

2.2 Palaeolithic and Mesolithic

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Introduction

Attention is focused in this chapter upon the evidence from the Nene Valley for the Palaeolithic and Mesolithic periods, dated currently to between *c* 700,000 and *c* 6000 years ago. Palaeolithic and Mesolithic archaeology has seen a number of significant developments over the last twenty or so years including the discovery and excavation of a number of new sites, re-investigation of previously known sites both in the field and in the laboratory, and synthetic studies drawing together diverse sources of information for the interpretation of the archaeological record. Combined with these developments have been improvements in dating techniques and in the various fields comprising the areas of palaeoecology, stratigraphy and artefact analysis. This process has also witnessed the development of national and regional research agendas for the Palaeolithic and Mesolithic and the formation of research groups such as the Ancient Human Occupation of Britain project (AHOB) and the Ice Age Network. Behind these developments has been an unprecedented increase in funding with monies provided from central government through English Heritage and the Aggregates Levy Sustainability Fund (ALSF) and from the private sector through The Leverhulme Trust.

This chapter aims to provide an overview of the Palaeolithic and Mesolithic periods as they are represented in the valley. The evidence is broadly organised according to a widely accepted chronological framework and follows recent reviews in the dating of recognised chronological subdivisions for the Palaeolithic and Mesolithic (Barton 2005; McNabb 2006; Myers 2006; White *et al* 2006). Evidence from the valley is broadly placed within its national and regional contexts and its quality and potential briefly discussed. A brief history of discoveries and other work related the Nene Valley for each period is also presented. Sources utilised for this review have included Historic Environment Records for Northamptonshire and Peterborough, published period studies and various local, regional and national journals. Key works among the published period studies have been the national surveys carried out for the Palaeolithic by Roe (1969) and Wymer (1996, 1999) and for the Mesolithic by Wymer (1977). Discoveries made since their publication have also been included as part of the review.

Chronological frameworks that have been used for the Palaeolithic and Mesolithic include radiocarbon, luminescence and amino-acid dating techniques, faunal biozonation, pollen chronozones, artefact typology, geological periods and oxygen isotope stages (Aitken 1990; Smart and Frances 1991; Lowe and Walker 1997; Carrant and Jacobi 2001). The latter of these, the oxygen isotope stage chronology, is based on deep sea and ice cores that show alternating levels of oxygen isotope composition which reflect the climatic oscillations of the Pleistocene over the last 800,000 years. The fluctuating levels of isotope composition are used to form a temperature curve that has been divided into nineteen or so oxygen isotope stages (abbreviated as OIS). Numbered from top down, the sequence documents successive warm or cold stages with odd numbers used to indicate warm interglacial stages and even numbers to represent cold glacial stages (Fig 2.2.1). This isotope record has been shown by the matching of results from cores taken in different parts of the world's oceans, to reflect global climatic events as opposed to small-scale local or regional episodes.

The OIS framework is now widely employed as the standard reference for Palaeolithic timescales and will be used in the various period discussions in the following sections together with estimates of the time involved. Much of the dating for the last 40,000 or so years for the Upper Palaeolithic and Mesolithic has also been based on radiocarbon methods.

Sheet1

<i>Pleistocene Subdivisions</i>	<i>British Quaternary Stage</i>	<i>Climate</i>	<i>Oxygen Isotope Stage</i>	<i>Possible date, years BP</i>	<i>Sites and Events</i>	<i>Archaeological Period</i>
HOLOCENE	FLANDRIAN	Warm	1	Present 10,000	Starr Carr, Thatcham	Modern Mesolithic
					Launde, Gough's Cave, Hengistbury, Newton Linford	Late
	DEVENSIAN	Mainly Cold	2-4		Human Absence during glacial maximum	Upper Paleolithic
					Pin Hole Cave, Paviland, Glaston	Early
UPPER				60,000	Kent's Cavern, Lynford Quarry	Late
			5a-d	100,000		
	IPSWICHIAN	Warm	5e		Human Absence	Middle Palaeolithic
		Cold	6	150,000		
	WOLSTONIAN	Warm	7		Aveley, Creffield Road, Crayford, Pontnewdd, Purfleet, Brundon	Early
	COMPLEX	Cold	8	250,000		
		Warm	9		Grays Thurrock, Purfleet, Stoke Newington	
		Cold	10			
MIDDLE	HOXNIAN	Warm	11	400,000	Clacton, Hoxne, Barnham, Evelden, Hitchin	
	ANGLIAN	Cold	12	450,000	Major glaciation	
		Warm	13		High Lodge, Boxgrove, Warren Hill, Waverley Wood	Lower Palaeolithic
	CROMERIAN	Cold	14	550,00		
	COMPLEX	Warm	15			
		Cold	16			
		Warm	17	700,000	Pakefield	
		Cold	18			
Figure 2.2.1 Chronological Framework for the Quaternary.						

The Palaeolithic period

The Palaeolithic or ‘Old Stone Age’ in Britain spans the time from *c* 700,000 to *c* 10,000 years ago between the first appearance of humans in what is now the British Isles and the final retreat of glacial ice from northern Europe. Chronologically, the Palaeolithic is restricted to the latter part of the epoch known geologically as the Pleistocene or ‘Ice Age’. The Pleistocene is an era of geological time that was characterised by cyclical climate oscillations ranging from fully glacial conditions with extensive ice-sheets, polar deserts and low sea levels, through intervening tundra and periglacial steppe environments, to ‘interglacial’ conditions with warm temperate, and occasionally subtropical climates, extensive woodlands and sea levels higher than those of today. Animal populations during these different stages varied in response to changes in climatic conditions with species such as reindeer, horse, bison and musk-ox as well as the extinct mammoth and woolly rhinoceros associated with cold or cool glacial periods, and woodland forms, including the extinct straight-tusked elephant, red deer, roe deer, aurochs and boar, with interglacial periods. Human occupation during this time appears to have been intermittent with prolonged phases of abandonment lasting thousands of years, possibly due to the arctic severity of the climate during full glacial periods and to the high sea levels which occurred in intervening interglacials and rendered Britain an island inaccessible to humans. Throughout the periods of occupation, human groups appear to have been largely adapted to the more open environments of the interglacials and to the cool temperate phases of glacial periods.

The principal evidence for the Palaeolithic is the stone tools and waste from their manufacture, although the bones of animals contemporary with and often hunted by humans have also been recovered from a number of archaeological sites. This evidence has allowed the period to be subdivided into three broad chronological units: the Lower, Middle and Upper Palaeolithic. Each of these periods shows different technological modes of stone tool production (Barton 2005). The Lower Palaeolithic is characterised by Clactonian industries based on choppers and flake tools, and Acheulian industries based upon handaxes and flake tools; the Middle Palaeolithic by Levallois prepared core technology and a later biface and flake tool industry known as the Mousterian, and the Upper Palaeolithic by blade-based industries and the systematic use of bone, antler and ivory for tools and other items of material culture, although blades are also known for the preceding Middle Palaeolithic.

Fossil human remains equated with the three subdivisions of the British Palaeolithic are extremely rare due to the long spans of time when humans were absent from Britain and the very low population densities for the periods when people were present. The earliest human fossil is that of a *c* 500,000 year old tibia fragment of *Homo heidelbergensis* found at Boxgrove, West Sussex (Stringer 1996; Stringer and Trinkaus 1999) alongside handaxes of Acheulian technology. Possible early Neanderthal (*Homo neanderthalensis*) fossils associated with Levallois technologies are represented at the sites of Swanscombe, Kent (Day 1977; Stringer 1986) and Pontnewydd Cave, North Wales (Stringer 1984, 1986), and fossil evidence for modern humans (*Homo sapiens*) in association with blade technologies at sites such as Paviland Cave, South Wales (Trinkaus and Holliday 2000), Gough’s Cave, Somerset (Campbell 1977; Cook 1991), Kent’s Cavern, Devon (Barton 2005) and Robin Hood’s Cave, Derbyshire (Campbell 1977).

Local archaeological background

Lower and Middle Palaeolithic artefacts have been found at numerous localities during gravel quarrying within the Nene Valley over the last hundred or so years. The earliest recorded discoveries for the study area are those of small number of handaxes and other artefacts from Oundle, Elton and Overton Longville or Little Orton in the latter half of the 1800s mentioned by John Evans in publications spanning the period (Evans 1872, 1877, 1897). Between the years 1900 and 1945 a number of significant finds were made around the Peterborough and, to a lesser extent, Northampton areas of the Nene Valley (Wymer 1996, 1999, 2004). Most significant of these are those made by G

Wyman Abbot and others in the Peterborough area at sites such as Baker's Pit, Fletton Towers, Hick's Pit No. 1 and Orton Waterville, where numerous Levallois flakes were collected together with handaxes, flake tools and unretouched waste flakes. Elsewhere, small important collections of handaxes, flake tools and unretouched flakes, but without Levallois flakes, were made by E Turner and others from gravel pits around Northampton.

The period extending from 1945 up to the present has seen the continued collection of Palaeolithic artefacts from various quarries and other locations within the Nene Valley (Wymer 1996, 1999, 2004; Philips and Kidd 2004; McNabb 2006). Most of these finds, however, have been of single artefacts, predominately handaxes, with only a few locations yielding more than one or two artefacts. Important discoveries of Palaeolithic artefacts include those at Duston, Great Billing and Wollaston for the Lower and Middle Palaeolithic and for the Upper Palaeolithic at Grendon. Vertebrate remains dating from interglacial and glacial stages were also found at Little Houghton, Great Billing and Earls Barton (Brown 1983; K A Smith 1995; Cook and Barton 1986), and a detailed palaeoenvironmental investigation was carried out in the 1980s on the Woodstone Beds in the Peterborough area (Horton *et al* 1992). Other work undertaken within the Nene Valley has included the mapping of the geological deposits around Peterborough (Horton 1974, 1989), investigation of the River Nene's terrace deposits (Castleden 1976, 1980) and the study of Middle Pleistocene sequences in the Peterborough area (Langford 2004a, b). Much of this and other work carried out within the study area has been summarised in the recent Quaternary Research Association volume for the Nene Valley (Langford and Briant 2004b).

