Chapter 5

Late Upper Palaeolithic and Mesolithic: Resource Assessment

by Gill Hey

(County contributions by Catherine Barnett, Mike Farley, Julie Gardiner, Gill Hey, Rebecca Loader and Alison Roberts; palaeo-environmental contribution by Michael Allen)

Introduction

History of research

The history of research into the Late Upper Palaeolithic (LUP) and Mesolithic of the Solent-Thames region has been very variable and the extent of our understanding of settlement is thus extremely patchy. The Kennet Valley in Berkshire and the Greensand of Hampshire are amongst the best-known Mesolithic landscapes in Britain, and assemblages from the Greensand have provided the basis for national flint chronologies for the period. In contrast, relatively little is known about the Mesolithic of Oxfordshire and large parts of Buckinghamshire, with few excavations targeted at sites of this period (Fig. 5.1).

Even in Berkshire, most work on LUP and Mesolithic sites has been concentrated in the middle stretches of the River Kennet, focusing on a few large sites such as Thatcham and Wawcott (Wymer 1962; Lobb and Rose 1996), as this is where the pressure for gravel and other development was originally most intense. Research projects have followed because of the known quality of the resource. Excavation in advance of development in the lower Kennet around Reading, survey work on the Downs and survey and research excavation in the Upper Kennet Valley, mostly undertaken more recently, have all revealed finds and sites of 10th to 5th millennium date (Richards 1978; Ford 1987a; Whittle 1990; S Allen 2005). These tend to confirm the clustering of activity in the middle Kennet, at least for the early Mesolithic period.

Similarly, the highly visible scatters of Mesolithic flintwork on the light ploughsoils of the Hampshire Greensand attracted collectors from the 19th century onwards (Rankine 1953; Gardiner 1984). These substantial assemblages, sometimes associated with hearths, were compiled into a database and studied by Roger Jacobi, forming the basis for his chronology of the British Mesolithic (Jacobi 1978; 1981; Wymer 1977), which has been little altered since (Reynier 2000). It is only in recent decades that work in other parts of the county, especially around the Solent and largely related to development control work, has started to redress this imbalance (Allen and Gardiner 2000; Gardiner 2002; Field 2008).

A particular concern with coastal erosion, and a growing recognition of the extent and good preservation of the submerged Mesolithic landscape, has also led to work around the coasts of both Hampshire and the Isle of Wight and, more recently, underwater (Allen and Gardiner 2000; Momber 2000; Plate 5.1). The recent publication of the project at Wootton-Quarr on the north coast of Wight funded by English Heritage is of particular significance (Tomalin *et al.* 2012). Other work on LUP and Mesolithic sites on the Isle of Wight has tended to focus on the eroding cliff lines to the south-west of the island, the Medina Estuary or the Greensand to the south of the island (Poole 1936; Rankine 1956; Palmer 1977). Early work suggested that there were two groups present: one using heavy tranchet axes, gravers and a few microliths on the coast, and another on the Greensand utilising lighter axes, and more microliths and petit tranchet arrowheads (Poole 1936). More recently, Palmer suggested that these assemblages were, in fact, utilised by a single population, but with variation in finds reflecting different activities (Palmer 1977).

Traditionally, most work in Buckinghamshire has been conducted in the south of the county, on the outskirts of London, especially related to gravel extraction in the lower Colne Valley. The site at Iver is particularly well-known (Lacaille 1963), but the quality of preservation of both Late Upper Palaeolithic and Mesolithic sites in the Denham and Uxbridge area (straddling the Buckinghamshire/Middlesex county boundary) has only recently become apparent. Exceptions are the collections made by Peake at Kimble Farm, Turville close to the Oxfordshire border (Peake 1917) and work undertaken at the important site of Stratford's Yard, Chesham (Stainton 1989). A few Chilterns upland sites have also been investigated, for example Bolter End (Millard 1965). More recently, Mesolithic material has emerged as the result of gravel extraction and flood alleviation schemes near the Thames in the Eton/Maidenhead area (Allen 1998; Hey and Barclay 2007;Allen *et al.* 2013).

In Oxfordshire, only two major sites have been excavated in recent years specifically because of their Mesolithic component: New Plantation, Fyfield and Tubney and Windmill Hill, Nettlebed (Bradley and Hey 1993; Boismier and Mepham 1995). LUP and Mesolithic material has also come from other major excavations within the Thames Valley, for example Gravelly Guy, Stanton Harcourt and Gatehampton Farm, Goring (Holgate 2004; Brown 1995) and sustained smaller-scale

Figure 5.1 Late Upper Palaeolithic and Mesolithic sites mentioned in the text

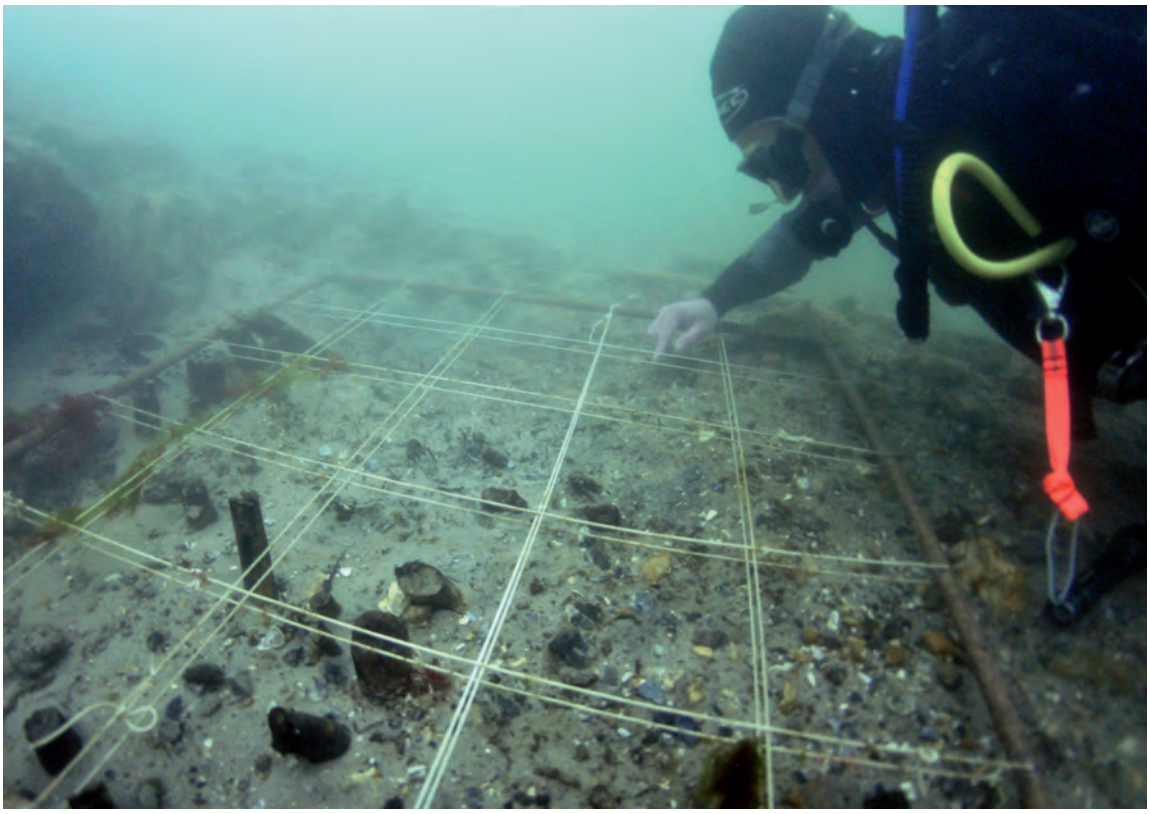

Plate 5.1 Underwater archaeology in progress at Bouldnor Cliff off the Isle of Wight, *copyright Richard Brooks, Maritime Archaeology Trust*

investigations and collections around Abingdon (Abingdon Area Archaeological and Historical Society various), all of these largely the result of gravel extraction. Otherwise, activity is generally deduced from fieldwalking material, with a concentration of sites on the Corallian Ridge and more sparse spreads on the Cotswolds and the Downs, or finds that have been dredged from the Thames (Case 1952-3; Holgate 1988b; Ford 1987b).

Chronology

Conventional sequence and artefact chronologies

The start of the Late Upper Palaeolithic is traditionally dated to the end of the Last Glacial Maximum (LGM; around 13,000 BP), a time when only modern humans were present in Britain (Barton 1997). Three main industrial traditions are currently recognised for this period: Creswellian (*c* 13,000–12,000 BP), Final Palaeolithic (*c* 12,000–10,700 BP) and Long Blade or Epipalaeolithic (*c* 10,700–9,800 BP), and all of these have direct affinities with industries on the European mainland, to which south-east England was attached at that time. The Creswellian represents the earliest reoccupation of Britain following the LGM (Barton *et al.* 2003). The diagnostic artefact for this industry is the bi-truncated angle-backed 'Cheddar point', although it can also be defined on the basis of technological features such as the presence of blades with butts *en éperon*. Although sites were originally believed to be situated at upland margins, more finds are now coming to light from open-air locations in southern England; for example, the lower half of a Cheddar point has been found at Mingies Ditch, Oxfordshire (Barton 1993). (Plate 5.2)

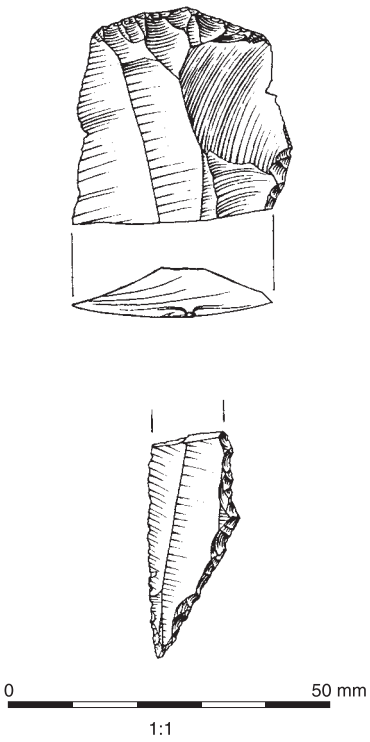

Plate 5.2 Upper Palaeolithic flints from Mingies Ditch, Hardwick, Oxon., *copyright OA*

Final Upper Palaeolithic industries appear to be much more regionally diverse (Barton and Roberts 1996), with a greater variety of tools than in the Creswellian phase, including curve-backed, straight-backed, tanged and Penknife points and blade-end scrapers. Long Blade assemblages seem to occur at the very end of the Pleistocene and beginning of the Holocene, and may overlap with the earliest Mesolithic. They were defined for Britain by Barton and are mainly found in floodplain or river valleys close to the sources of high-quality, *in-situ* flint (Barton 1998). Unsurprisingly, the technology is characterised by the production of very long blades, commonly heavily edge-damaged blades known as 'bruised blades', but assemblages also include end scrapers and burins as well as microliths (Barton and Roberts 2004). (Plate 5.3)

