Harding, P, 2007 'Excavation of Mesolithic and Neolithic flint scatters and accompanying environmental sequences at Tank Hill Road, Purfleet, Essex, 2002' *Essex Archaeol and History* 38, 1–44

Lewis, J, 2000 'The Upper Palaeolithic and Meso-lithic periods' in Museum of London Archaeology Service *The Archaeology of Greater London: an Assessment of Archaeological Evidence for Human Presence in the Area now covered by Greater London*, London, 46–62

Long, A J, Scaife, R G, & Edwards, R J, 2000 'Stratigraphic architecture, relative sea level, and models of estuary development in southern England: new data from Southampton Water' in K Pye & J R L Allen (eds) *Coastal and Estuarine Environments: Sedimentology, Geomorphology and Geoarchaeology* Geological Society London Special Publications 175, London, 253–79

McKinley, J, 2006 'Excavations at 211 Long Lane, Southwark Part 2: Romano-British pasture to post-medieval tanneries' *London Archaeologist* 11(4), 87–94

Merrifield, N, 1992 'Predicting the unexpected: prehistoric sites recently discovered under alluvium in central London' in S P Needham & M G Macklin (eds) *Alluvial Archaeology in Britain* Oxbow Monograph 27, Oxford, 261–70

Moffett, L, Robinson, M A, & Straker, V, 1989 'Cereals, fruits and nuts: charred plant remains from Neolithic sites in England and Wales and the Neolithic economy' in A Miles, D Williams & N Gardner (eds) *The Beginnings of Agriculture* BAR International Series 496, Oxford, 243–61

Reynier, M J, 1994 'A statistical analysis of ten early Mesolithic sites in south-east England' in N Ashton & A David (eds) *Stories in Stone* Lithic Studies Society Occasional Paper 4, London, 199–205

Richardson, B, 1986 'Excavation round-up 1985' *London Archaeologist* 5(6), 157–64

Ridgeway, V, 1999 'Prehistoric finds at Hopton Street in Southwark' *London Archaeologist* 9(3), 72–6

Sidell, J, 2003 *Holocene Sea Level Change and Archaeology in the Inner Thames Estuary* unpub PhD thesis, Department of Geography, Durham University

Sidell, J, & Wilkinson, K, 2004 'The central London Thames: Neolithic river development and floodplain archaeology' in Cotton & Field 2004, 38–49

Sidell, J, Cotton, J, Rayner, L, & Wheeler, L, 2002 *The Prehistory and Topography of Southwark and Lambeth* MoLAS Monograph 14, London

Sidell, J, Wilkinson, K, Scaife, R G, & Cameron, N, 2000 *The Holocene Evolution of the London Thames: Archaeological Excavations (1991–1998) for the London Underground Limited, Jubilee Line Extension Project* MoLAS Monograph 5, London

Taylor, M, 1996 *Time and Tide: a Study of a Site at Erith in the Thames Estuary* unpub BA dissertation, University of Sheffield

Thomas, C, Cowie, R, & Sidell, J, 2006 *The Royal Palace, Abbey and Town of Westminster on Thorney Island: Archaeological Excavations (1991–8) for the London Underground Limited Jubilee Line Extension Project* MoLAS Monograph 22, London

Weinreb, B, Hibbert, C, Keay, J, & Keay, J, 2008 *The London Encyclopaedia* (revised 3rd edn), London

Wessex Archaeology 1995 *Addington Street Annexe Site, Addington Street, London SE1: Archaeological Field Evaluation Report* unpub report Wessex Archaeology

Wymer, J J, (ed) 1977 'Gazetteer of Mesolithic sites in England and Wales' in C J Bonsall and J J Wymer (eds) *Gazetteer of Mesolithic Sites in England and Wales with a Gazetteer of Upper Palaeolithic Sites in England and Wales* CBA Res Rep 20, London, 1–416