The latter years of the post war period have also seen an increased understanding of the Palaeolithic record for the Nene Valley through the publication of regional and national syntheses. Findspots of Palaeolithic artefacts from the Northamptonshire and Peterborough areas were first listed by Posnasky (1963) in his review of the East Midlands Lower and Middle Palaeolithic, where it was noted that their distribution reflected the major areas of gravel extraction along the River Nene. This was closely followed by Roe's (1968) listing of sites and finds from the valley as part of a national survey of the Palaeolithic. The next and most important of the synthetic works was that carried out by Wymer (1996, 1999, 2004) under the aegis of the Palaeolithic Rivers Project in which the Nene Valley formed part of one study area. This survey found no evidence for any *in situ* Palaeolithic sites in the valley with most, if not all, of the artefacts representing materials redeposited within terrace or floodplain gravels of Late Pleistocene or, at the very earliest, late Middle Pleistocene age. Subsequent geological investigations of these terraces have shown that their formation during late Middle Pleistocene and Late Pleistocene times was relatively complex and related to a succession of geological events involving the deposition, erosion and reworking of terrace materials by fluvial action and a variety of glacial and periglacial processes over long spans of time (Langford 2004a, b; Langford and Briant 2004b).

These surveys have found that the evidence for the Palaeolithic record of the Nene Valley is largely, if not entirely, derived in character and composed of reworked artefacts deposited within terrace sediments by a wide variety of geological agencies over extended periods of time. The recent discovery of a small assemblage from terrace deposits at Wollaston also suggests the possibility that some deposits with relatively *in situ* archaeological remains may survive within areas where mineral extraction has not yet occurred. However, the present lack of sites with extended stratigraphic sequences and the scarcity of diagnostic artefacts make the dating of Lower and Middle Palaeolithic remains within the valley very problematic and prone to a degree of error. This problem has been addressed very simply in this survey by using artefacts diagnostic of the different modes of stone tool production associated with the Lower and Middle Palaeolithic to place them in broad chronological order. It has not been possible on the basis of the data collected for this survey to distinguish between the non-Levallois industries of the Middle Palaeolithic and the flake and handaxe industries of the Lower Palaeolithic. Lower Palaeolithic sites are therefore likely to be over represented and Middle Palaeolithic sites under represented in the period summaries set out below. Also, given the nature of

the collections and the lack of any *in situ* remains, the terms site and locality are used simply to refer to places where Palaeolithic artefacts have been found within the valley.

The Lower Palaeolithic (OIS 17-8)

This period represents the earliest phase of human activity in Britain from *c* 700,000 to 250,000 years ago and spans five interglacial and five glacial stages of the isotope record (Fig 2.2.1). Human occupation during this period would have been only possible during interglacials and the temperate phases of glacial stages with the intervening full glacial phases largely devoid of any human settlement. Lower Palaeolithic tools representing these phases of occupation are widespread across southern Britain and comprise Clactonian industries based on flake tools and choppers, and Acheulian industries based on handaxes. Their chronological and behavioural significance remains subject to some debate as Acheulian industries have been found to both pre-date and post-date those of the Clactonian (Wenban-Smith 1998; Ashton and McNabb 1992; Ashton *et al* 1994; Roberts *et al* 1995; White 2000; White and Schreve 2000). However, it is possible to divide the Lower Palaeolithic into two broad chronological phases of human activity separated by the Anglian glaciation of OIS 12 on the basis of existing evidence.

Pre-Anglian Lower Palaeolithic (OIS 17-12)

During the Early and Middle Pleistocene the landscape of the Midlands was substantially different from that of today, with the region forming part of a larger catchment area drained by an ancient river system that has come to be known as the Bytham River (Shotton 1953; Rice 1991; Maddy *et al* 1994; Rose 1994). The Bytham River drained from west to east across the Midlands and East Anglia with its course running north-east from near Stratford upon Avon, Warwickshire to Melton Mowbray, Leicestershire, where it turned east and on across East Anglia to the present coast near Lowestoff, Suffolk (Rose 1994; Maddy 1999). This river appears to have been relatively long-lived with four distinct terraces identified in East Anglia and correlated to different glacial stages, of which the last was identified as being pre-Anglian in age (Lewis 1998, 43). In the Midlands, possible terrace fragments of the Bytham have also been recognised in Leicestershire (Brandon 1999).

The significance of the Bytham in relation to the study area is its early, pre-Anglian date and associated archaeological sites such as Waverley Wood, Warwickshire (Shotton *et al* 1993) and High Lodge (Ashton *et al* 1992) and Warren Hill (Wymer 1985; Lewis 1998) in Suffolk. These sites, in particular Waverley Wood, document a very early human presence during OIS 13 in areas adjacent to the study area and the possibility of settlement within the region that was to become the Nene Valley. Elsewhere, surface finds from the Leicestershire-Warwickshire border area also suggest the possibility of a pre-Anglian or early Anglian human presence within the Midlands (Shotton 1988; Whitehead 1988; Graf 2002, 20-21).

Unequivocal evidence for a pre-Anglian human presence has not yet been recovered from either the Nene Valley or anywhere else in the East Midlands, with the nearest site being that of Waverley Wood in Warwickshire. This may reflect a real absence of human occupation within the region or taphonomic factors related to the reworking and burial of earlier deposits by the Anglian and later glaciers and their limited exposure across the region today. However, the evidence for human activity from along the Bytham River from Waverley Wood suggests that the lack of any substantive archaeological remains is probably more due to factors related to the survival and exposure of deposits than to any real absence of settlement during this time. It is therefore possible that archaeological remains dating from this period may survive beneath Anglian glacial deposits along the margins and interfluvies of the Nene Valley. This possibility is further reinforced by the survival of channel infill deposits attributed to the 'Cromerian' (OIS13?) containing organic remains but no archaeological materials, recorded at Courteen Grange Farm pit to the south-west of the Upper Nene Valley (Smith *et al* 2000).

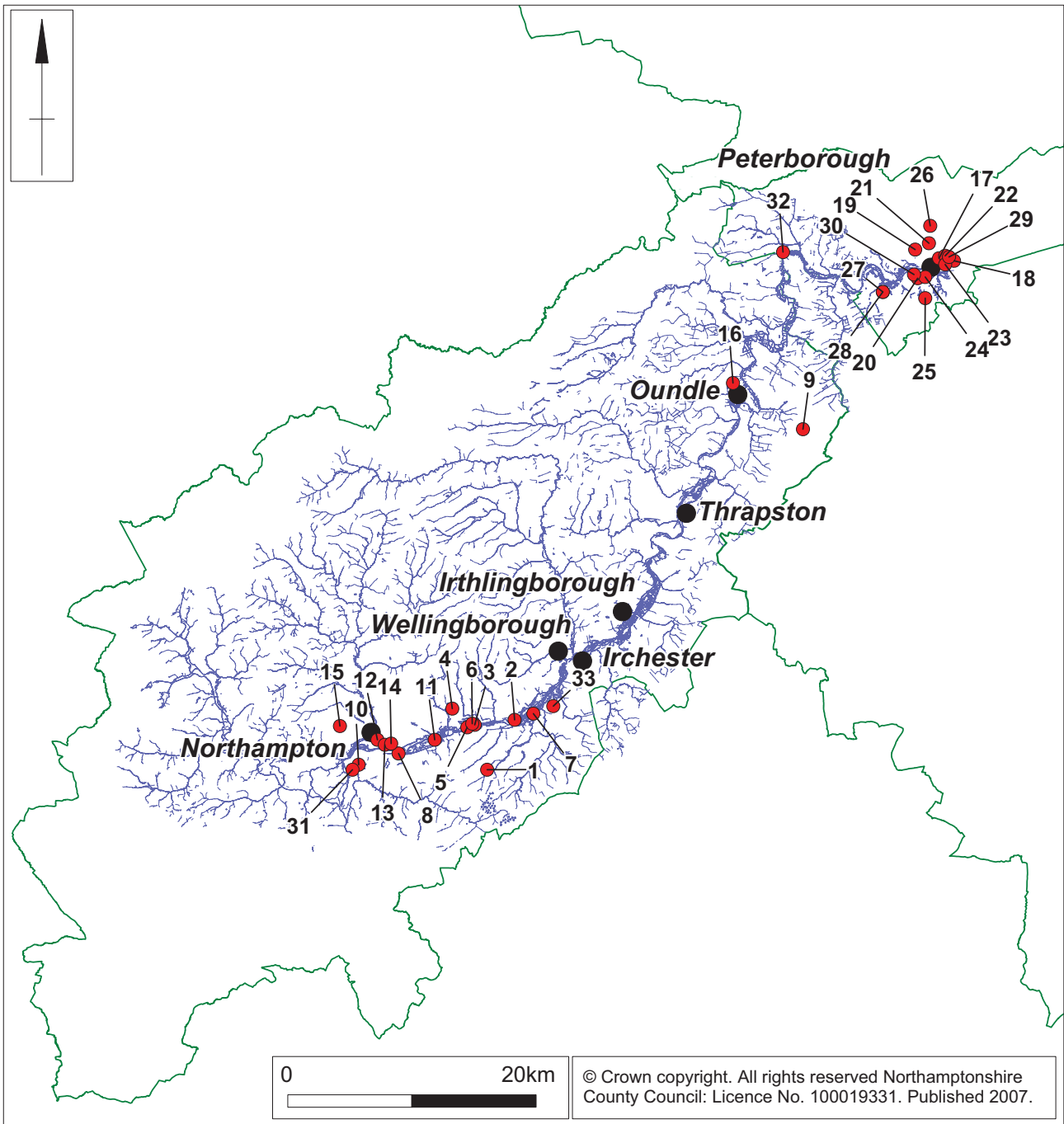
Post-Anglian Lower Palaeolithic (OIS 12-8)

The Anglian (OIS 12) glaciation was the most extensive of the Quaternary glaciations in Britain. At its maximum ice-sheets extended as far south as the Thames valley in south-east England and Moreton-in-Marsh, Gloucestershire, and diverted the course of the River Thames southward into its present channel (Bridgland 1994). This glaciation obliterated the pre-Anglian landscape of the Midlands and East Anglia with the Bytham River completely destroyed by the ice-advance and its valley infilled by glacial sediments (Shotton 1953; Rice 1968; Rose 1989). To the north-west of the study area a large lake, Lake Harrison (Shotton 1953; Douglas 1980; Graf 2002) developed in a period of cold climate after a retreat of the ice-front and laid down extensive deposits of glacio-lacustrine sediments in the area between Leicester, Birmingham and Coventry, which were, in turn, buried beneath tills of a re-advance of the ice-sheet across the region (Douglas 1980; Jones and Keen 1993, 79-80; Graf 2002). The Bytham River was replaced at the end of the glaciation in its lower reaches by rivers draining to the Wash along the lines of the modern Great Ouse, Nene and Welland and in its upper reaches by the Warwickshire Avon, flowing within a valley initially created by meltwater from the retreating Anglian ice-sheet.