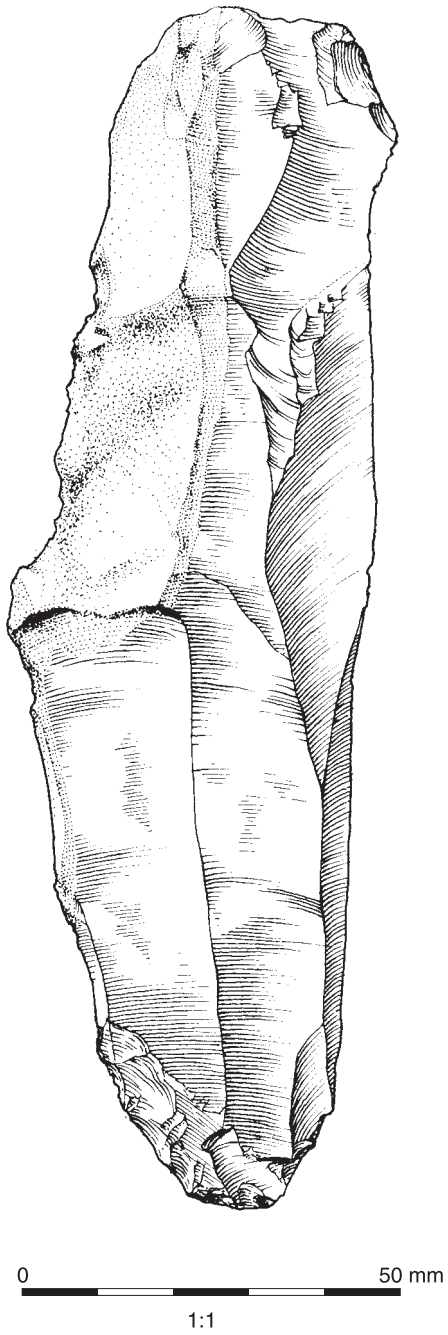

Plate 5.3 Long blade from Gatehampton Farm, Oxfordshire, *copyright OA, drawn by Jeff Wallis*

Diagnostically early Mesolithic assemblages are represented by simple microlith forms (oblique points and broad triangles) with a range of other equipment, including end scrapers, microdenticulates, burins, awls and bifacially-flaked axeheads or adzes (ibid., 342). Where assemblages are of reasonable size, it may be possible to distinguish chronological traits within early Mesolithic groups (Reynier 1998). Earliest, 'Star Carr' assemblages, represented by microliths with broad oblique points, isosceles triangles and trapezoids, have been found as far south as Thatcham (III), Berkshire. Slightly later, 'Deepcar' assemblages, perhaps dating from around 9,400 years ago, have more slender oblique points, with few isosceles triangles and trapezoids. Later early Mesolithic 'Horsham' assemblages (after around 9,000 years ago), with distinctive basally-retouched microlith forms, are more common and widely dispersed (Barton and Roberts 2004).

Small geometric and more varied microlith forms are the defining characteristics of late Mesolithic assemblages; smaller microliths, and especially rod forms, are seen as indicative of very late dates (*ibid.*). In addition, adzes and axes seem more common on later Mesolithic sites (Gardiner 1988).

There are, however, many sites that are of uncertain date within the Mesolithic period because they lack diagnostic elements, including many of the lithic scatters listed in county HERs. Additionally, there can be serious difficulties in distinguishing between late Mesolithic and early Neolithic assemblages that lack the diagnostic Mesolithic microliths or Neolithic leaf-shaped arrowheads.

Scientific dating

Late Upper Palaeolithic

An OSL date of 10,250 BC ± 1,100 years came from the Long Blade site at Crown Acres in the Kennet Valley, from sediments enclosing the assemblage (Barton *et al.* 1998).

The Long Blade site at Three Ways Wharf, nearby in Middlesex, yielded horse bone dating to 10650-9650 and 10050-9250 cal BC (OxA-1788: 10270±100 BP; OxA-1902: 10010±120 BP), and peat overlying a newly-discovered site at Sanderson in the lower Colne Valley was dated to 8710–8340 cal BC (Lab no: 9300±50 BP), providing a *terminus ante quem* for that site (Lewis with Rackham 2011; Farley 2009, 16).

Early Mesolithic

A number of conventional and AMS dates exist, in particular for Thatcham. These show that activity associated with a Mesolithic material culture started in the area within 300 years of the start of the Holocene (10,900-9,700 cal BC; Q-659: 10,365±170 BP; Wymer 1962), comparable with Star Carr in the Vale of Pickering (Mellars and Dark 1998; Dark 2000a), the two forming the earliest Mesolithic sites recorded in Britain. It is suggested activity may have existed even

earlier in the Holocene at Thatcham and at the nearby Chamberhouse Farm, with Final Upper Palaeolithic culture continuing beyond the end of the Lateglacial (Barton and Roberts 2004; Wessex Archaeology 2005a). Overlap of the two cultures or continuity in settlement is feasible in places if not proven. Chisham provides a complete list for Berkshire (http://oxfordarchaeology.com/research-projects-by-name/217-Solent-Thames-research-framework).

In Buckinghamshire, a date of 9150-8730 cal BC (OxA-14088: 9540±45 BP) was obtained for an aurochs bone associated with a lakeside flint scatter at the Eton

Plate 5.4 Early and late Mesolithic microliths from Eton Rowing Course, *copyright OA*

Table 5.1 Radiocarbon dates for Mesolithic sites in Hampshire (Gardiner)

Site	*Context*	*Material*	*Lab ref*	*BP determination*	*Date cal. BC at 2 sigma*
Oakhanger VII	Level II	hazelnuts	Q1489	9225±200	9200-7900
	Level II	pinus charcoal	Q1491	9100±160	8750-7750
	Level II	pinus charcoal	Q1493	9040±160	8700-7600
	Level II	pinus charcoal	Q1490	8995±160	8600-7600
	Level II	pinus charcoal	Q1492	8975±1600	8550-7600
	Level II	pinus charcoal	Q1494	8885±160	
	8450-7550				
		scots pine charcoal and hazelnut	F 68	6380±115	5650-5050
		scots pine charcoal and hazelnut	F 69	6380±110	5650-5050
Longmoor	L1, podsol	hazelnut	OxA-376	8930±100	8300-7700
	L3 podsol	hazelnut	OxA 377	8760±110	8250-7550
	L3	oak/birch charcoal	HAR 4475	6060±110	5300-4700
Broom Hill, Braishfield	base of Pit III	wood charcoal	Q1192	8540±150	8200-7100
		wood charcoal	Q1528	8515±150	8000-7000
		wood charcoal	Q1383	8315±150	7650-6800
	top infill of Pit III	wood charcoal	Q1460	7750±120	7050-6350
	above Pit III	wood charcoal	Q1191	7220±120	6400-5800
	Pit II hearth	wood charcoal	Q1128	6535±125	5720-5260
Oakhanger V		pinus sylvestris charcoal	BM 221	7869±104	7100-6500
Micheldever R4	pre barrow	oak charcoal	HAR 1043	6904±170	6200-5450
Wakefords Copse	hearth in pit 8	charcoal	HAR 233	5680±120	4800-4250

Rowing Course, and a date of 9220-8740 cal BC (OxA-9411: 9560±55 BP) from adjacent peat deposits that included charred bullrush seeds and stems (Allen *et al.* 2013).

Eleven dates also come from Hampshire:

- Six dates come from Oakhanger VII, one 9200-7900 cal BC (Q1489: 9225±200 BP) and others all falling between 8750 and 7550 cal BC (Q1490-4; Table 5.1).
- Two dates from Longmoor Inclosure I, Hampshire for Horsham assemblages: 8300-7700 and 8250-7750 cal BC (see Table 5.1)
- Three dates around the middle of the 8th millennium come from Broom Hill, from the bottom of a pit (Pit III, see Table 5.1)

  (note that a number of these come from wood charcoal whose species is not specified).

Late Mesolithic

Although few radiocarbon dates are available, these suggest an overlap between diagnostically early and late assemblages.

At Broom Hill, an assemblage of microliths and other late Mesolithic types overlay the layer at the bottom of the pit yielding the three dates around the middle of the 8th millennium cal BC listed above. Charcoal from the layer above provided a date of 7050-6450 cal BC (Q-1460: 7830±120 BP). Two more dates from above Pit III and from Pit II hearth are mid 7th to early 6th millennium and mid to late 6th millennium respectively (Table 5.1).

One result from Oakhanger V is very late 8th or 7th millennium in date and two from Oakhanger VII lie in the mid and late 6th millennium (Table 5.1).

A late 7th to mid 6th millennium date came from below the Micheldever R4 barrow, and a hearth in a pit at Wakeford's Copse yielded a 5th millennium date (*ibid.*).

A tree bole at the base of a cliff at Bouldnor on the Isle of Wight produced a date of 6430-6120 cal BC (GU-5420: 7440±60 BP), and a *terminus ante quem* is provided at Wootton-Quarr by a sample of charcoal from sediment overlying the flint scatter of 3630-3110 cal BC (OxA-7183: 4645±65 BP).

There are late 6th and 5th millennium dates from Ascott-under-Wychwood on roe deer from an early Neolithic midden and beech charcoal from a posthole (Bayliss *et al.* 2007). A very late Mesolithic date of 4360-3780 cal BC (BM-449: 5260±130 BP; Froom 1972) came from a hearth at Wawcott (Lobb and Rose 1996).

In Buckinghamshire, late Mesolithic radiocarbon dates have come from Stratford's Yard, Chesham, where a *bos primigenius* bone was dated to 5010-4500 cal BC (BM-2404: 5890±100 BP; Stainton 1989), from the Eton Rowing Course, where a tree-throw hole containing struck flint was dated to 5220-4940 cal BC (OxA-9412: 6130±45 BP), and from the Misbourne Railway Viaduct site, on the floor of the Misbourne, where seven radiocarbon dates were obtained. Three of these were late Mesolithic (OxA-601: 6190±90 BP; OxA-618: 5970±100 BP; OxA-619: 6100±120 BP), but others produced both very early, late glacial and post-Mesolithic results.

Environment and geoarchaeology

River valleys

Major river valley corridors have been the location of important Late Upper Palaeolithic and Mesolithic sites, as described below. In many cases these were buried under a mantle of alluvium, albeit sometimes thin, retarding discovery and indicating that other significant sites may be present beneath blankets of alluvium in other less-well explored areas (eg M Allen 1991b, 51). Importantly, those alluvial and riverine contexts that are associated with peats or tufas, as in the Kennet valley, provide key stratigraphic sequences from which to obtain geo-archaeological information about sites and their regional context, and to extract a detailed stratified palaeo-environmental record (pollen, snails, ostracods, etc). The concentration of sites in river valleys demonstrates the attraction of such localities, but the precise nature of activity in its ecotonal setting, and how it relates to the local environmental resources and the wider landscape, is rarely fully addressed.

Where they survive, faunal remains can provide further key information about animal resources and carcass preparation, and of Palaeolithic and Mesolithic life-styles. Soil micromorphological evidence at Nea Farm, Avon valley, provides indication of soil development in the warmer Alleröd to early Younger Dryas periods, and includes evidence of on-site activity. This lies on weakly calcareous soils and drift geology leading to poor to no bone preservation and no shells (land snails), but other areas may well exist in which such palaeo-environmental and economic data will survive, perhaps in the Middle Kennet and Lower Colne Valleys. The recently published site at Three Ways Wharf, Uxbridge, just outside our region, certainly had good bone preservation and provided considerable faunal information (Lewis with Rackham 2011).

Current coastal and sub-marine

Geo-archaeologically, sites in present day near-coastal, coastal, intertidal and submarine locations provide whole physical lowland, terrestrial landscapes that have rarely been satisfactorily brought into the reconstruction of Mesolithic lifeways. Just outside the Solent-Thames area, work off the Sussex coast has recovered habitable, dated Mesolithic land surfaces, containing charcoal at *c.* -36 m below current sea level. Large portions of the sea-bed in the later Upper Palaeolithic

and earlier Mesolithic were large lowland landscapes capable of supporting whole ecosystems and hunting-foraging communities. Often trapped within the sediments is stratified detailed palaeo-environmental information which allows detailed and imaginative reconstruction of large topographic zones virtually never considered in studies of Mesolithic activity.