This phase of Lower Palaeolithic occupation embraces the interglacial and glacial stages spanning the late Anglian (OIS 12) to OIS 8 cold stage from *c* 450,000 to 250,000 years ago. Included within it are the OIS 11 (Hoxnian) and OIS 9 interglacials recognised in a number of river terrace sequences at localities in the Thames Valley, East Anglia and the Midlands (Bridgland 1994; Bridgland *et al* 2001; Schreve 2001; Schreve *et al* 2002; Keen *et al* 1997) and in Woodstone, Peterborough, where temperate deposits (Woodstone Beds) dated to OIS 9 have been identified (Bowen 1991; Horton *et al* 1992). It also includes the intervening OIS 10 cold stage for which evidence may be preserved in the 3rd terraces at Aldwinckle and Barnwell (Langford and Briant 2004b).

Archaeologically, this phase is one of the better known ones for the British Palaeolithic with a number of sites recorded for East Anglia and the Thames Valley containing Acheulian and/or Clactonian industries attributed to OIS 11 and OIS 9 interglacials and the temperate phases of OIS 10 and early OIS 8 cold stages (Roe 1981; Roberts *et al* 1995; Wymer 1968, 1985, 1999). Evidence for human activity during this timespan does appear to be present in the Nene Valley, although the problem of distinguishing non-Levallois industries of the Middle Palaeolithic from Lower Palaeolithic industries found together in Late Pleistocene river terraces limits their utility in characterising the nature of human settlement at this time (Wymer 2004, 1999; McNabb 2006).

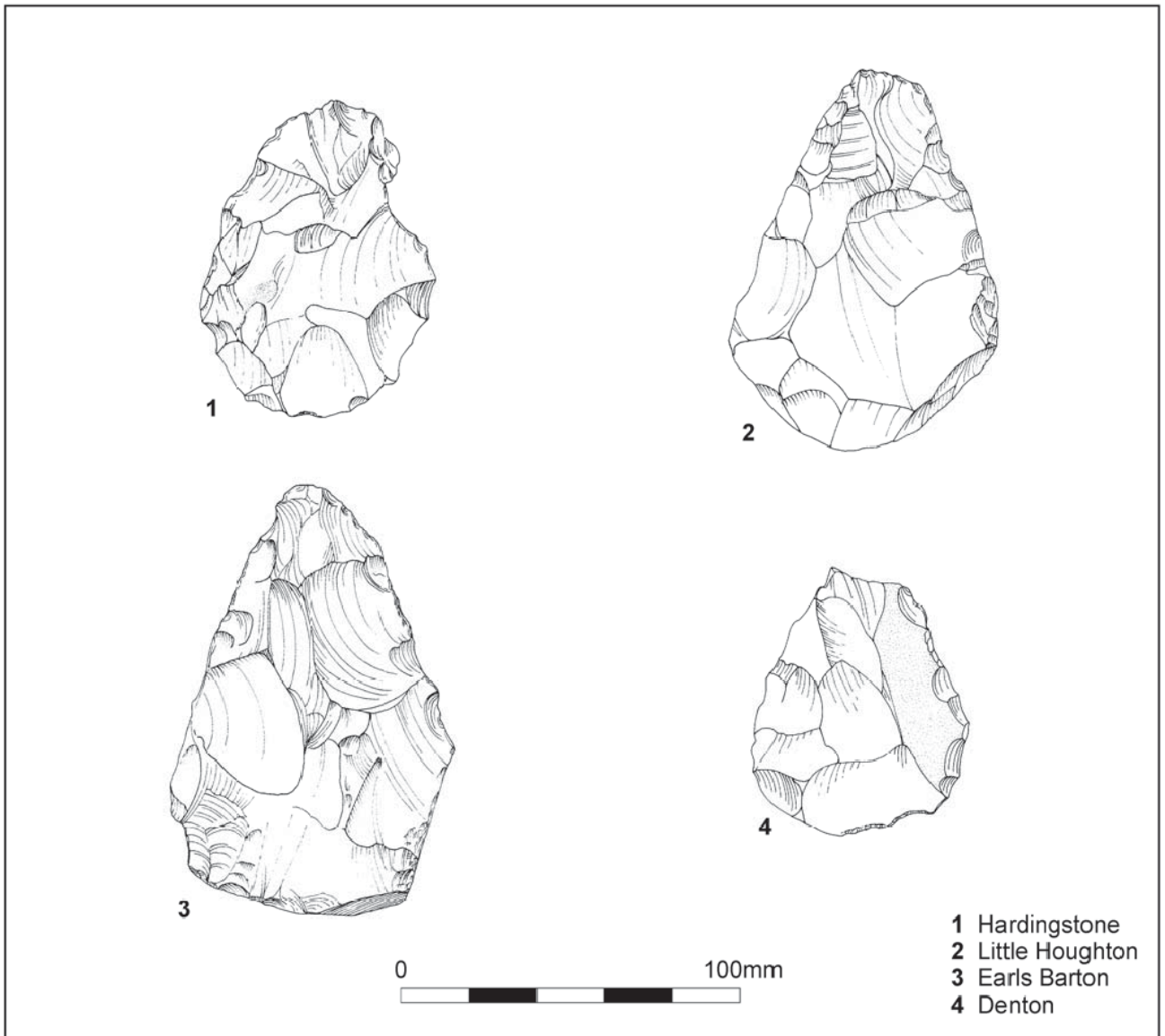
Sites where artefacts which can be attributed to the Lower Palaeolithic appear to be present within both the upper and lower reaches of the River Nene. In the upper reaches of the river there are thirteen localities around Northampton and one at Wollaston further afield (Fig 2.2.2). These are generally just individual, or perhaps a couple of handaxes (Fig 2.2.3), although small assemblages have been recovered from Hardingstone, Earls Barton and Wollaston composed of handaxes, flake tools, unretouched waste flakes and other artefacts. All of the sites for the area are located on what has been mapped as alluvium by the English Rivers Palaeolithic Project (Wymer 1996) which, as Wymer has pointed out, (2004, 59) represents a composite terrace deposit of probable Late Pleistocene or even more recent age. In the lower reaches of the river there are seven localities which can also be tentatively attributed to the Lower Palaeolithic (Fig 2.2.2). Unlike the sparse record for the upper reaches of the valley, these sites are generally better represented with two or more artefacts recovered from each one and reasonably sized assemblages recorded for the localities at Peterborough Common and Fletton. Handaxes, a few flake tools and numerous unretouched waste flakes make up the artefact inventories from the various sites. Most of the sites for the area are located on the 1st and 2nd terraces which have been dated to the Late Pleistocene, although one locality may be situated on a possible earlier terrace (Castleden 1976; Wymer 1996, 2004; Langford and Briant 2004b). Other places in the valley where possible Lower Palaeolithic artefacts have been found include Elton, Fotheringhay, Henington and Oundle. All comprise finds of one or two handaxes.



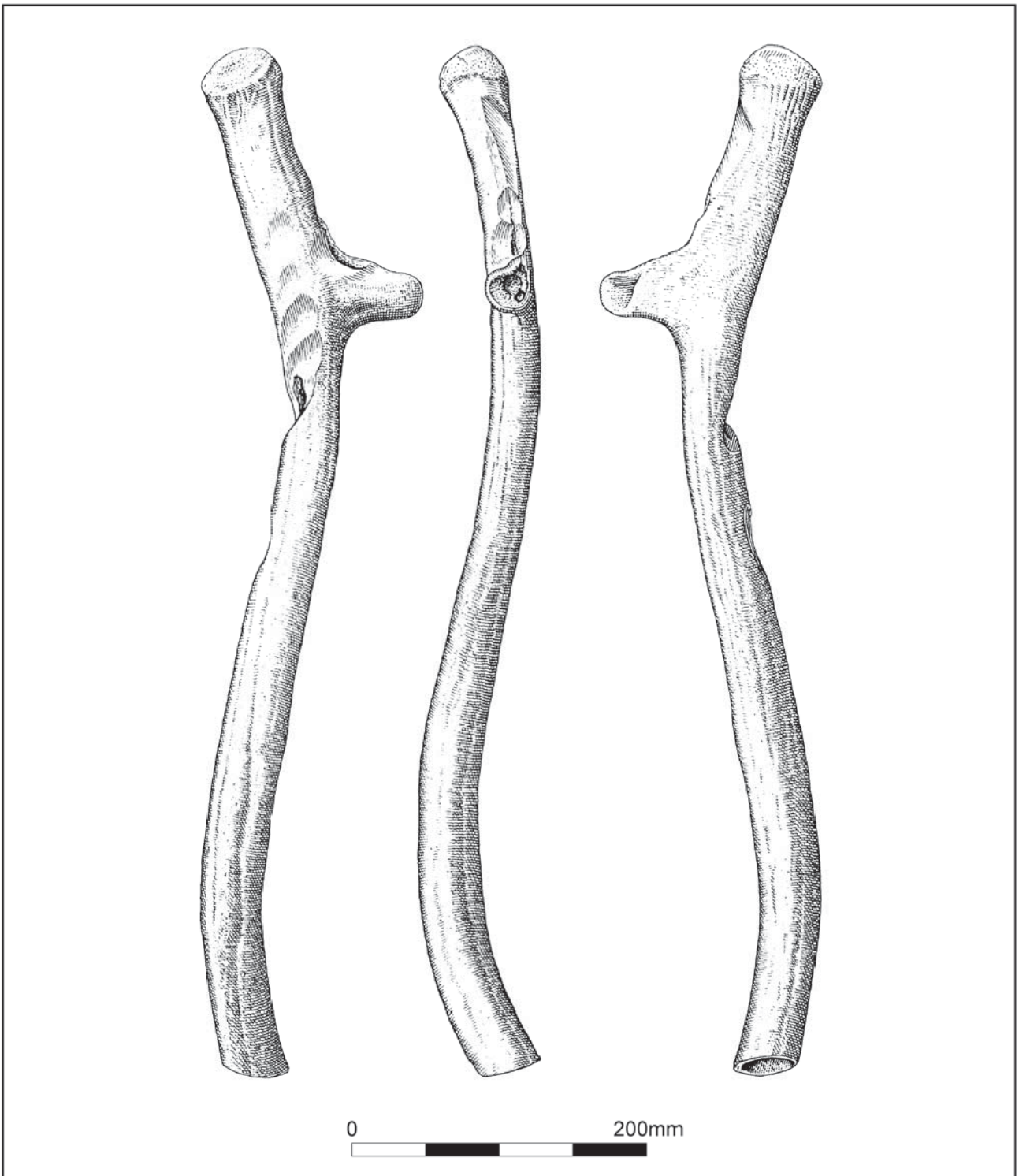
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- | | | |
|--------------------|--------------------------------|------------------------------------|
| 1 Denton | 12 Northampton Castle | 23 Peterborough, Fengate |
| 2 Earls Barton | 13 Northampton, Cattle Market | 24 Peterborough, Fletton |
| 3 Ecton | 14 Northampton, Cow Meadow | 25 Peterborough, Hick's Pit No. 1 |
| 4 Great Billing a | 15 Northampton, Duston | 26 Peterborough, New England |
| 5 Great Billing b | 16 Oundle | 27 Peterborough, Orton Longueville |
| 6 Great Billing c | 17 Peterborough Common | 28 Peterborough, Orton Waterville |
| 7 Grendon | 18 Peterborough, Newark Road | 29 Peterborough, The Round House |
| 8 Hardingstone | 19 Peterborough, Westwood Road | 30 Peterborough, Woodston Hill |
| 9 Hemington | 20 Peterborough, Baker's Pit | 31 Shelfleys |
| 10 Hunsbury Hill | 21 Peterborough, Dogsthorpe | 32 Wansford |
| 11 Little Houghton | 22 Peterborough, Eastgate | 33 Wollaston |

The distribution of Palaeolithic sites mentioned in the text Fig 2.2.2



Handaxes from the Northampton area Fig 2.2.3



Lyngby axe from Grendon (Reproduction by permission of the Prehistoric Society). Fig 2.2.4

The Middle Palaeolithic (OIS 8-3)

The Middle Palaeolithic is defined by the appearance of prepared core technologies involving the use of Levallois and discoidal techniques *c* 250,000 years ago (Barton 2005; White *et al* 2006). In chronological terms, the Middle Palaeolithic spans the period embracing OIS 8 to OIS 3 from *c* 250,000 to 40,000 years ago (Fig 2.2.1) and is divided into an early phase based on Levallois and discoidal techniques dated to between 250,000 and 150,000 years ago, and a late phase based on a 'Mousterian' biface and flake tool industry dating from *c* 60,000 to 40,000 years ago (White and Jacobi 2002).

The two phases of the Middle Palaeolithic are separated by a period of abandonment lasting some 100-120,000 years from the OIS 6 cold stage, through the Ipswichian Interglacial (OIS 5e) and into the early cooling stages of the final Devensian glaciation (OIS 5d-5a and 4). Reasons suggested for this abandonment have included the harsh climatic conditions of the OIS 6 cold stage, severing of the land bridge with the European mainland during the Ipswichian Interglacial as a result of high sea levels, and changes in climate and habitat preferences by human groups (Keen 1995; Ashton and Lewis 2002; McNabb 2006). Whatever the reasons for abandonment, humans would have been absent from the valley of the Nene until recolonisation in OIS 3 by Neanderthal groups characterised by Mousterian industries. Non-archaeological evidence for this period in the valley consists of a possible Ipswichian (OIS 5e) faunal assemblage containing straight-tusked elephant and associated with an interglacial floodplain environment at Little Houghton (Smith 1995). However, an earlier interglacial age is also equally possible for this assemblage (McNabb 2006, 27).

Early Middle Palaeolithic (OIS 8-6)

The Early Middle Palaeolithic embraces the OIS 8 and early OIS 6 cold stages and the intervening OIS 7 interglacial composed of two temperate phases separated by one cold phase (McNabb 2006). Deposits attributed to OIS 8 and/or OIS 6 cold stages in the Nene Valley include alluvial fan deposits from a glacial meltwater stream at Stibbington and Sutton, lacustrine sediments at Elton and Northampton, and glacial outwash deposits from the area south of Peterborough (Langford 2004a, b; Langford and Briant 2004a; Phillips and Kidd 2004).

Evidence for the Early Middle Palaeolithic is widespread across southern Britain with a number of archaeological sites recorded for East Anglia, the Thames Valley, North Wales and the South Coast containing Levallois industries attributed to the late temperate phases of the OIS 8 cold stage and the OIS 7 interglacial (Roe 1981; Wymer 1968, 1985, 1999; White *et al* 2006). Some evidence for human activity during this period, in the form of Levallois flakes and cores, has been recovered from a number of localities within the Nene Valley. However, as for the Lower Palaeolithic, the characterisation of Middle Palaeolithic settlement in the valley is severely limited due to the problem of distinguishing the non-Levallois elements of the Middle Palaeolithic from Lower Palaeolithic materials found together in the same terraces.

There are ten localities where Levallois or possible Levallois finds attributable to the Early Middle Palaeolithic have been found (Fig 2.2.2). Around Northampton there are just two sites from the Great Billing area (Fig 2.2.2). One comprises a findspot of a single Levallois flake and the other a Levallois flake and a possible Levallois core, although the four other artefacts, including a flake tool, found with them could also be Early Middle Palaeolithic in date. Both of these sites are located within areas of 'alluvium' known to be composite deposits composed of sediments of probable Late Pleistocene age (Castleden 1976; Wymer 1996; 2004; Langford and Briant 2004a). In the Peterborough area there are eight localities where Levallois or possible Levallois materials have been recorded. These sites are generally more prolific than those of the Northampton area with one or more Levallois finds occurring together with handaxes and other artefacts such as flake tools and unretouched waste flakes. Most notable of these sites are the localities of Baker's Pit and Hick's Pit No. 1 where reasonably sized assemblages composed of numerous Levallois flakes, handaxes, flake tools and other artefacts

were recovered in the early part of the last century. Six of the sites occur on 1st and 2nd terrace deposits attributed to the Late Pleistocene and two are located within areas of earlier 3rd terrace deposits of probable late Middle Pleistocene Age. Levallois and other artefacts such as handaxes, have also been recorded for the Woodstone area of Peterborough but without any specific locations. For the rest of the Nene Valley no finds of possible Early Middle Palaeolithic date are known.

Late Middle Palaeolithic (OIS 3)

The Late Middle Palaeolithic embraces the OIS 3 warm phase of the Devensian glaciation. This stage was characterised by rapid, often millennial-scale climatic oscillations between warmer and cooler episodes throughout its duration, with the cold episodes towards its end equalling in severity those which occurred later during the glacial maximum of OIS 2 (van Andel and Davies 2003; Barton 2005). The warmer conditions of early OIS 3 witnessed a recolonisation of Britain by Neanderthal groups utilising a Mousterian technology similar to that in north-western France, although with a distinctive *bout coupé* handaxe type found only in the British Mousterian (Roe 1981; Jacobi and White 2002). Optically stimulated luminescence dates from the archaeological site at Lynford Quarry, Norfolk (Boismier 2003) indicate that this recolonisation took place very early around 60,000 years ago at the end of OIS 4 or start of OIS 3 and occurred with the appearance of ‘mammoth steppe’ faunas dominated by mammoth, woolly rhinoceros, reindeer and horse (Currant and Jacobi 2001; Barton 2005).

This period is one of the least known for the British Palaeolithic with evidence limited to a small number of cave sites excavated mainly during the nineteenth and early part of the twentieth centuries and open air-sites largely composed of isolated findspots of *bout coupé* handaxes (Roe 1981; Tyldesley 1987; White and Jacobi 2002). One open-air locality has also been recently excavated to modern standards at Lynford Quarry, Norfolk, where a Mousterian assemblage was recovered in association with mammoth steppe faunas and evidence for possible hunting of reindeer and the scavenging of horse, woolly rhinoceros and possibly mammoth (Boismier 2003; Smith 2007).

Some evidence for human activity during this period has been recovered from a couple of localities within the Nene Valley, although, as noted previously, the difficulties of distinguishing Mousterian artefacts from those of earlier non-Levallois technologies severely limits any characterisation of the nature of Mousterian occupation in the valley. This evidence comprises two findspots of *bout coupé* handaxes from Duston and Great Billing in the Northampton area (Posnansky 1963; Roe 1981, 263; Brown 1983; McNabb 2006). Both localities are represented by single finds, of which the one from Duston has been catalogued as a definite *bout coupé* and the other from Great Billing as a possible example of a *bout coupé*. The two sites also occur within the areas of ‘alluvium’ around Northampton known to be composite deposits composed of sediments of probable Late Pleistocene age (Castleden 1976, 1980; Wymer 1996, 2004; Langford and Briant 2004b). No other unequivocal evidence for the Mousterian has been found elsewhere within the valley. Outside of the study area, however, a further *bout coupé* handaxe has been recovered from Marston Trussel in Northamptonshire near the Leicestershire border (Cooper 2004; McNabb 2006).

The Upper Palaeolithic (OIS 3-2)

The Upper Palaeolithic is defined by the appearance from *c* 40,000 years ago of prepared core technologies based on the production of blades that were either used unmodified or served as blanks for the manufacture of tools such as projectile points, scrapers, knives, and burins (Barton 2005). This period coincides with the appearance of anatomically modern humans in Britain *c* 30-40,000 years ago, although the date of the earliest specimens remains subject to some debate (Barton 2005, 117-120; McNabb 2006, 35). It is also marked by the first widespread use of bone, antler and ivory as raw materials for tools and other items of material culture and the appearance of art both on objects and on the walls of caves (Campbell 1977; Bahn *et al* 2003; Barton 2005).