Clay and other lowlands

In-situ palaeo-environmental evidence beyond the river corridors, both *sensu stricto* and *sensu lato*, is desperately lacking. Recent finds of Late Upper Palaeolithic sites at Nea Farm, Somerly, near Ringwood, Hampshire (Barton *et al.* 2009) and just outside the Solent-Thames area, at Deer Park Farm, Cranborne Chase, Dorset (Green *et al.* 1998), demonstrate their presence. Geo-archaeological and sediment micromorphological studies (eg French 2007, 389-9) clearly provide key taphonomic and formation data. Less readily accessible is the contemporaneous palaeo-environmental material.

Open-air sites on rising ground do exist (see Deer Park Farm, Green *et al.* 1998) and have significant, if restricted, palaeo-environmental potential (see French 2007), but the low density of artefacts makes them difficult to identify.

Chalkland: a superficial lack of evidence

The broad expanses of the Chalklands seem, superficially, only to contain scatters of flints, and there is no palaeo-environmental evidence to accompany the evidence of considerable activity. Outside the region, long and stratified palaeo-environmental sequences from local colluvial sequences and well-dated palaeo-environmental evidence in subsoil hollows indicate the potential for fragmented survival of data that can be used for re-evaluating early Holocene Chalkland history (Allen and Gardiner 2009). Little comparable palaeo-environmental data has been recovered from the Solent-Thames Chalklands to date. Glimpses of Mesolithic woodland from the land snails on Twyford Down, Winchester, Hampshire, indicated closed deciduous woodland (M Allen 2000a, 138-142), but also that the adjacent river valley may have been more open (M Allen 2000b; Waton 1982; 1986).

Key Mesolithic vantage points and local colluvial burial

Many physiographic zones seem superficially to be ones of open landscape in which typically only surface Mesolithic sites may occur. These tend to provide relatively rich artefact assemblages with some spatial patterning, but few contemporaneous deposits or soils from which to obtain proxy palaeo-environmental data or even contemporary geo-archaeological information. Recent research in South East England is, however, just starting to indicate that, within these landscapes, there are key bluff locations with excellent vantage and viewpoints (Allen and Scaife 2007). More significantly, however, many of these locations are ones where shallow and highly-localised colluvial deposits may have buried, sealed, preserved and protected evidence of Mesolithic activity. They provide new topographic locations in which to look for evidence of Mesolithic activity, and it is likely that such sites occur within the Solent-Thames region.

Late Upper Palaeolithic

Creswellian and Final Upper Palaeolithic

Around 12,600 years ago, the climate and vegetation was only just recovering from the Last Glacial Maximum (LGM). At Mingies Ditch in the Lower Windrush Valley (Robinson 1993), a sample from a channel in the floodplain gravel contained arctic fauna and flora, including an arctic-alpine species of beetle (*Helophorus glacialis*) and fruit scales and leaves of dwarf birch (*Betula nana*; Late Devensian Zone III; 11,150 – 10,650 cal BC; HAR-8356: 10860± 130 BP; *ibid.*, 7-9). No trees were present, although pollen analysis suggested that clumps of birch and pine grew beyond the edge of the floodplain terrace. Slightly later, an open landscape was recorded from a channel at Lot's Hole in the Middle Thames, where a basal date of 10670-10150 cal BC (AA-44401 (GU-9488): 10,490±75 BP) was measured (Allen *et al.* 2013). Birch scrub, juniper-*empetrum* heath and dwarf arctic-alpine vegetation covered the higher ground, and tall herb meadows, ruderal and aquatic communities the low lying areas. In the channels *Isoetes*, which requires deep, clear water was present. In addition, there was standing, open water locally with floating leafed aquatics, surrounded by a *Carex*/*Equisetum* reedswamp. An open environment with light tree cover (predominantly birch and pine with some willow) was present in the base of a pollen sequence from the Upper Thames at Cothill Fen on the Corallian Ridge (Day 1991, 465). This however can only be dated as being before 8650–7900 cal BC (OxA-2114: 9070±1100 BP). It is thought that, grad - ually, the landscape became more wooded. Work in the Kennet Valley, both by the Kennet Valley Project and subsequently, shows an open and relatively unstable Lateglacial environment in terms of sedimentation and hydrology, including high-energy, braided river channels (Chartres 1975; Cheetham 1975; Holyoak 1980; Collins 1994; Collins *et al.* 1996). As warming began at the start of the Holocene, a highly dynamic period of environmental fluctuation followed, resulting in the deposition of thick bodies of calcareous marl in West Berkshire. Subsequently the landscape stabilised, with soil formation and the establishment of open aspen-birch-pine woodland.

The only known Creswellian stage find from the region is the Cheddar point found at Mingies Ditch, Oxfordshire (Barton 1993) referred to above, but there is more evidence for activity dating to the Final Upper Palaeolithic. People seem to have used a greater variety

and more local sources of flint, and the evidence suggests a pattern of short-lived and seasonal settlement, with open-air sites which seem to represent places where people congregated close to the spring or autumn migration routes of herding animals (Barton 1997, 128). It is possible that, at first, there was long-distance mobility, with groups moving in and out of Britain (Jacobi 1981) but, with more closed habitats, people may have ranged less widely.

Hengistbury Head, Dorset (Barton 1992), just west of the Solent-Thames region, used to be the only excavated open-air site in Britain, but two new sites have recently come to light nearby in Hampshire which will add considerably to knowledge about this period. One of these, Nea Farm, Somerley, New Forest, Hampshire, on the first gravel terrace of the River Avon, has recently been excavated (Barton *et al.* 2009; Plates 5.5 and 5.6). At present there are only a few diagnostic artefacts from Oxfordshire, most of which have come from gravel extraction sites (for example Mingies Ditch, Hardwick and Drayton Cursus), though some others have recently been identified by Alison Roberts in the Ashmolean collections. To date, all seem to have been recovered from the Thames river valley but, given the context of their discovery, this is perhaps unsurprising. A possible tanged point was recovered at '100 Acres' pit in the lower Colne Valley, also in a riverine environment (Lacaille 1963; Wymer 1977).

Long Blade sites

Human activity probably ceased in Britain during the Loch Lomond Stadial or Younger Dryas, a short but very cold period (*c* 10,800 – 10,000 BP) when there was a reversion to arctic temperatures and a tundra environment. Reindeer arrived and other, small mammals only found in northern Scandinavia today. There seems to have been a very sudden recovery from these glacial conditions, with temperatures rising to those similar to today within a period of less than 50 years. Human beings followed soon afterwards, as shown by the presence of sites with Long Blades, as well as the scrapers, microliths and burins already mentioned above. The absence of hearths and quantities of burnt flint associated with these sites has led Barton to suggest that they represent short-term occupation events (Barton 1997).

It has been suggested that the edge damage found on 'Bruised Blades' is the result of working hard materials such as wood or antler (Barton 1986), although they may also have been used to trim and repair the ends of sandstone hammers for flint knapping. Other tools suggest a bow-hunting technology. As already noted, Long Blade sites are mainly found on the floodplain or in river valleys close to the sources of high-quality, *in-situ* flint (Barton 1986). The site at Gatehampton Farm, Goring, Oxfordshire, in the narrow Goring Gap where the Thames has forced its way through the Chalk ridge, was thus in a classic location. Despite the fact that bone did not survive, the flint assemblage was interpreted by Barton (1995) as representing a kill/butchery site. Near Milton Keynes, in the north-east of our region, a large concentration of 'narrow blade industry' flints was found in ploughsoil at Little Woolstone by the Ouzel (Mike Farley pers. comm.).

There are a number of important Long Blade sites not far from Goring in the Kennet Valley, Berkshire, including Avington IV – with an OSL date of 10,250 BC ± 1,100 years (Froom 1970, 2005; Barton and Froom

Plate 5.5 Long blades *in situ* at Nea Farm, Ringwood, Hampshire, *copyright TVAS*

Plate 5.6 Refitting long blades from Nea Farm, Ringwood, Hampshire, *copyright TVAS and Nick Barton*

1986; Barton 1989; Barton *et al.* 1998), Wawcott XII (Froom 1970, 2005) and Crown Acres (Campbell 1977; Barton 1986; Froom 2005). As with Goring, they were all open sites with a high proportion of blade waste to retouched pieces. At Crown Acres, the Long Blade horizon appears to lie in sandy marl below a site of early Mesolithic date, both being sealed by peat (Barton 1986, 84). Avington VI is the best stratified, with 6000 artefacts seemingly *in situ* on and within possible colluvial or soliflucted clay with a fine (overbank) alluvial input. Typologically, the artefacts are similar to sites on the Continent where they have been associated with the killing and processing of large game (Bokelmann 1991; Fischer 1991; Larsson 1991). No animal bones have been found on the Kennet Valley sites and environmental preservation was poor, but there was some indication of an open flora at Avington VI (Holyoak 1980).

Further down the Thames Valley, recent work by MoLAS at the Sanderson site between the Colne and the Colnbrook in Buckinghamshire has yielded relatively large flakes which may be of Upper Palaeolithic date within an otherwise early Mesolithic assemblage (Lakin 2006). At Denham nearby, *in-situ* long blade material has been found during evaluations by Wessex Archaeology (2005b). This site was sealed by peat over 2 m deep dated to 8710–8340 cal BC (9300±50) and indicating a late cold stage herb/juniper assemblage. Close by, across the county boundary in Middlesex, is the well-known long-blade site at Three Ways Wharf with associated animal bone, including horse dating to 10650-9650 and 10050–9250 cal BC (Lab no: 10270±100 BP; Lab no: 10010±120 BP; Lewis 1991). The flint assemblage from this site is broadly comparable with that from Avington IV.

The Isle of Wight was part of mainland Britain, though divided from present-day Hampshire by the great Solent River. The offshore zone of the northern coast of the island is thought to offer potential for the survival of material of this period that would have lain within the river valley (Momber 2000; 2001; Hampshire and Wight Trust for Maritime Archaeology (HWTMA) 2005; Wessex Archaeology 2004a). A thin scatter of finds from the south-west coast of the island was thought by early antiquaries to be of Upper Palaeolithic date, but the identifications are open to question and would merit reassessment.

Landscape and land use in the Mesolithic

Early Mesolithic landscapes

By around 9,000 BC temperate conditions were beginning to lead to an expansion in woodland (juniper, birch, pine and hazel) and woodland animals such as elk, roe deer, pig and beaver were present. This did not occur uniformly, however, for some regions experienced retarded vegetation development, and it is in some of these areas that early human activity is found (Simmons *et al.* 1981; Allen and Gardiner 2009). The appearance of diagnostic Mesolithic tools suggests specialist wood-working equipment (transversely sharpened axes and adzes) and more flexible tool kits with items suited to a mobile lifestyle and hunting small game within a more enclosed setting. The Mingies Ditch environmental sequences show that by 9150–8300 cal BC (HAR-8366: 7430± 110 BP) all the species present can be found growing in England today, with birch and willow and

some pine and juniper (Robinson 1993, 9). Half the terrestrial pollen was from grasses, however, indicating a relatively open environment; evidence from Yarnton nearby suggests that the numerous, anastomised channels of the River Thames were free-flowing at this time (OSL date of 9450–6850 BC; Robinson in prep.). The Cothill sequence shows a rise of pine, hazel and elm on the Corallian Ridge, with birch and willow declining, and then oak and later hazel increasing at the expense of pine (Day 1991). The pollen from peat adjacent to a Thames-side stream at Little Marlow is consistent with this environmental reconstruction (Richmond *et al.* 2006).

From the 9th millennium BC, dense thickets of hazel existed in the Kennet Valley, with colonisation of common deciduous types such as oak, elm then lime and alder following soon after (Holyoak 1980, Chisham 2004). Peat formation occurred on the floodplains and low terraces of the Rivers Kennet and Loddon, and tufa was deposited at a number of sites both here and south of the Chilterns, for example in the Misbourne valley at Gerrards Cross (Barfield 1977). This was the result of increasing spring activity fed by calcium-rich water coming off the Chalk uplands. Less peat formed or has been preserved around the Thames, where erosion followed by alluviation to a considerable depth seems to have occurred. Although significant woodland cover was certainly present from the early Mesolithic, indications are that, in the Kennet, a mosaic of small gaps remained, notably at the river margins where there was low-growing herb and grass flora. These persisted through natural gap formation, and appear to have been maintained by grazing herbivores, possibly also by beavers (Evans 1975, 88), and also by human activity. Molluscan (and occasionally pollen) studies on the Chalk have shown that open grassland and scrub vegetation in the Lateglacial was followed there by the spread of deciduous woodland in the early Holocene, contrary to the assumption that such areas have always been grassland (Waton 1982; 1983a; 1983b; 1986; Evans *et al.* 1993; Allen 1992; Birbeck 2000).

At the Eton Rowing Course in the Middle Thames valley, peat preservation was variable, but there were well-preserved areas of backswamp adjacent to, and within, elements of the braided channel system (Allen *et al.* 2013). The earliest peat was dated to 9220–8740 cal BC (OxA-9411: 9560±55 BP), and indicated extensive reedswamp dominated by *Schoenoplectus lacustris* (true bulrush), and vegetation on dry ground dominated by *Pinus.* A dense scatter of struck flints was found along the swamp edge only 50m away, and an aurochs bone from this gave a very similar radiocarbon date, 9150–8730 cal BC (OxA-14088: 9540±45 BP). The bulrush included some charred stem fragments and seeds, perhaps suggesting the burning of dead reed swamp vegetation in winter, to facilitate fishing or encourage grazing animals. Charred culm and leaf fragments of *Phragmites australis* (common reed) from the lakeside peat at the Star Carr Mesolithic settlement were interpreted as being derived from the deliberate burning of reed beds (Hather 1998). Episodes of burning there

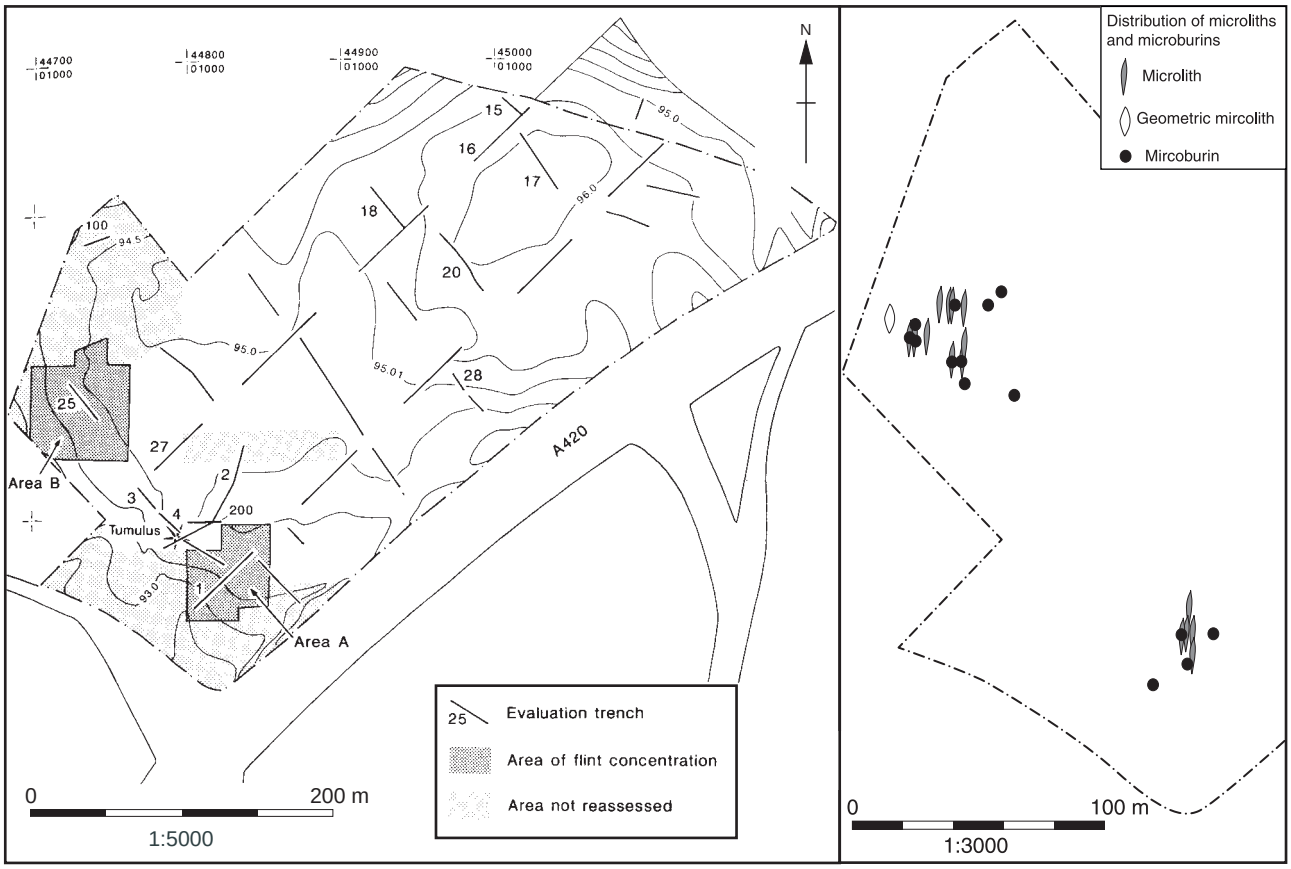

Plate 5.7 Plan of flint scatters at Tubney, Oxfordshire (adapted from Oxoniensia 1993), *copyright OA*

were dated as occurring between 8750 BC and 8250 BC (Mellars and Dark 1998).

In the Upper Thames, the distribution of Mesolithic sites along the river valley is striking, but many are undated and it is uncertain what proportion of these are of early date. There are however certainly early elements at North Stoke and Goring (Ford 1987b; Brown 1995), and probably also at Abingdon (information from the Abingdon Area Archaeological and Historical Society; Allen and Kamash 2008, 67). There is a noted concentration of early Mesolithic sites on the Corallian Ridge, of which Tubney Wood is a good example (Bradley and Hey 1993; Plate 5.7). Many of these are situated near the scarp overlooking the Thames Valley, and they may have provided single locations with a number of different environmental niches within easy reach. The site at Tubney seems to have been visited on a number of occasions, but there was evidence of more permanent occupation with a range of domestic activities taking place in addition to hunting (Bradley and Hey 1993).

The Cotswold sites (eg Ascott-under-Wychwood, Benson and Whittle 2007) and those on the Chilterns (eg Nettlebed, Peake 1913; Kimble Farm, Turville, Peake 1917; and Marline's Sandpit, Bolter End, Millard 1965) are further away from the main river valley, although the Cotswold sites are often near to tributary rivers and streams. It seems probable that woodland cover was not as dense in these higher areas as on the intermediate valley slopes, and clearings would have provided important areas of resource aggregation.

North of the Chilterns, the area which has received the most intensive archaeological investigation is Milton Keynes, where Williams (in Croft and Mynard 1993, 5-10 and fig. 3) notes the discovery of 'significant quantities of Mesolithic flints, including microliths and large numbers of narrow blades … in both the Ouse valley and its tributaries, the River Ouzel and Loughton Brook'. No specific Mesolithic sites appear to have been excavated or published from the Milton Keynes area, however. It is possible that the geomorphological history of these valleys has led to only limited alluviation, and thus the evidence has not been well-preserved. Evidence further down the Thames in Oxfordshire, Buckinghamshire and Berkshire reinforces the significance of rivers in the distribution of Mesolithic sites, perhaps as routeways, but also as important sources of plant and animal food, both in the river and on its banks. A concentration of adzes has been found in the river around Goring, although whether these were the result of casual loss or deliberate deposition is debatable.

Even though rising water levels in the Kennet Valley resulted in deeply-buried early Mesolithic sites (Hawkes and Heaton 1993), it is apparent that there is a significant concentration of early Mesolithic sites on low terraces and bluffs in the valley of the Middle Kennet and its tributaries, and in the Kennet/Thames confluence area. By contrast, there is a near-absence of known sites along the Loddon (Ford 1997a), Whistley Court Farm, Wokingham being the exception (Harding and Richards

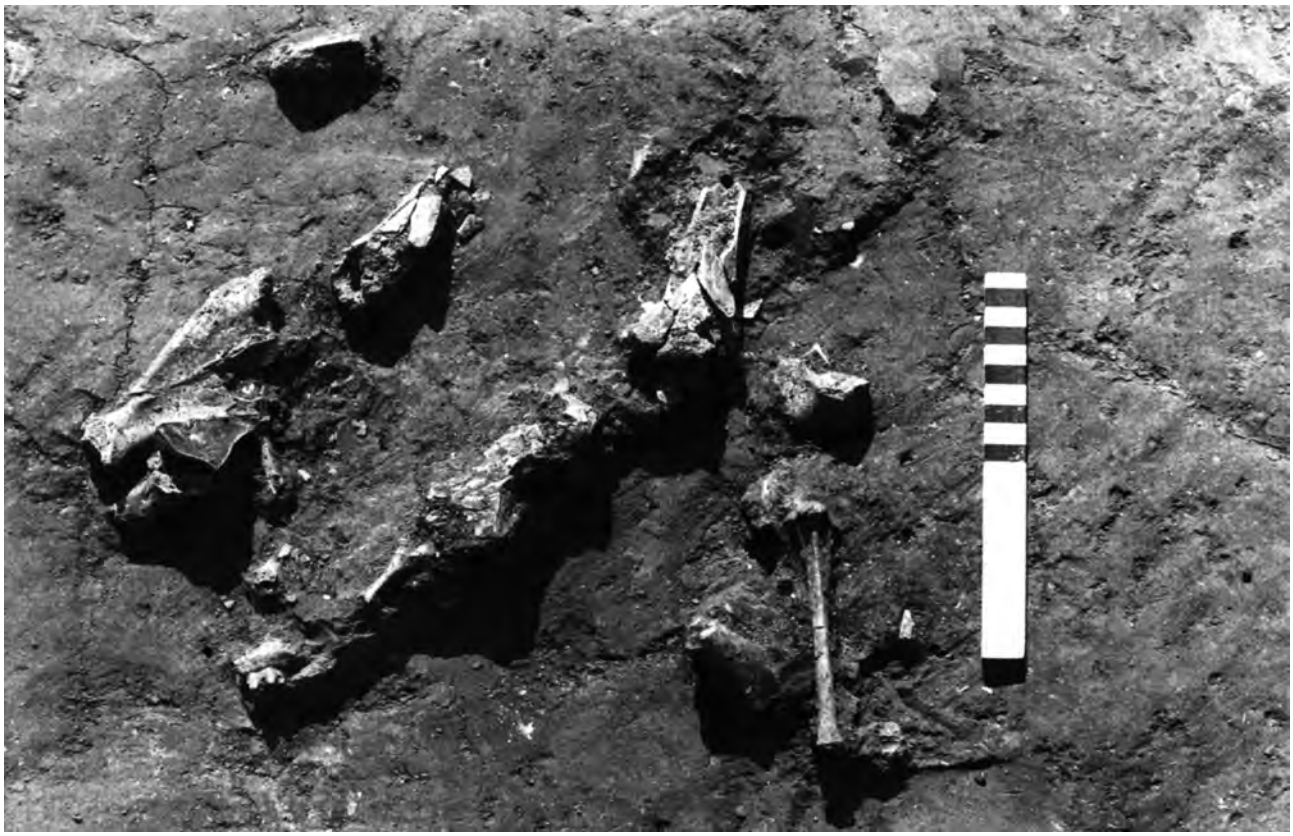

Plate 5.8 Struck flints, bones and skull from Thatcham, Berkshire (from Wymer's notebook), *with kind permission from the family of John Wymer*