Chronologically, the Upper Palaeolithic spans late OIS 3 to the end of the OIS 2 cold stage from *c* 40,000 to 10,000 years ago (Fig 2.2.1) and is divided into an early phase based on leaf point, Aurignacian and Gravettian industries dated to between *c* 40,000 and *c* 25,000 years ago and a late phase based on a succession of blade industries (Creswellian, straight-backed, convex-backed and long blade types) dating from *c* 13,000 to *c* 10,000 years ago (Bonsall 1977; Campbell 1977; Jacobi 1980, 1990; Barton 2005). The Middle to Upper Palaeolithic transition also coincides with the early phase of the Upper Palaeolithic sometime between *c* 40-30,000 years ago with leaf point industries attributed to the final stages of the Mousterian and thus Neanderthals, and the Aurignacian and later industries to anatomically modern humans (Jacobi 1990; Aldhouse-Green and Pettit 1998; Barton 2005; McNabb 2006). The two phases of occupation are separated by a period of abandonment lasting some 12,000 or so years and corresponding to the late glacial maximum of OIS 2 when climatic conditions would have been too severe to support human settlement. After the glacial maximum the recolonisation of Britain by modern humans appears to have taken place *c* 13,000 years ago at the start of the warmer conditions of the late glacial interstadial (Jacobi 1980; Housley *et al* 1997). Archaeological evidence for Upper Palaeolithic activity is relatively widespread across Britain with a number of cave and open-air localities with artefact assemblages attributable to early and late phases of settlement, although that for the early phase is much more restricted and limited to a small number of sites in the Midlands, South-West England and South Wales (Bonsall 1977; Campbell 1977; Barton 2005).

The Nene Valley has yielded very little evidence for activity during this period, in sharp contrast to Leicestershire and Rutland where rich sites have been found for the early Upper Palaeolithic at Glaston, Rutland (Cooper 2001; Thomas and Jacobi 2001) and for the late Upper Palaeolithic at Newton Linford (Cooper 2002) and Launde (Cooper 1997) in Leicestershire. Archaeological evidence dating to or possibly from the Upper Palaeolithic is limited to a reindeer antler Lyngby-type axe from Grendon (Fig 2.2.4) dated by AMS radiocarbon to 10,760-9450 cal BC (10320 ± 150 BP OxA-803) (Cook and Jacobi 1994) and a large flint blade from Northampton tentatively identified as Upper Palaeolithic (Phillips and Kidd 2004). Both of these finds are typical artefacts associated with the long blade industries of the final phase of the late Upper Palaeolithic in Britain (Barton 1998). No archaeological remains dating to the early Upper Palaeolithic have yet been discovered in the valley, although numerous vertebrate remains of horse, mammoth, reindeer, woolly rhinoceros and bison have been recorded for Great Billing (Brown 1983) and Grendon (Cook and Barton 1986) with associated radiocarbon dates of 28,230 ± 330 BP (Birm-75) and 24,941 ± 499 BP (weighted mean of BM 2074; 23,388±770 BP and BM-2074C; 25,500±650 BP; (T'=2.5; v=1; T'(5%)=3.8;) (Ward and Wilson 1978) respectively, which span the period. These dates suggest the possibility that some deposits with relatively *in situ* archaeological remains dating from this period as well as the late Upper Palaeolithic may survive within areas where mineral extraction has not yet occurred.

The Mesolithic period

The Mesolithic period in Britain spans the early part of the Holocene (OIS 1) from *c* 10,000 to *c* 6000 years ago between the final retreat of the Scottish ice-sheets to the appearance of Neolithic farming communities. The onset of the Holocene was characterised by a rapid and pronounced rise in temperature in which levels comparable to those of today were reached within several hundred years of the end of the Pleistocene and by a global sea level rise from around -50mOD at the end of the Pleistocene to present day levels by *c* 6000 years ago. This world-wide climatic amelioration allowed trees to migrate back into Britain with initial colonisation of the open late glacial landscape by birch and pine woodland which was replaced over time by mixed deciduous forest comprising elm and hazel, followed by oak, alder, lime and ash (Simmons *et al* 1981). Animal populations also underwent a change with open country species like horse, reindeer and bison replaced fairly abruptly by woodland species such as red deer, roe deer, elk, aurochs and boar. Human occupation during this

time appears to have been continuous with groups successfully adapting to the changing environment throughout the period.

Outside of a small number of cave sites, scatters and stray finds of stone tools and the waste from their manufacture represent most of the evidence for the Mesolithic and these are found throughout Britain with the exception of the Western and Shetland Isles (Mellars 1974; Wymer 1977; Mithen 1999; Myers 2006). The period is defined by the appearance from *c* 10,000 years ago of microlithic industries based on the microburin technique and new tools such as hafted axes generally seen as a direct response to the spread of forests after the end of the Pleistocene. Chronologically, the Mesolithic is conventionally divided on the basis of changes in stone tool technology into an earlier phase based on non-geometric microlith forms dated to between *c* 10,000 to *c* 8500 years ago and a later phase based on small geometric microlith forms dating from *c* 8500 to *c* 5500 years ago (Clark 1932; Mellars 1974; Jacobi 1973, 1976; Myers 2006). Earlier Mesolithic industries are further subdivided into three assemblage types with regional and chronological differences (Reynier 1998). Only a small number of the sites dated to the two principal phases have produced animal bone or shell midden deposits representing the remains of hunting and gathering activities (Clark 1954; Wymer 1962; Mithen 1999). Human skeletal remains are also exceedingly rare for the period and include those from Aveline's Hole and Gough's Cave in Somerset (Garrod 1926; C Smith 1992) and the femur from Staythorpe, Nottinghamshire (Myers 2006). The Avelines Hole cemetery is estimated to have been in use from 8460-8290 cal BC (95% probability) until 8260-8140 cal BC (95% probability) (Schulting 2006). The femur from Staythorpe was dated to 5740-5620 cal BC (6790 \pm 40 BP; Beta – 144016).

Local archaeological background

The Mesolithic of the Nene Valley escaped serious scrutiny well into the 1960s with apparently very little found or at least reported on (Everard 1946; Posnansky 1956). However, since this time discoveries of Mesolithic finds have been increasingly reported on for the valley in the context of excavations of later period sites and extensive surface collection surveys carried out across the valley. Mesolithic artefacts were recovered during excavations at Aldwincle (Jackson 1976, 1977), Ecton (Moore 1975), West Cotton (Humble 2006), Ringstead (Jackson and Parry 2006) and in Northampton at Chalk Lane (Williams and Shaw 1981) and St Peter's Street (Williams 1979). Extensive surface collection surveys undertaken across the valley by Hall (1985) and in the Raunds area by Parry (2006) found artefacts datable to the Mesolithic period and indicative of widespread settlement within the valley at this time. Important discoveries were also made at Duston and Great Billing of Mesolithic finds and outside the valley at Honey Hill, Elkington, where a transitional assemblage spanning the earlier and later phases of the Mesolithic was found by intensive fieldwalking (Saville 1981; Myers 2006). The valley has also benefited from a couple of syntheses for the period, notably Wymer's (1977) national survey of the Mesolithic in which sites and finds known for the valley at that time were included and Phillips' (2004) review of Mesolithic settlement for Northamptonshire which included Nene Valley sites. Detailed palaeoenvironmental investigations of early Holocene palaeochannels were also undertaken at a couple of locations within the valley (Brown 2004; Brown and Hatton 2000, 2001; Robinson 2006).

The work undertaken since the 1960s has shown that the evidence for Mesolithic occupation is widespread throughout the valley. However, with few exceptions most of this evidence is based on surface artefact collections with few artefacts datable to much beyond the Mesolithic in general and certainly not to one or the other of its chronological phases. The present lack of excavated sites for the period and the scarcity of diagnostic artefacts attributable to the earlier and later phases of the Mesolithic make the dating of most of the sites to phases within the period not really possible on the basis of the existing data collected by this survey. Where sites or finds have been dated either on typological or radiocarbon grounds, this is given in relation to the particular phase of Mesolithic activity to which they belong. For the rest of the sites and finds recorded in the valley this has not been possible and they are simply attributed to the Mesolithic without any chronological implications

as to which part of the period. Also, no evidence for the Mesolithic-Neolithic transition has been found anywhere within the valley.