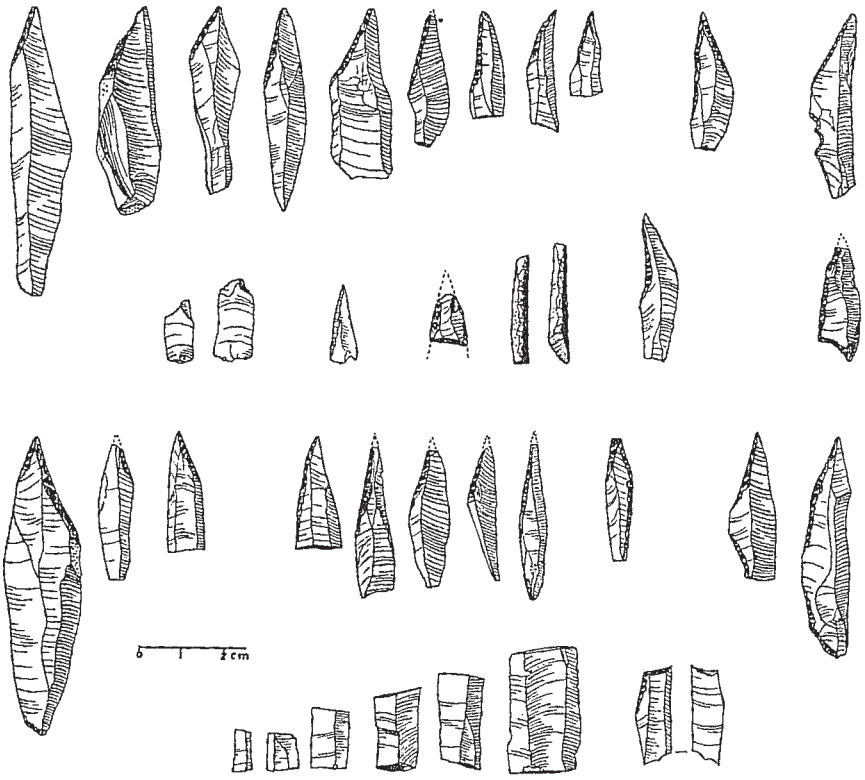

Plate 5.9 Flint tools from Thatcham, *with kind permission from the family of John Wymer*

1982). At Thatcham Reedbeds five major early Mesolithic lithic concentrations (Sites I-V) were associated with hearths and substantial animal bone assemblages (Plates 5.8 and 5.9). Approximately 16,000 flakes and spalls, 1,200 blade-like flakes, 280 cores, 285 microliths, 17 axe-adzes, 130 scrapers, 15 awls, six hammerstones and a variety of other flint implements were found, demonstrating intense *in-situ* activity (Wymer 1958; 1959; 1960; 1962; 1963; Churchill 1962). Nearby concentrations occurred at Newbury Sewage Works (Healy *et al.* 1992) and Lower Way and Chamberhouse Farm Newbury (Wymer 1977; Wessex Archaeology 2005a) and other substantial early assemblages are found in the wider area which are thought to contain stratified assemblages (Lobb and Rose 1996).

At the Eton Rowing Course, limited evaluation along the edge of a backswamp of the Thames revealed several thousand struck flints including early microliths dated to 9150-8730 cal BC (Allen *et al.* 2013). This extensive Early Mesolithic site is part of a wider spread of activity, evidence for which came from the Maidenhead Flood Alleviation Scheme, especially around Taplow, and from Holyport, Bray (Allen 1998; Allen *et al.* 2013; Ames 1993). A number of important sites with large early assemblages are also known in the braided river system of the lower Colne Valley, for example '100 Acres' and Boyer's Pit, Denham and Sandstone, Iver (Lacaille 1963; Wymer 1977), another important area of resource aggregation (Plate 5.10). The river is fed by the Chess, Misbourne and Alderbourne rivers, which cut through the chalk of the Chilterns and themselves contain infilled late and post-glacial sediments. At Sandstone, the flint lay upon basal floodplain gravels and sands and was overlain by peat, containing predominantly hazel and pine pollen, 'pieces of tree' and a red deer tine, the whole defined as Late Boreal (Mitchell in Lacaille 1963). This deposit was overlain by mud and tufa thought to be the sediments of a local pond or lake and containing some oak pollen and molluscs. Early Mesolithic flint was also found at the Wessex Archaeology evaluation at Denham in association with animal bone (Wessex Archaeology 2005b). A sample of wild boar was dated to 8470–8250 cal BC (9131±45 BP).

Other areas in the north of the Solent-Thames region appear, on present evidence, to be little used in the early Mesolithic, for example the Vales of Aylesbury and the White Horse and the boulder clay of East of Berkshire (Wymer 1977; Ford 1987a). Only light scatters of Mesolithic flint have been recovered from the Berkshire Downs (Richards 1978) and other slopes away from the Thames. Ford (1992, 263) noted that only 13% of known sites in the area come from ridges, hilltops and dry valleys on the Chalklands and, although this may be partially explained by the activities of particular individuals like Froom in the Wawcott area, low-lying areas do seem to have been preferred. The distribution of tool types represented may indicate transitory use of the lower Kennet and more specialised activity in the uplands where many tranchet adzes have been recovered (S. Allen pers. comm.; 2005), with an occupation focus in the Middle Kennet. However, Ford (1992) felt that the few sites outside the valley were also settlements, though smaller.

Plate 5.10 Excavation of flint scatter at Denham, Buckinghamshire, *copyright MoLAs*

Virtually all known early Mesolithic sites in Hampshire are concentrated on the Greensand in the north-east of the county around Oakhanger, Petersfield Heath, Sleaford Heath, Selborne, Trottsford and Kingsley (Clark 1932; Rankine 1949; 1953; Jacobi 1981). These include some substantial assemblages, for example Oakhanger sites V and VII produced approximately 85,000 and over 100,000 pieces respectively (dates between 9200 and 7550 cal BC; see above, Table 5.1). Sites away from the Greensand are relatively few, and most of these, such as Sandy Lane, Shedfield and Abbey Wells, Woolton Hill (Draper 1953; 1968; Wymer 1977, 112; Gardiner 1988), are again generally associated with sands and gravels rather than with the Chalk that dominates the county's geology. Smaller early scatters may be apparent amongst material collected in a few locations around Basingstoke, for example at Dummer and Bradley (Gardiner 1988), but given the amount of fieldwork on the Chalk, this distribution seems likely to be genuine.

Major flint assemblages containing Horsham points are concentrated just to the east of the region, in East Sussex and Surrey, with 'outliers' on the Hampshire Greensand in amongst the distribution of early sites. However, some assemblages from Chalkland areas, such as Salt Hill East Meon, Windmill Hill and Butser Hill (Draper 1968), have also produced small numbers of Horsham points. These industries can now be seen to have a sporadic but widespread distribution across the southern Chalk, even reaching Cranborne Chase, though their main distribution continues to be peripheral to it. The only other substantial assemblage in Hampshire to incorporate Horsham points is Broom Hill, Braishfield, which is again located on sandy substrate (O'Malley and Jacobi 1978). One area that seems so far to be largely devoid of Mesolithic flintwork is the eastern part of the New Forest, though this may reflect land use and the absence of collectors.

The present coastal plain, with its generally gentle topography and sand and gravel deposits was, in the Mesolithic, incised by a series of relatively deep river valleys running south from the Chalk. These were far inland in the Mesolithic period (Allen and Gardiner 2000). Pollen evidence from Langstone Harbour indicates that they contained open grass and sedge environments bordered by flat plateau areas supporting light deciduous woodland and open grassland (Scaife 2000). A pollen sequence from Testwood, Southampton, also indicated a gradual change from pine and juniper in the 9th millennium cal BC to a more open, semi-deciduous woodland including oak, elm and hazel by the middle of the 8th millennium (Scaife pers. comm.). As such, this region would have seen high biodiversity, and the extensive flint scatters reported from the shores of all the major harbours suggest widespread exploitation of the lowland plain. The intertidal and underwater resource of the Solent harbours has particular potential for the preservation of organic materials and pollen sequences.

Jacobi (1981) drew particular attention to the presence of many Mesolithic flint scatters at or below present tide level all along the Hampshire coastline. Such sites, from Christchurch Harbour in the west to Chichester Harbour and Selsey in the east, were well known to local collectors such as Rankine and Draper, and many

thousands of implements have been recovered from foreshore sites (Rankine 1951; 1956; Draper 1951; 1968; Bradley and Hooper 1975; Jacobi 1981; Gardiner 1984; 1987; 1988; Cartwright 1982). Most scatters can be seen to be eroding out of the soft clay margins of the harbours onto the foreshore, and it is clear that the material represents extensive exploitation of former dry land rather than of a coastal environment.

Lying on the southern banks of the Solent River, the Isle of Wight would have been very close to the southern coastline of Britain in the early Mesolithic, and in many ways the environment would have resembled that to the north (Allen and Gardiner 2000). On the Isle of Wight, sites have also been discovered eroding out of banks and cliffs or on the modern shoreline, for example at Werrar on the west bank of the Medina, Newtown East Spit, on the south-west coast, between Wootton and Quarr and at Bouldnor (Poole 1936; Clifford 1936; Scaife 1987; Loader 2006; Tomalin *et al.* 2012; Momber 2000; 2004; McInnes *et al.* 2001; HWTMA 2005). A number of these sites are probably late Mesolithic in date. Undoubtedly, archaeological investigation has been more intense in coastal areas in recent years, and this may have biased the distribution maps. Nevertheless, fieldwalking in the Wootton-Quarr hinterland has found little evidence of Mesolithic activity (Tomalin *et al.* 2012). The Greensand, in the south of the island, has also revealed a number of Mesolithic sites, largely as a result of fieldwalking. Excavations have been few, but an amateur archaeologist digging in the garden of The Wakes, Shorwell, produced nearly 1200 waste flakes and over 400 hundred implements, including scrapers, microliths, gravers, burins, awls and a small pick (Bennett 1966). Some Neolithic material was also present, but the assemblage has not been systematically studied.

Later Mesolithic landscapes

It is in the south of the region that the most dramatic environmental change occurred during the Mesolithic period, when rising water levels breached the land bridge with Continental Europe, and Britain became an island. The Isle of Wight became separated from England at this time and a coastal environment was established in these areas for the first time for around 25,000 years. The dating of this event remains uncertain, but the most commonly accepted view is 6900 – 5800 BC, or possibly a little later (Tomalin *et al.* 2012). In the lower Thames Estuary, it is estimated that, between *c.* 7950–5900 cal BC, sea levels were rising at around 13 mm per year (Devoy 1979), although the tidal reach of the Thames was way below that of today (Sidell and Wilkinson 2004).

On the Isle of Wight and the Hampshire coast, rapidly changing sea levels had a significant impact, not only on the whole terrestrial environmental and coastal landscape but also on the nature, presence and distribution of exploitable resources. Picks and tranchet adzes have been recovered from the north coast and the Medina Estuary (Tomalin *et al.* 2012), and worked and burnt flints have been found below sea level at Bouldnor, with humanly-modified timbers at *c.* -11 m OD. The distribution of sites shows a marked concentration on the coast and in the river valleys, in particular the Medina.

The present coastal plain of Hampshire would have been far inland in the late Mesolithic; evidence from Langstone Harbour shows that it remained a river valley with an open, grassy hinterland and not a marine environment (Allen and Gardiner 2000). It only really started to become a coastal environment in the Bronze Age; tidal inlets only occurred from the later Bronze Age and Iron Age. Numerous small, late Mesolithic scatters have been found on the foreshore and around the islands of the harbour, some associated with hearths, animal bone and burnt flint, suggesting short-stay visits, probably lasting only a few days at a time (*ibid.*). Both Jacobi (1981) and Wymer (1977; 1996) commented on the comparative lack of late Mesolithic flint sites in Hampshire, excepting those early sites in the western Weald which also had late Mesolithic components, for example Kingsley and Oakhanger III and IX (Rankine 1952; 1953).

Recent work has indicated the widespread occurrence of flint scatters both off and on the Chalk. Many thousands of pieces were recovered from a sandpit at Broom Hill, Braishfield, in the lower Test Valley, where 80% of the microlithic component comprises rods and scalene triangles and over 100 adzes. Radiocarbon dates are again few but span the period 6400–5260 cal BC (Appendix 1; O'Malley and Jacobi 1978). The East Hampshire Field Survey (Shennan 1985) showed that, outside of the main concentrations, there is a generalised scatter of broadly later Mesolithic material spreading across to the western edge of the Chalk, especially in areas capped by clay-with-flints. Excavations at Southam Common, just 5 km south of Oakhanger, identified several small, dense flint scatters associated with hearths (Thames Valley Archaeological Services (TVAS) 1989; Gardiner 2002). Southam reflects a pattern that is most noticeable away from the Greensand, where sites tend to be discrete, of limited extent, and to contain small assemblages, often associated with hearths or possibly pits. Such sites also tend to cluster over relatively small areas. This pattern has been confirmed by larger-scale, more systematic surveys (Schofield 1995; Gardiner 2002). Sites are usually located on sandy substrates or on superficial deposits overlying the Chalk, for example at Windmill Hill, Chalton and Butser Hill, in southern Hampshire (Draper 1968; Gardiner 1988).

Direct evidence for the vegetation of the Hampshire Wealden Greensand is lacking, but pollen evidence from the adjacent area of Sussex demonstrated dramatic change from hazel-dominated open woodland to heathland species, especially heathers, during the course of the early Mesolithic (Simmons *et al.* 1981; Garton 1980); whether anthropogenic factors were involved is not known. This may have encouraged more widespread use of the landscape. The distribution of Hampshire's late Mesolithic sites indicates the importance of river valleys as communication routes as well as favoured areas for settlement. Penetration of the Chalk uplands

seems to have been accomplished via major rivers and their tributaries, and the presence of axes and adzes may indicate clearance of the upland forests at this time.

The Upper and Middle Thames Valley was quite heavily wooded by the 7th millennium cal BC, and closed alder woodland prevailed on the floodplain by the mid-6th millennium. Mixed deciduous woodland appeared to be present over much of the valley by the 5th millennium, with alder growing in the valley bottoms and lime, oak, hazel, ash and elm on the better drained gravel terraces and higher slopes (Day 1991; Needham 1992; Robinson 1993, 9-12; Scaife 2000; Keith-Lucas 2000; Branch and Green 2004). Under climax vegetation, channels in the Upper Thames ceased to flow, many subsidiary river channels silted and the floodplain became quite dry; alder trees were growing in the base of channels at Yarnton by 4460–4250 cal BC (OxA-10713; 5535±50). The hydrology of the Middle Thames was affected by sea-level rises, the changing gradient of the river creating wetter valley-bottom conditions and encouraging peat formation.

The late Mesolithic is comparatively poorly represented in the Kennet Valley, in both artefactual remains and dated layers or sites. However, several late Mesolithic sites are known, including those which show long-term use, notably Wawcott Sites XV and XXX (Froom 1976; Froom *et al.* 1993), and others where small discrete clusters appear to represent short-term events, for example Wawcott III (Froom 1976). In addition, finds for the later period are more prevalent in East Berkshire, and to the west at Avebury and the headwaters of the Kennet where, conversely, there is little evidence for early Mesolithic activity (Ford 1987a; Lobb and Rose 1996). It may be that increasing waterlogging within the valley bottoms (Holgate 1988; Healy *et al.* 1992; Evans *et al.* 1993), while it might not have created conditions unfavourable to settlement and exploitation (Whittle 1990), may have changed patterns of settlement and land use. Once again, the picture seems to be of smaller groups moving over more extensive and varied territories.

Elsewhere in the Thames Valley and its catchment, most later Mesolithic activity seems to be related to rivers and water courses, a pattern already observed for Hampshire. Sites such as Gravelly Guy, Kidlington Lock Crescent, Abingdon (various), North Stoke and Goring demonstrate activity on the gravel terraces and floodplain of the Upper Thames. In the Middle Thames, major sites have been found at Jennings Yard, Windsor (Hawkes and Heaton 1993), Park Farm, Binfield (Roberts 1995), which lies on raised ground overlooking the river valley, and Moor Farm, Holyport, in Bray (Ames 1993). A number of sites have also come to light in south Buckinghamshire, for example Fulmer in the Alderbourne Valley (Farley 1978). Work in the Eton area has produced scatters and in-situ deposits of late Mesolithic flint (Allen et al. 2013). These were often found on riverside locations, with tools often on levées on the banks of palaeochannels and *in situ* knapping sites on the adjacent floodplain. At the Misbourne Railway Viaduct site, on the floor of the Misbourne, small flint assemblages were found associated with animal bone: aurochs, red deer, wild pig, roe deer and small numbers of beaver, wild cat, otter, badger and possibly pine martin bones (Farley 1983; Wilson in Farley 1983). Seven radiocarbon dates were obtained, three of which are late Mesolithic (grouped between 5350 and 4610 cal BC; see above), but the others are both very early and post-Mesolithic.

Robin Holgate's model of late Mesolithic activity in the Thames Valley postulated short-stay or base camps on the terrace edges adjacent to rivers with task-specific sites on the upper slopes (Holgate 1988). He thought that increasing utilisation of upland areas may have been related to the increased importance of hunting ungulates as part of food-gathering strategies. Recent work suggests more activity on the floodplain than he anticipated, but also few large sites in any location. It is the case, however, as he argued, that microliths are more numerous in upland assemblages, with fewer tranchet adzes or axe-sharpening flakes (ibid., 74-6). The evidence is, perhaps, more consistent with small and mobile groups exploiting many different environments according to resource availability, need and inclination.

To summarise, it still seems to be the case that in the early Mesolithic sites on sandy geologies were favoured, whether this was the Corallian Ridge in Oxfordshire or the Hampshire Greensand. These naturally acidic soils would have produced distinctive combinations of vegetation and resources, encouraging repeated occupation of traditional hunting and foraging grounds. Sites seem to have been preferentially positioned on scarps, bluffs and slopes overlooking watercourses or arranged along springlines, and these are locations also favoured in river valleys such as the Kennet and the Lower Colne Valley. They would have provided optimal environments for the exploitation of a range of resources and for the congregation of communities, probably at specific times of the year, in areas with a good and constant water supply. Large assemblages probably represent the repeated use of a favoured site for many generations.

In the late Mesolithic, resource exploitation and land use seems to have changed. Smaller sites are found over a much wider range of geologies and topographies, but the presence of nearby water remains an important factor in site choice. River valleys became increasingly utilised. Referring to Hampshire, Julie Gardiner notes that 'in general, the largest and most complex assemblages are still those that are located on the sands and we can envisage the regular movement of smaller groups of people along the river valleys penetrating the Chalklands in search of seasonal resources and/or on hunting trips'. This seems to be a situation that applies over much of our region.

Social organisation and settlement

As elsewhere across Britain, the evidence for Mesolithic social organisation in the Solent-Thames region is slim. As Julie Gardiner points out in her county contribution

for Hampshire, the idea of seasonal movements, with the coming together of small groups in so-called base camps at particular times of the year, is a now well-rehearsed explanation of Mesolithic lifeways, and there is little to contradict this view in the current evidence. What we may be seeing, however, is greater mobility through time, with new areas gradually being drawn into the seasonal cycle (Hey *et al.* 2011b). Whether this reflects a perceived need for new 'territory'; an increase in the variety of available natural resources; changes in the character of resource utilisation by animals resulting from climatic and vegetation changes; or changes in social organisation, is impossible to tell. An apparent uniformity of tool traditions across the region, despite the changing technology and environment of the times is interesting in this context, and might point to widespread communication between groups and the maintenance of longer-distance ties.

It is unfortunately the case that, even where the range of environments within the locality of a particular site is described, the dynamics of the exploitation of the wider resource base by the people who used those sites is rarely considered, even when the proxy palaeo-environmental data has been retrieved and reported upon. Integration of palaeo-environmental records to discriminate between local resources and those obtained from further afield can not only provide an understanding of social and economic activity on site but also that of wider Mesolithic economies. Additionally, more effort could be expended on defining the seasons or seasonality of site occupation, whether long or short term, for example from various plant and animal foods. A study of red deer teeth from the Thatcham site indicated that killing took place there at least in late summer/early autumn and in winter (Carter 2001); periodic visits at other times of the year, and not necessarily in a set seasonal pattern, was also considered possible (ibid.). Understanding seasonality is one way of addressing issues of community mobility, social economy and resource territories, as well as providing evidence of diet throughout the year, and not just at one particular location.

Aggregation sites

The vast majority of Mesolithic finds recovered in the region have been from disturbed contexts. Where sites do lie on the surface, without vertical stratigraphy or nearby contemporary deposits from which to obtain proxy palaeo-environmental data, geoarchaeology, soil and sediment micromorphology can help to elucidate more precisely the taphonomy of lithic scatters, although it can be difficult to ascertain whether finds and the deposits in which they are found are contemporary (*cf* pollen and flints from La Sagesse; Conneller and Ellis 2007). At La Sagesse, Romsey, Hampshire, like many other sites, the clear patterning in the flintwork shows that it retains some spatial integrity, even if it is no longer in its precise original position. Pedogenesis and minor sediment movement have resulted in the artefacts being moved vertically with some lateral displacement. This largely occurred as a result of soil formation processes during increased vegetation growth many millennia later; the pollen reflects the later vegetation event and not that relating to the Mesolithic flint deposition.

Nevertheless, some sites do survive, usually buried beneath alluvium or peat on valley floors, with evidence of hearths, intact surfaces and *in-situ* flint spreads. Recent work in South East England has also revealed highly-localised colluvial benches in key topographical locations that might provide glimpses of the data lost in open sites (Allen 2008a; 2008b).