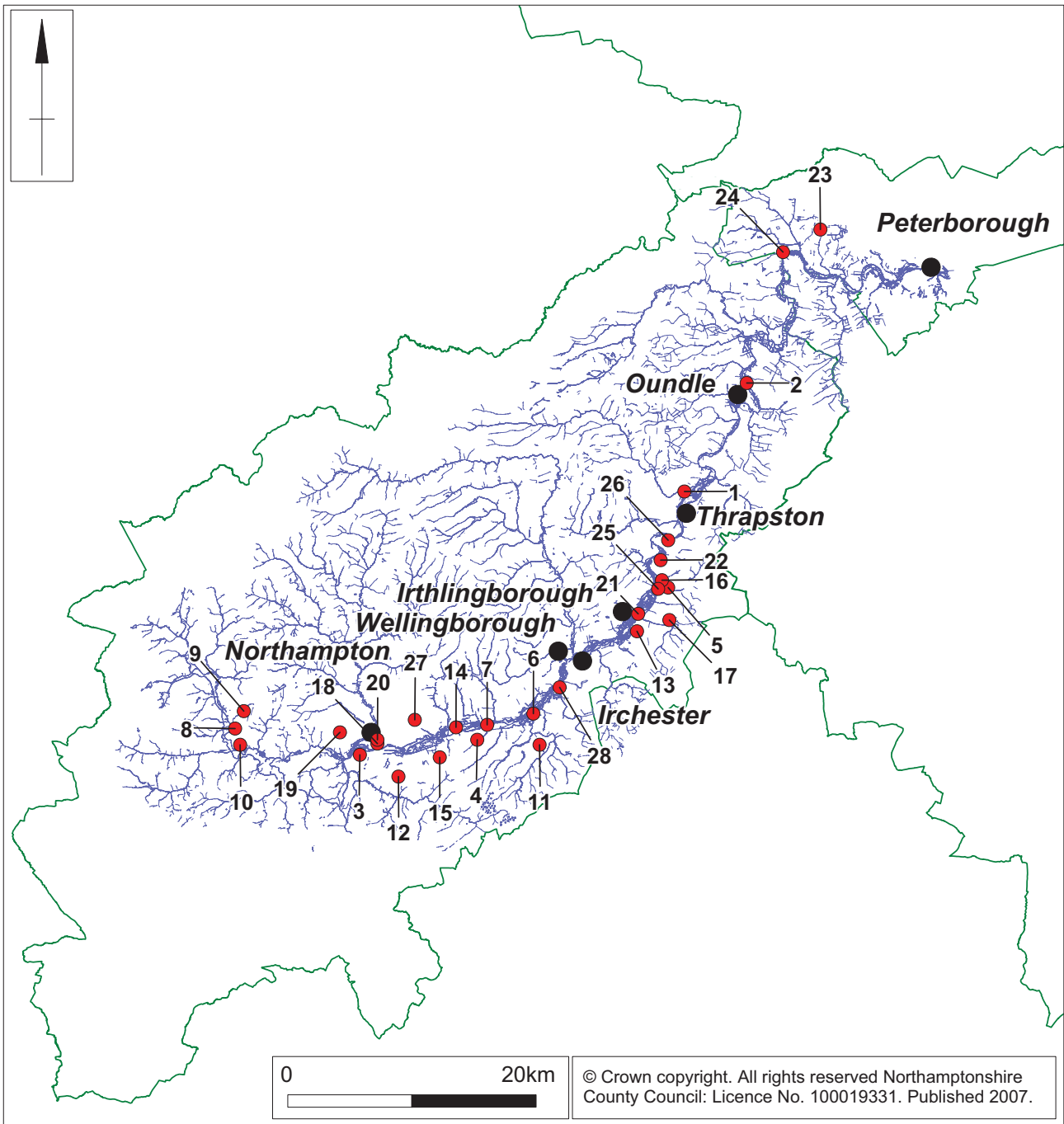
Sites and findspots

The Nene Valley has yielded a range of evidence for settlement during this period in sharp contrast to that for the preceding late Upper Palaeolithic. In total there are some 28 localities where artefacts dating to the Mesolithic have been found (Fig 2.2.5). Localities dated to the earlier Mesolithic on typological grounds by the presence of non-geometric microlith forms comprise Chalk Lane in Northampton (Williams and Shaw 1981), Aldwinckle (Jackson 1976, 1977) and Ecton (Moore 1975) with an isolated uniserial antler point found at Earls Barton (Cook and Barton 1986) dated by AMS to 9120-8200 cal BC (9240 ± 160 BP OxA-500). Possible pits and other features attributed to the earlier Mesolithic were also recorded at Chalk Lane and Aldwinckle amongst features of later date (Williams and Shaw 1981; Jackson 1976, 1977; Phillips 2004). Localities dated to the later Mesolithic by the presence of geometric microlith forms are limited to West Cotton where residual artefacts were recovered from Long Mound sediments and an area immediately adjacent to the excavation trench (Humble 2006a), Briar Hill and Higham Ferrers with their residual assemblages (Bamford 1985), and to an isolated findspot of a rod microlith from Mallows Cotton (Humble 2006b). Palaeochannels in the Grendon and Raunds areas have also been dated by radiocarbon methods to the Mesolithic (Brown 2004; Brown and Hatton 2000, 2001; Robinson 2006). Sediments preserving evidence for forest clearance have been radiocarbon dated to 4900-4700cal BC (5910 ± 40 yr BP RCD-4226) have also been recorded at Burton Latimer to the north outside of the study area (Phillips 2004; Myers 2006).

Artefact scatters and findspots attributable to the Mesolithic in general comprise the remaining twenty localities within the valley. Most notable of these sites are the small number of apparently single period scatters dating exclusively to the Mesolithic which could signify open-air settlements or specialised activity foci. The most significant of these include Duston in Northampton with its large assemblage and scatters at Flore, Wansford and Cogenhoe where smaller assemblages have been recovered (Wymer 1977; Hall 1985; Phillips 2006). No detailed analysis or study of these assemblages has yet been undertaken. Mesolithic occupation or activity of some form has also been identified at a number of multi-period scatters dating to the Neolithic and/or Bronze Age at sites such as Upton, Wollaston and Musdell (Hall 1985; Humble 2006c). Elsewhere within the valley findspots composed of two to three artefacts, mainly microliths and cores, which could indicate off-site hunting activities or the gathering of vegetable foodstuffs, are relatively widespread (Fig 2.2.6). The most important of these include finds of microliths at Hardingstone and Little Billing and isolated blade cores at Little Houghton and Grendon in the Northampton area, and at Cotton Henge where two unclassifiable microliths and a micro-burin were recorded (Wymer 1977; Humble 2006d). Other Mesolithic artefacts found in the valley include a small residual assemblage of tools and debitage recovered during the excavation of a Roman villa at Ringstead (Jackson 1980; Jackson and Parry 2006) and a couple of localities with no accurate tabulation of their finds.

Discussion and conclusions

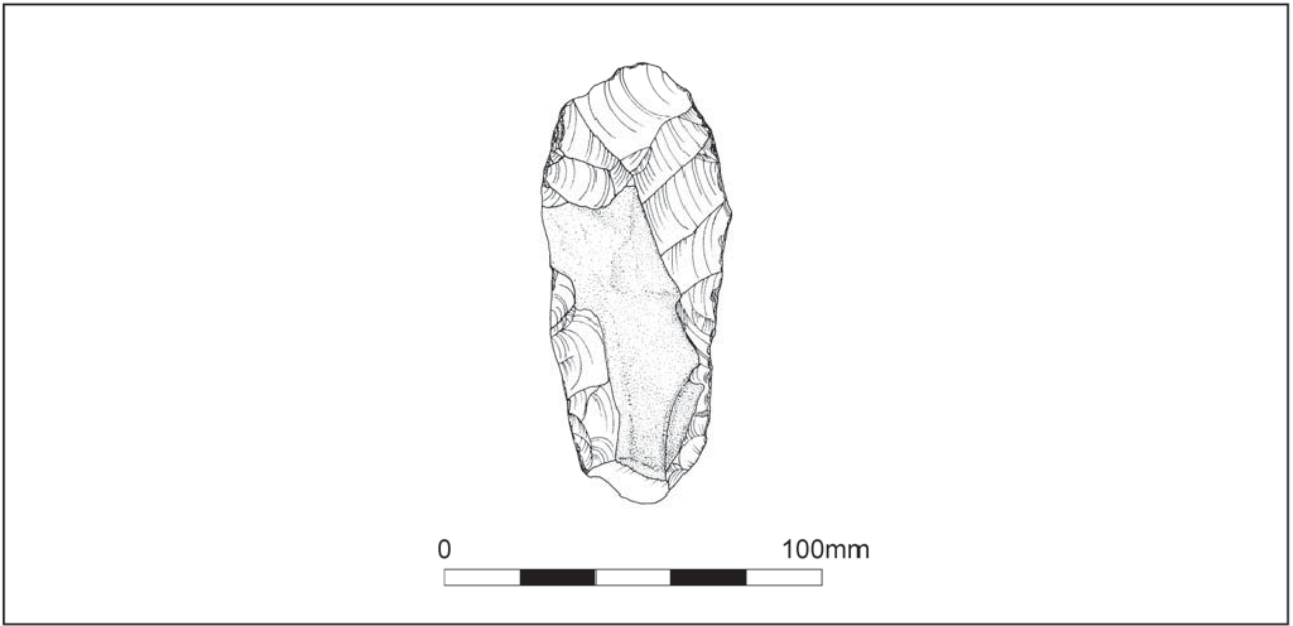
At present evidence for the Palaeolithic and Mesolithic archaeological record within the Nene Valley is limited to a small number of sites and findspots located in the floodplain and the slopes of the valley. Artefacts attributed to the Lower, Middle and Upper Palaeolithic recovered from various gravel pits suggest at least a sparse and intermittent Palaeolithic occupation dating from possibly OIS 11 some 450,000 or so years ago to the end of the Pleistocene *c* 10,000 years ago, although heavily rolled artefacts from numerous locations may suggest the possibility of earlier pre-Anglian (OIS 12) occupation of the area that was to become the Nene Valley. The late Middle Palaeolithic and both phases of the Upper Palaeolithic are represented by a small number of isolated findspots with little or



Scale 1:500,000

- | | | |
|----------------|----------------------------|------------------------------------|
| 1 Aldwincle | 11 Grendon | 20 Northampton, St. Peter's Street |
| 2 Ashton | 12 Hardingstone | 21 Redlands Farm |
| 3 Briar Hill | 13 Higham Ferrers | 22 Ringstead |
| 4 Cogenhoe | 14 Little Billing | 23 Upton |
| 5 Cotton Henge | 15 Little Houghton | 24 Wansford |
| 6 Earls Barton | 16 Mallows Cotton | 25 West Cotton, Long Mound |
| 7 Ecton | 17 Musdell | 26 Westfield Spinney |
| 8 Flore a | 18 Northampton, Chalk Lane | 27 Weston Favell |
| 9 Flore b | 19 Northampton, Duston | 28 Wollaston |
| 10 Flore c | | |

The distribution of Mesolithic sites mentioned in the text Fig 2.2.5



Mesolithic tranché axe from Flore Fig 2.2.6
24

no contextual information. Evidence for the Mesolithic occupation is more abundant across the study area and suggests a more or less continuous human presence from the onset of the Holocene *c* 10,000 years ago to the appearance of Neolithic farming communities *c* 6000 years ago, though no evidence for the Mesolithic-Neolithic transition has yet been found within the valley. Artefact scatters and findspots for this period tend to occur on gravel islands within the floodplain and on valley slopes overlooking the floodplain and conform to the wider riverine pattern of Mesolithic settlement identified for other East Midlands rivers such as the Welland, Ise and Cherwell (Phillips 2004).

While the archaeology of the Palaeolithic and Mesolithic in adjacent areas such as Leicestershire have made notable advances through discoveries of new sites and synthetic works (Graf 2002; Cooper 2004), that for the Nene Valley has lagged significantly behind in terms of both discovery and study. At present the Palaeolithic record is largely, if not entirely, composed of derived artefacts from predominately old collections with little or no contextual information other than what can be inferred from geology maps. This record can at best be described as poor and at worst, of little potential other than confirming a human presence in the valley at various times during the Middle and Late Pleistocene. It does, however, strongly suggest the possibility that some deposits with relatively *in situ* remains may survive within areas where mineral extraction has not yet occurred. The current situation for the Mesolithic is marginally better with most of the evidence for the period comprising surface artefact scatters, isolated findspots and residual materials from later period excavations, although some possible features dating from the Mesolithic have been recorded at later period sites. No excavation of a Mesolithic site has been undertaken within the valley or areas immediately adjacent to it.

If the archaeology for the Palaeolithic and Mesolithic of the Nene Valley is to move beyond only providing dots on regional and national distribution maps more emphasis needs to be placed on the discovery, excavation and recording of new sites and the recovery of associated palaeoenvironmental remains. For the Palaeolithic there is a clear need for more systematic monitoring of mineral extraction to identify, record and, where appropriate, excavate deposits containing possible *in situ* archaeological materials and for much closer liaison with geologists and palaeoecologists working within the valley. The needs for the Mesolithic are very similar and include the discovery of new localities to fill in the apparent gaps in site distribution, the excavation of sites with stratigraphic sequences and preserved palaeoenvironmental remains, and the cataloguing and typological study of existing collections to national standards. If progress can be made along these lines, then the archaeology of the valley will begin to make substantial contributions to national and regional research agendas beyond simply providing dots on distribution maps.

Bibliography

- Aitken, M J, 1990 *Science-based Dating in Archaeology*, Harlow: Longman
- Aldhouse-Green, S, and Pettit, P, 1998 Paviland Cave: contextualising the 'Red Lady', *Antiquity*, **72**, 756-772
- Aldhouse-Green, S, (ed) *Paviland Cave and the Red Lady: A Definitive Report*, Bristol: Western Academic and Specialist Press Limited
- Ashton, N, and Lewis, S G, 2002 Deserted Britain: declining populations in the British Late Middle Pleistocene, *Antiquity*, **76**, 388-396
- Ashton, N, and McNabb, J, 1992 The interpretation and context of the High Lodge Industries, in N Ashton *et al* (eds), 164-168
- Ashton, N, Cook, J, Lewis, S, and Rose, J, (eds) 1992 *High Lodge: Excavations by G. de G. Sieveking 1962-68 and J. Cook 1988*, London: British Museum
- Ashton, N, Healy, F, and Pettit, P, (eds) 1998 *Stone Age Archaeology: Essays in honour of John Wymer*, Oxford, Oxbow Books
- Bahn, P, Pettit, P, and Ripoll, S, 2003 Discovery of Palaeolithic cave art in Britain, *Antiquity*, **77**, 227-231
- Bamford, H M, 1985 *Briar Hill: Excavation 1974-1987*, Northampton Development Corporation Monograph, **3**
- Barton, N, 1998 Long blade technology and the question of British Late Pleistocene/Early Holocene lithic assemblages, in N Ashton *et al* (eds), 158-164
- Barton, N, 2005 *Ice Age Britain*, London: Batsford
- Barton, N, Roberts, A J, and Roe, D A, (eds) 1991 *The Late Glacial in northwest Europe: Human adaptations and environmental change at the end of the Pleistocene*, Council for British Archaeology Research Report, **77**, London
- Boismier, W A, 2003 A Middle Palaeolithic site at Lynford Quarry, Mundford, Norfolk: interim statement, *Proceedings of the Prehistoric Society*, **69**, 315-324
- Bonsall, C J, 1977 Gazetteer of Upper Palaeolithic Sites in England and Wales, in J Wymer (ed), 417-432
- Bowen, D Q, 1991 Amino acid geochronology, in S G Lewis *et al*, (eds), 21-24
- Bowen, D Q, (ed) 1999 *A Revised Correlation of Quaternary Deposits in the British Isles*, Geological Society Special Report, **23**, Bath
- Bowman, P, and Liddle, P, (eds) 2004 *Leicestershire Landscapes*, Leicestershire Museums Archaeological Fieldwork Group Monograph, **1**, Leicestershire County Council,
- Brandon, A, 1999 *Geology of the Wreake Valley (SK61NE, SK71NW and SK81NW (western part))*, British Geological Survey Technical Report. Nottingham, Keyworth: British Geological Survey
- Bridgland, D, 1994 *Quaternary of the Thames*, Geological Conservation Review Series **7**, London: Chapman and Hall
- Bridgland, D, Preece, R C, Roe, H M, Tipping, R M, Coope, G R, Field, M H, Robinson, J E, Schreve, D C, and Crowe, K, 2001 Middle Pleistocene interglacial deposits at Barling, Essex, England: evidence for a longer chronology for the Thames terrace sequence, *Journal of Quaternary Science*, **16** (8), 813-840
- Brown, A E, 1983 Pleistocene animal bones and palaeoliths from the Nene gravels at Great Billing and Ecton, *Northamptonshire Archaeology*, **18**, 163-165
- Brown, A G, 2004 The geoarchaeology of the Middle Nene Valley, in H E Langford and R M Briant (eds), 44-58
- Brown, A G, and Hatton, J, 2000 *Pollen Analysis of Palaeochannel Sediments from Grendon*, Report for University of Leicester Archaeological Services, Leicester
- Brown, A G, and Hatton, J, 2001 *Pollen Analysis of Palaeochannel Sediments from Grendon: Second Report*, Report for University of Leicester Archaeological Services, Leicester
- Campbell, J B, 1977 *The Upper Palaeolithic of Britain: A Study of Man and Nature in the Late Ice Age*, Oxford: Clarendon Press

- Castleden, R, 1976 The floodplain gravels of the River Nene, *Mercian Geologist*, **6** (1), 33-47
- Castleden, R, 1980 The second and third terraces of the River Nene, *Mercian Geologist*, **8** (1), 29-46
- Clark, J G D, 1932 *The Mesolithic Age in Britain*, Cambridge: Cambridge University Press
- Clark, J G D, 1954 *Excavations at Starr Carr*, Cambridge: Cambridge University Press
- Collcutt, S N, (ed) 1986 *The Palaeolithic of Britain and its Nearest Neighbours: Recent Trends*, Sheffield: University of Sheffield
- Cook, J, 1991 Preliminary report on marked human bones from the 1986-1987 excavations at Gough's Cave, Somerset, in N. Barton *et al* (eds), 160-168
- Cook, J, and Barton, N, 1986 Dating Late Devensian - Early Flandrian Barbed Points, in J A Gowlett and R E Hedges, 87-89
- Cook, J, and Jacobi, R M, 1994 A reindeer antler or 'Lyngby' axe from Northamptonshire and its context in the British Late Glacial, *Proceedings of the Prehistoric Society*, **60**, 75-84
- Cooper, L, 1997 Laude, Transactions of the Leicestershire Archaeological and Historical Society, **71**, 99-100
- Cooper, L, 2001 The Glaston gutton and other strange beasts, *Rescue News*, **83**, 1-3
- Cooper, L, 2004 The Hunter-Gatherers of Leicestershire and Rutland, in P Bowman and P Liddle (eds), 12-29
- Cooper, N J, (ed) 2006 *The Archaeology of the East Midlands: An Archaeological Resource Assessment and Research Agenda*, University of Leicester
- Currant, A, and Jacobi, R, 2001 A formal mammalian biostratigraphy for the Late Pleistocene of Britain, *Quaternary Science Reviews*, **20**, 1707-1716
- Day, M H, 1977 *Guide to Fossil Man* 3rd edition, London: Cassell
- Douglas, T D, 1980 The Quaternary deposits of western Leicestershire, *Philosophical Transactions of the Royal Society of London*, **B 258**, 259-286
- Evans, J, 1872 *The Ancient stone implements, weapons and ornaments of Great Britain*, 1st Edition, London: Longmans
- Evans, J, 1878 Address to the Antiquarian Section of the meeting of the Institute at Northampton, 1878, *Archaeology Journal*, **35**, 265-274
- Evans, J, 1897 *The Ancient stone implements, weapons and ornaments of Great Britain*, 2nd Edition, London: Longmans
- Everard, V, 1946 Note on the local archaeological finds reported at Northampton, *Journal of the Northamptonshire Natural History Society and Field Club*, **31**, 75
- Gamble, C S, and Lawson, A J, (eds) 1996 *The English Palaeolithic Reviewed*, Salisbury: Trust for Wessex Archaeology
- Garrod, D A, 1926 *The Upper Palaeolithic Age in Britain*, Oxford: Clarendon
- Green, H, Stephen, (ed) 1984 *Pontnewdd Cave: A Lower Palaeolithic Hominid Site in Wales*. Cardiff, National Museum of Wales
- Gowlett, J A, and Hedges, R E, 1986 *Archaeological Results from Accelerator Dating*, Oxford University Committee for Archaeology Monograph, **11**, Oxford
- Graf, A, 2002 Lower and Middle Palaeolithic Leicestershire and Rutland: progress and potential, *Transactions of the Leicestershire Archaeological and Historical Society*, **76**, 1-46
- Hall, D, 1985 Survey work in Eastern England, in S Macready and F H Thompson (eds), 25-44
- Horton, A, 1989 Geology of the Peterborough District (Sheet 158), *Memoir of the Geological Survey*
- Horton, A, Keen, D H, Field, M H, Robinson, J E, Coope, G R, Currant, A, Graham, D K, Green, C P, and Phillips, L M, 1992 The Hoxnian Interglacial deposits at Woodston, Peterborough, *Philosophical Transactions of the Royal Society of London*, **B 1338**, 131-164
- Housley, R A, Gamble, C S, Street, M, and Pettit, P, 1997 Radiocarbon evidence for the late glacial human recolonisation of Northern Europe, *Proceedings of the Prehistoric Society*, **63**, 25-54
- Humble, J, 2006a Flint from the southern concentration, in S Parry, 153
- Humble, J, 2006b Site 11a: Flint from fieldwalking, in S Parry, 185
- Humble, J, 2006c Flint, in S. Parry, 202
- Humble, J, 2006d Flint, in S Parry, 204-208
- Hunter, J, and Ralston, I, (eds) 1999 *The Archaeology of Britain: An Introduction from the Upper Palaeolithic to the Industrial Revolution*, London: Routledge