Surfaces and *in-situ* deposits

The five early Mesolithic sites at Thatcham Reedbeds (Sites I-V) included hearths associated with substantial animal bone and flint assemblages, with a great variety of tool types than is normally present. Intense *in-situ* activity seems to be represented (Wymer 1958; 1959; 1960; 1962; 1963; Churchill 1962), as it does at a number of nearby sites, for example Newbury Sewage Works (Healy *et al.* 1992) and Lower Way and Chamberhouse Farm Newbury (Wymer 1977; Wessex Archaeology 2005a). Some of these sites appear to contain stratified assemblages (Lobb and Rose 1996). Wymer suggested that charcoal spreads exposed at Thatcham, which were around 20 m in diameter, represented hut sites, perhaps of a band of a few dozen individuals who returned to this place periodically (Wymer 1962, 336-7).

A possible working floor has been claimed for a site at Gerrards Cross in the Misbourne Valley (Barfield 1977), with an assemblage, which includes two core axes, four axe-sharpening flakes and three microliths, associated with flint-rich gravels, but Neolithic material is also present and it is hard to disentangle the evidence. Small-scale clusters of flintwork on the floodplain at Eton appear to represent *in-situ* activity, perhaps temporary encampments and short-lived activity areas (Allen *et al.* 2013).

The association between substantial early Mesolithic flint assemblages and hearths on the Hampshire Greensand has already been noted above, as has the numerous small late Mesolithic scatters with hearths associated with animal bone and burnt flint at Langstone Harbour and elsewhere on the Hampshire coast; at Langstone Harbour inter-site patterning was revealed (Allen and Gardiner 2000).

In a more unusual environment, material found beneath the Neolithic long cairn at Ascott-under-Wychwood in the Cotswolds suggests midden accumulation in both the early and late Mesolithic (Benson and Whittle 2007).

Structures

Mesolithic structures are very rare nationally, although a few stake-built houses have come to light in recent years (Pederson and Waddington 2007). Some kind of tented structure was suggested for a series of pits and possible stakeholes at Wakeford's Copse, Havant (Bradley and Lewis 1974), and for a sub-circular arrangement of postholes associated with a pit at Broom Hill, Braishfield, in the latter case associated with a vast assemblage

of flintwork and other pits (O'Malley and Jacobi 1978; Jacobi 1981). In neither case did these suggestions meet with universal agreement. However, the similarity of the Broom Hill 'structure' to those recently-excavated further north at Howick, Northumberland, East Barns, Lothian and Ronaldsway on the Isle of Man (Pederson and Waddington 2007) shows that its original interpretation may be correct and it merits reappraisal. Stakehole structures are also now more widely accepted (eg Bayliss and Woodman 2009). Claims have been made for temporary shelters or windbreaks at Wawcott (Froom 1972; 1976; Hey with Robinson 2011, fig. 10.17) and Stout (1994, 9) proposed a stakehole hut or shelter in the Earley Water Meadows near the Thames at Broken Brow, but these have not been verified.

Wymer (1958, 31-32) suggested that a pile structure with associated flints in the peat at Bartholomew Street, Newbury might be Mesolithic, and a dug out butt-ended ditch at Thatcham was identified as a possible fishtrap (Wymer 1963, 46), although it is now thought to be a beaver-cut channel (Wymer 1991, 27). A substantial flintwork assemblage, radiocarbon dated to around 4800 cal BC, was excavated at Bowman's Farm near Romsey where it was thought to have been associated with structures represented by ring-slots (Green 1991; 1996), but these 'structures' have since been re-appraised as belonging with Iron Age activity on the site; some might be tree-throw holes.(Plate 5.11)

Activities

A range of activities is represented by assemblages from what would conventionally be described as base camps (Mellars' 'balanced assemblages'; Mellars 1976). At these sites, tools include those for cutting and for plant and animal food preparation and processing (for example at Tubney, Oxfordshire, where the high proportion of microdenticulates was suggested to be linked to plant-food processing), working bone, antler or wood (such as at Windmill Hill, Nettlebed), processing skins and hides (at both Tubney and Windmill Hill) and making and rejuvenating the tools needed to undertake these tasks (Bradley and Hey 1993; Boismier 1995). Tranchet axes from Goring may suggest deliberate tree clearance (Brown 1995).

The evidence from the Kennet Valley indicates home-base sites visited time after time, as discussed above (Plate 5.12). Use-wear analysis of the flintwork assem - blages from the two Thatcham Sewage Works sites (Grace 1992; Healy *et al.* 1992) gives some indication that wood-cutting was carried out in both areas. The working of harder materials, such as antler and bone, including boring and whittling of these, seems to have dominated activity on the earlier, southern site; in contrast, tasks such as scraping softer material (like hides) and cutting soft plants (such as roots and tubers) was more common in the northern area. A difference in function is implied, showing different activities taking place at different times. With only one probable projectile point and little animal bone, there was little evidence of hunting or butchery.

Plate 5.11 Excavation at Bowman's Farm, Hampshire, *copyright Frank Green, New Forest Trust*

Bone tools from Thatcham, such as points, pins, the point of a bodkin and a punch (Wymer 1962, 351-3), indicate the preparation of clothes and fabric for bedding and shelters, such as tents (Plate 5.13). Another rare find in the area was of mastic still adhering to a flint flake where it had probably been hafted into a wooden handle. Analysis showed that it had been prepared with resin, probably of birch, mixed with clay and a lipid or beeswax (Roberts *et al.* 1998).

A number of sites have yielded palimpsest assemblages, created by small task groups engaged in a variety of subsistence activities and repeatedly occupying the same location, for example at Windmill Hill, Nettlebed (Boismier and Mepham 1995, 18). At this site these activities included core preparation and reduction, tool manufacture, use and rejuvenation of a variety of tools used in working bone, antler or wood, and processing skins (ibid.). At Tubney, successive episodes of activity also seemed to be represented, and included hide preparation, food preparation and microlith manufacture. This might be a more accurate way of describing sites that had previously been considered to be base or short-stay camps, for example Gravelly Guy, Oxfordshire, where cutting, scraping and engraving tools were being used, microliths produced and axes sharpened (Holgate 2004). The early settlement activity at Ascott-under-Wychwood was suggested to be of some duration

Plate 5.12 Reconstruction of Mesolithic settlement at Thatcham, *with kind permission of the family of John Wymer*

and included microlith manufacture and tool use; the late assemblage probably represents short visits rather than prolonged stays (Cramp 2007).

Hunting and gathering strategies

Hunting and gathering seems to have been focused on river resources, on the mosaic of clearings around the river and on less densely-wooded upland areas. The Corallian Ridge, for example, may have been seen as an advantageous site from which to observe animals, but also to exploit a wide range of environmental niches, from the sandy ridge to the valley bottom of the Thames.

Faunal remains from early Mesolithic sites are relatively common, showing the presence and exploitation of a wide range of species for food, fur and other resources. At Thatcham these included pike, mallard, crane, goldeneye duck, hedgehog, watervole, hare, badger, beaver, fox, pine marten, wildcat, red deer, roe deer, wild boar, wild horse and aurochs (King 1962). Carter (2001) assessed the age at death from tooth development of six immature red deer (*Cervus elaphus*) specimens and suggested that killing took place in at least late summer/autumn and winter. Domestication of dogs is also evidenced. Red deer and roe deer were generally favoured, but wild boar was also a common food source, and at Chamberhouse Farm, Faraday Road and Greenham Dairy Farm, all in the Newbury/Thatcham area, butchered wild boar remains dominated the on-site early Mesolithic assemblages (Sheridan *et al.* 1967; Carter 1976; Ellis *et al.* 2003; Chisham 2004). Interestingly, isotopic analysis of a human humerus recovered at Thatcham suggests a diet lacking in freshwater fish as well as marine sources, with similar results for a dog bone also found at the site (Schulting and Richards 2000).

At the late Mesolithic sites at Wawcott, the only large herbivore types to be recorded were red deer and wild cattle (Carter 1976; Froom 1976). Wild cattle, red deer, wild pig and roe deer were all found at the late Mesolithic site of Stratford's Yard, Chesham, Buckinghamshire (Grigson 1989), along with charred hazelnut shells; a radiocarbon date of 5010–4500 cal BC (BM-2404: 5890±100 BP) was obtained on a *Bos primigenius* bone (Stainton 1989).

Contrary to the traditional view, there is no evidence for seasonal population movements to follow deer migrations in the Kennet Valley. Few sites have been identified on the Chalk, while temporary sites with evidence of deer hunting have been found in the lowlands, for example at Ufton Green and Faraday Road (Allen and Allen 1997; Chisham 2004; Ellis *et al.* 2003), where herbivores might have congregated around water sources. The distribution of tool types suggests upland-lowland site differentiation by specialist task rather than by hunting or season.

Hunting sites have been identified in other parts of the region. At Rollright, high up on the Cotswolds, a knapping scatter is interpreted as one or more individuals carrying a flint-working toolkit and manufacturing or repairing hunting equipment on the spot (Holgate 1988b, 90). Sites around South Stoke and Goring in the Goring Gap may represent more frequent hunting visits, while individual microliths found in the landscape across the region may represent tools lost during hunting expeditions.

Apart from the evidence from microwear analysis on tools (see above), evidence of plant food remains is slight, the exception being the common discovery of charred hazelnut shells. An assemblage of 120 charred hazelnut fragments reported by Scaife (1992) at

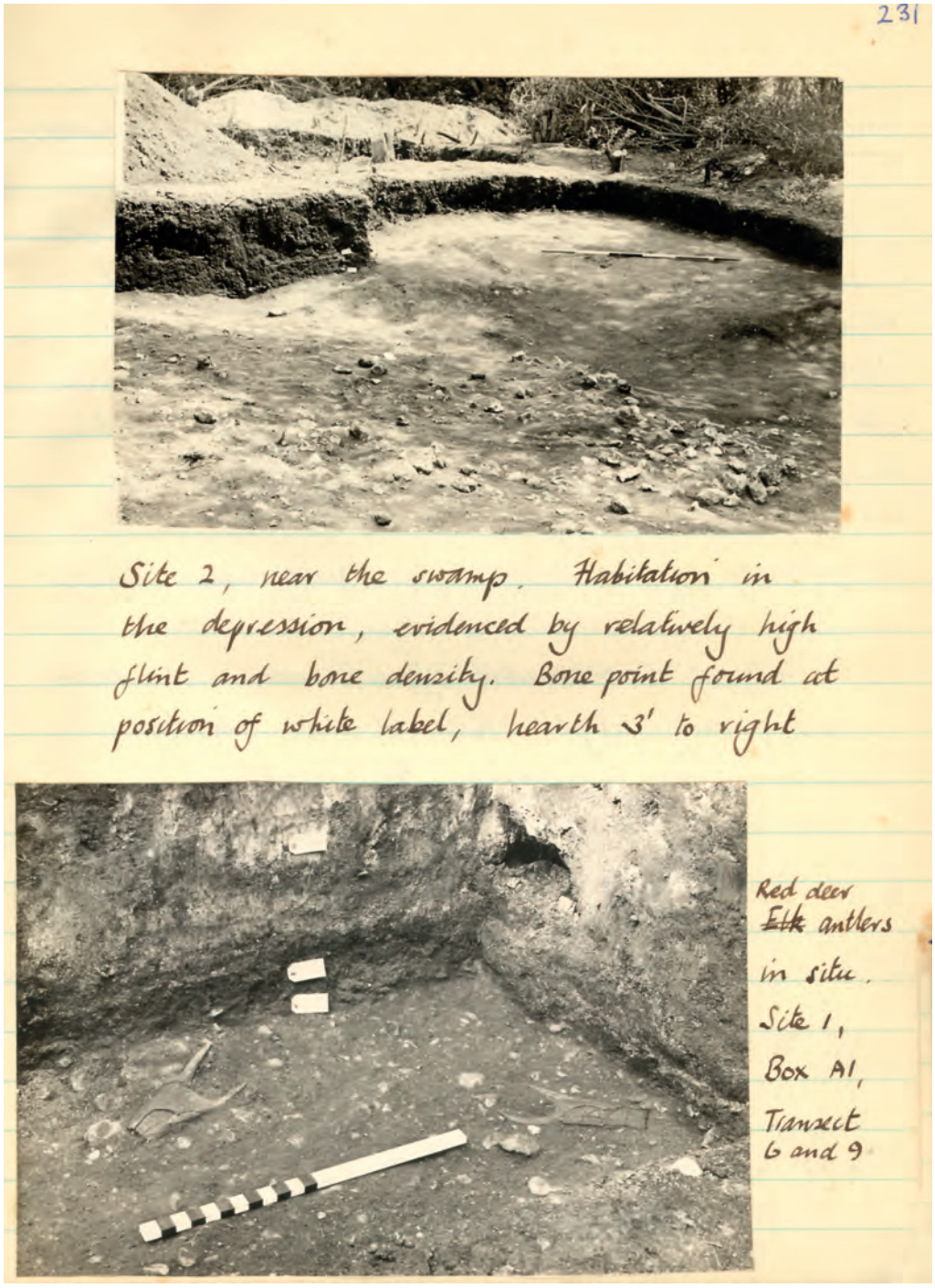

Plate 5.13 Detail of bone pin and antlers from Thatcham, *copyright the family of John Wymer*

Newbury Sewage Works indicates at least autumnal use of the site, although storage was also considered to be possible.

Interference in the landscape

Childe (1931) suggested over 80 years ago that the introduction of picks and adzes to the Mesolithic toolkit was part of Mesolithic human adaptation to the increasingly wooded environment in general, and tree clearance in particular. Nevertheless, the extent to which Mesolithic populations modified their physical environment remains controversial, although evidence continues to mount for at least some interference in the woodland vegetation (eg Dennell 1983; Mellars 1975; Tipping 2004).

Repeated phases of small patch burning of both the dry terrace edge and wetland landscapes occurred during the early Mesolithic occupation of Thatcham, dated to between 9150–8600 and 7950–7520 cal BC (AA-55303: 9480±68 BP; AA-55308: 8629±82 BP; Chisham 2004), a pattern mirrored in the nearby, contemporary sequence at Woolhampton (ibid.). Charred *Carex* sp. nutlets, associated with a peak in landscape burning in the floodplain peat dated to 8480–8230 cal BC (AA-55306: 9,134±65 BP; ibid.), might indicate late summer activity, assuming the nutlets burnt on the stem. On the other hand, no evidence of burning other than local hearths was found at the more temporary hunting site at Ufton Green *c.* 15 km downriver. This might indicate a pattern of interference in the vegetation around major foci of activity, related to pathways and the encouragement of specific resources (ibid.). Hints of Mesolithic impact on the vegetation were also observed at the Eton Rowing Course (Allen *et al.* 2013) and at Charnham Lane, Hungerford (Keith-Lucas 2002).

The Kennet valley is blanketed by varying depths of calcareous silty loessic alluvium which has largely eroded from the interfluves (Evans *et al.* 1993). It extends for many kilometres along the Kennet valley and presumably indicates the removal of a considerable soil mantle from the interfluves and it changed the landscape character significantly. It is presumed that the mechanism behind the exposure of soil was deforestation, but palaeo-environmental evidence has yet to confirm, elaborate upon, or refute this.

Although woodland was the dominant feature of the Mesolithic landscape in the Upper Thames, there is little direct evidence for woodland clearance, with the exception of the quantities of charcoal found in the Cothill Fen cores by Petra Day and suggested by her to be the result of human clearance of the pine woodland on the Corallian Ridge at around 8800 – 7700 BP (Day 1991, 465). This coincides with what appears to be the period of most intense use of this landscape, providing support for her hypothesis (Bradley and Hey 1993). Additionally, there are many indications that some clearings in the woodland were used, perhaps opportunistically at first, but then repeatedly, suggesting that they were maintained by humans and assisted by fauna (for example at Ascott-under-Wychwood; Benson and Whittle 2007). The discovery of tranchet adzes at Goring may indicate deliberate tree clearance there (Brown 1995).

Exploitation of other natural resources

Although there is some utilisation of larger flint nodules from the river gravels, the use of good-quality flint occurs probably on most Mesolithic sites. There is no evidence for flint mines during this period, and nodules seem all to have been retrieved from surface deposits and exposed faces. In the Kennet Valley, for example, assemblages are dominated by high-quality flint from the Chalk, requiring short-distance importation from exposures and outcrops, with material being brought to sites as pre-prepared cores (eg Hawkes and Heaton 1993, 12). But there is some local use of lower-quality material taken from the London Clay and from river gravels, for example at Holyport (Ames 1993) and Thatcham. The site at Stratford's Yard, Chesham could be associated with the exploitation of flint on the valley slopes of the Chilterns. Five horizons, lying above river gravels and sealed beneath colluvium, yielded over 34 cores and in excess of 300 struck flakes, along with some 49 microliths, including scalene triangles and rods of the narrow blade tradition, scrapers, a tranchet adze and two sharpening flakes (Stainton 1989).

In the north of the region, the majority of flint recovered has been brought over a great distance, for example sites in the north of Oxfordshire, such as Roll-right, where high-quality flint is found. Thus people moved over long distances to acquire important resources, or they exchanged materials with neighbouring groups.

It has been suggested that the people making short-stay visits to the Langstone Harbour area were largely concerned with the procurement of large flint nodules from the Bracklesham Beds (Allen and Gardiner 2000). These would have been exposed in river cliffs and gravels, and were used to make adzes and other core tools as well as flake and blade tools. Significantly, nearly all the tranchet adzes and sharpening flakes recovered during the recent Langstone Harbour survey are made of chalk flint, indicating that, whatever the local flint was to be used for, the visitors brought their own adzes with them and took some of them away again. The restricted range of forms and lack of processing tools suggests that items were being manufactured here and removed for use elsewhere.

A variety of stone sources was used on the Isle of Wight, including the good-quality grey-black flint found during the Wootton-Quarr survey, but local gravel flint seems to have been used too, for example at Werrar and Newtown (Loader 2006; Poole 1936; Tomalin *et al.* 2012). Chert is also available on the Island, and was exploited for use as picks amongst other purposes.

In Hampshire, there was a change through the Mesolithic from the use of generally poor-quality, small-size nodules available in the river gravels and

Greensands to the much larger and generally better-quality material derived from the tertiary beds in the south of the county and, especially, from the Chalk. The majority of Mesolithic flint tools are small and easily portable but, increasingly, high-quality raw material was needed in order to produce the small, precise, fine blades from carefully prepared cores that characterise the later assemblages. There was also an increase in the production of tranchet adzes and large core tools that required the availability of large, quality nodules. Like Neolithic polished axeheads, these tools were in use for many hundreds of years and it is very difficult to trace their development closely. Gardiner (1988) however found that the vast majority occur on the upland Chalk, particularly in the areas covered by clay-with-flints where they were probably made, but, significantly, the remainder are very widely spread, with comparatively few in the Mesolithic 'heartlands' of the Greensand belt. In other words, they mirror the pattern of late Mesolithic flint distributions much more closely than they do that of the earlier sites. It is reasonable to assume that communities moving into the flint-rich areas and encountering this resource would have collected sufficient for their own needs, if not for the wider community, presumably carrying away roughouts or finished items rather than predominantly unworked nodules.

Funerary and ritual practices

There are no known human burials from these periods. The only certain find of Mesolithic human bone is of a humerus recovered from a flood deposit below the occupation site at Thatcham, probably of a woman (Brothwell in Wymer 1962, 355). Three human skulls were also reported by Silus Palmer as coming from the peat at Halfway, Thatcham near red deer antlers (Palmer 1872-5; Wymer 1958), but they have not been dated and their whereabouts are unknown. No human remains from rivers in the region have yet been dated to the Mesolithic period. It can be surmised that treatment and disposal of the dead was conducted away from living sites and was thorough, for example by cremation and the scattering of remains or by excarnation. It has been suggested (Barton *et al.* 1995) that there was long-distance transport of remains to coastal regions, where the few inhumations of the period are to be found, but no inhumations have been found so far on the Hampshire coast or the Isle of Wight, and this explanation seems unlikely.

There may be some evidence in the Solent-Thames region of deposits that seem to be the result of special, rather than day-to-day, activity. An inverted red deer skullcap and antlers were found above the ground surface at Thatcham, with a battered antler beam propped up against them and knapping waste to one side (Warren 2006, 24-5; Wymer 1962). This might indicate the inclusion of ritual practice into the more mundane task of flint tool preparation. It has also been suggested that the large groups of animal bone found at the contemporary lake edge of many of the Thatcham sites is the result of deliberate acts of deposition (Chatterton 2006, 103-4). A skeleton of an aurochs with microliths embedded into its sinus region alongside the horn (*sic*) of a red deer was found in the same area (*ibid.* 104).

It is possible that at least some of the picks and adzes dredged from the river near to Goring could be the result of deliberate deposition, and the placing of finds within tree-throw holes has been observed at Gatehampton Farm, Goring and also on the Eton Rowing Course and the Maidenhead Flood Alleviation Scheme (Brown 1995, 80-1; Lamdin-Whymark 2008). Although there was no evidence of formal structuring of this material, it was clearly deliberately deposited and demonstrates an intimate link between people and their natural woodland environment. Such actions may have been seen as a way of replacing things retrieved from the holes, for example flint nodules exposed when the trees fell over (Carew *et al.* 2006).

Material culture

Aside from flint tools, there is a paucity of material culture associated with Mesolithic sites. These were mobile communities whose possessions would have been easily carried and who had no tradition of manufacturing artefacts from durable materials; we may not recognise collected natural items even if they survived.

Tools made from animal bone and antler include needles at Thatcham, and these objects show that clothes and objects were made from organic materials which have not survived, as already discussed. A single bone spearhead, apparently unique in the British Mesolithic and resembling a Palaeolithic type, was found with the early Mesolithic assemblages at Thatcham (Wymer 1963). Antler was also used for picks, an example of which was recovered from the Eton Rowing Course in Buckinghamshire (Plate 5.15). Traces of ochre were found at Thatcham (Wymer 1963), and small, natural,

Plate 5.14 Pebble macehead from Eton Rowing Course, *copyright OA*

perforated pebbles may have been for clothing or strung as jewellery.

Otherwise, material culture is confined to flint artefacts and occasional objects made from Greensand/Portland chert and other stone where this was easily accessed, for example the use of sandstone for pebble maceheads (Roe 1979). A river pebble was used to make a macehead found at the Eton Rowing Course (Plate 5.14).

Several chert maceheads recorded in the Isle of Wight HER may be Mesolithic in date. In addition, although few have been analysed, this collection is believed to contain examples made in non-local stone. Occasionally chert objects are found away from their source, for example the Dorset chert axe found at Wawcott (Froom 1963; 1972).

Becoming Neolithic

None of the late Mesolithic sites so far investigated in the Solent-Thames area have ever yielded pottery or the remains of domesticated plants or animals, and there are no other signs of emerging Neolithic culture, such as monument construction or burial of the dead (Schulting 2000). Where Mesolithic and Neolithic sites are discovered in the same locality, as they often are, they are either disturbed or the Neolithic material is stratified above Mesolithic remains. Radiocarbon dating of some sites, for example Ascott-under-Wychwood (Benson and Whittle 2007) has tended to show a gap in time between these episodes of activity.

Plate 5.15 Antler pick or mattock from the Eton Rowing Course, *copyright OA*