- Jackson, D, and Parry, S, 2006 Site 14: Ringstead villa SP 9774 7489, in S Parry, 195-199
- Jackson, D A, 1976 The excavation of Neolithic and Bronze Age sites at Aldwinckle, Northants, 1967-71, *Northamptonshire Archaeology*, **11**, 12-70
- Jackson, D A, 1977 Further excavations at Aldwinckle, Northamptonshire, 1969-71, *Northamptonshire Archaeology*, **12**, 9-54
- Jackson, D A, 1980 Roman buildings at Ringstead, Northants, *Northamptonshire Archaeology*, **15**, 12-34
- Jacobi, R M, 1973 Aspects of the Mesolithic Age in Great Britain, in S K Koslowski (ed), 237-265
- Jacobi, R M, 1976 Britain inside and outside Mesolithic Europe, *Proceedings of the Prehistoric Society*, **42**, 67-94
- Jacobi, R M, 1980 The Upper Palaeolithic in Britain, with special reference to Wales, in J A Taylor (ed), 15-99
- Jacobi, R M, 1990 Leaf points and the British early Upper Palaeolithic, in J K Kozlowski (ed), 27-289
- Jones, R L, and Keen, D H, 1993 *Pleistocene Environments in the British Isles*, London: Chapman and Hall
- D.H. Keen (ed) 1989 *The Pleistocene of the West Midlands: Field Guide*, Quaternary Research Association
- Keen, D H, 1995 Raised beaches and sea-levels in the English Channel in the Middle and Late Pleistocene: problems of interpretation and implications for the isolation of the British Isles, in R C Preece (ed), 63-74
- Keen, D H, Coope, G R, Jones, R L, Field, M H, Griffiths, H I, Lewis, S G, and Bowen, D Q, 1997 Middle Pleistocene deposits at Frog Hall Pit, Stretton-on-Dunsmore, Warwickshire, English Midlands, and their implications for the age of the type Wolstonian, *Journal of Quaternary Science*, **12** (3), 183-208
- Koslowski, S K, (ed) 1973 *The Mesolithic in Europe*, Warsaw: University Press
- Kozlowski, J K, (ed) 1990 Feuilles de Pierre. Les industries à pointes foliacées du Paléolithique supérieur européen, Actes du colloque international de Cracovie (1989), Études et Recherches Archéologiques de l'Université de Liège **42**, Liege
- Langford, H E, 2004a Evidence for ?Anglian glaciation in the Peterborough area, in H E Langford and R M Briant (eds), 14-21
- Langford, H E, 2004b Post-Anglian drainage reorganisation affecting the Nene and Welland, in H E, Langford and R M, Briant (eds), 36-43
- Langford, H E, and Briant, R M, 2004a Post-Anglian deposits in the Peterborough area and the Pleistocene History of the Fen Basin, in H E Langford and R M Briant (eds), 22-35
- Langford, H E, and Briant, R M, (eds) 2004b *Nene Valley Field Guide*, Cambridge: Quaternary Research Association
- Lewis, S G, Whitmen, C A, and Brigland, D R, (eds) 1991 *Central East Anglia and the Fen Basin, Field Guide*, London: Quaternary Research Association
- Lewis, S G, 1998 Quaternary stratigraphy and Lower Palaeolithic archaeology of the Lark Valley, Suffolk, in N Ashton *et al* (eds), 158-164
- Lowe, J J, and Walker, M J C, 1997 *Reconstructing Quaternary Environments*, 2nd edition, London: Longman
- MacRae, R J, and Moloney, M, (eds) 1988 *Non-flint Stone Tools and the Palaeolithic Occupation of Britain*, British Archaeological Reports, British Series, **189**, Oxford
- Macready, S, and Thompson F H, (eds) 1985 *Archaeological Field Survey in Britain and Beyond*, London: Society of Antiquaries
- Maddy, D, 1999 English Midlands, in D Q Bowen (ed), 8-44
- Maddy, D, Coope, G R, Gibbard, P L, Green, C P, and Lewis, S G, 1994 Reappraisal of Middle Pleistocene fluvial deposits near Brandon, Warwickshire and their significance for the Wolston glacial sequence, *Journal of the Geological Society of London*, **151**, 221-233
- McNabb, J, 2006 The Palaeolithic, in N J Cooper (ed), 11-49
- Mellars, P A, 1974 The Palaeolithic and Mesolithic, in C Renfrew (ed), 41-99
- Mithen, S, 1999 Hunter-Gatherers of the Mesolithic, in J Hunter and I Ralston (eds), 35-57

- Moore, W R G, and Williams, J H, 1975 A later Neolithic site at Ecton, Northampton, *Northamptonshire Archaeology*, **10**, 3-30
- Myers, A M, 2006 The Mesolithic, In N J Cooper (ed), 51-68
- Parry, S, 2006 Raunds Area Survey: An archaeological study of Raunds, Northamptonshire 1985-94, Oxford: Oxbow Books/English Heritage
- Phillips, G, 2004 The Mesolithic, in M Tingle (ed), 18-25
- Phillips, G, and Kidd, A, 2004 The Palaeolithic, in M. Tingle (ed), 15-17
- Posnansky, M, 1956 The Lamport post mill, *Journal of the Northamptonshire Natural History Society and Field Club*, **33**, 66-79
- Posnansky, M, 1963 The Lower and Middle Palaeolithic industries of the English Midlands, *Proceedings of the Prehistoric Society*, **29**, 357-394
- Preece, R C, (ed) 1995 *Island Britain: A Quaternary Perspective*, London: Geological Society Special Publication **96**
- Renfrew, C, (ed) 1974 *British Prehistory: a new outline*, London: Duckworth
- Reynier, M J, 1998 Early Mesolithic settlement in England and Wales: Some Preliminary Observations, in N Ashton *et al* (eds), 174-192
- Rice, R J, 1968 The Quaternary deposits of central Leicestershire, *Philosophical Transactions of the Royal Society of London*, **A 62**, 459-509
- Rice, R J, 1991 Distribution and provenance of the Baginton Sand and Gravel in the Wreak Valley, northern Leicestershire, England: implications for inter-regional correlation, *Journal of Quaternary Science*, **6 (1)**, 39-54
- Roberts, M B, Gamble, C S, and Bridgland, D R, 1995 The earliest occupation of Europe: the British Isles, in W Roebroeks and T van Kolfschoten (eds), 165-191
- Roberts, M B, and Parfitt, S A, (eds) 1999 *Boxgrove: A Middle Pleistocene Hominid Site at Eartham Quarry, Boxgrove, West Sussex*, English Heritage Archaeological Report, **17**,
- Robinson, M, 2006 Environmental archaeology of the Raunds area excavations, in S Parry, 31-37
- Roe, D A, 1968 *A Gazetteer of British Lower and Middle Palaeolithic Sites*, Council for British Archaeology Research Report, **8**
- Roe, D A, 1981 *The Lower and Middle Palaeolithic Periods in Britain*, London: Routledge
- Roebroeks, W, and van Kolfschoten, T, (eds) 1995 *The Earliest Occupation of Europe*, University of Leiden
- Rose, J, 1989 Tracing the Baginton-Lillington Sands and Gravels from the West Midlands to East Anglia, in D H, Keen, (ed), 102-110
- Rose, J, 1994 Major river systems of central and southern Britain during the Early and Middle Pleistocene, *Terra Nova*, **6**, 435-443
- Savile, A, 1981 Honey Hill, Elkington: A Northamptonshire Mesolithic site, *Northamptonshire Archaeology*, **16**, 1-13
- Schreve, D C, 2001 Mammalian evidence from Middle Pleistocene fluvial sequences for complex environmental changes at the Oxygen Isotope Substage level, *Quaternary International*, **79**, 65-74
- Schreve, D C, Bridgland, D R, Allen, P, Blackford, J J, Gleed-Owen, C P, Griffiths, H I, Keen D H, and White, M J, 2002 Sedimentology, palaeontology and archaeology of late Middle Pleistocene River Thames terrace deposits at Purfleet, Essex, UK, *Quaternary Science Reviews* **21**, 1423-1464
- Shotton, F W, 1953 The Pleistocene deposits of the area between Coventry, Rugby and Leamington, and their bearing upon the topographic development of the Midlands, *Philosophical Transactions of the Royal Society of London*, **B 254**, 387-400
- Shotton, F W, 1988 The Wolstonian geology of Warwickshire in relation to Lower Palaeolithic surface fins in North Warwickshire, in R J MacRae and M Moloney (eds)
- Shotton, F W, Keen, D H, Coope, G R, Currant, A, Gibbard, P L, Aalto, M, Peglar, S M, and Robinson, J E, 1993 The Middle Pleistocene deposits at Waverley Wood Pit, Warwickshire, England, *Journal of Quaternary Science*, **8**, 293-325
- Simmons, I G, Dimpleby, G, and Grigson, C, 1981 The Mesolithic, in I Simmons and M Tooley (eds), 82-124

- Simmons, I, and Tooley, M, (eds) 1981 *The Environment in British Prehistory*, London: Duckworth
- Smart, P L, and Frances, P D, 1991 *Quaternary Dating Methods: A User's Guide*, Quaternary Research Association Technical Guide, **4**, London Quaternary Research Association
- Smith, C, 1992 The population of Late Upper Palaeolithic and Mesolithic Britain, *Proceedings of the Prehistoric Society*, **58**, 37-40
- Smith, G M, 2007 *Taphonomic analysis of the Lynford faunal assemblage*, Report to the Norfolk Archaeological Unit, January 2007
- Smith, K A, 1995 Mammal fossils and a possible water hole and pathway from the Nene Valley, Northampton, UK, *Newsletter of the Quaternary Research Association*, **75**, 36-44
- Smith, K A., Gilmore, G K, and Sinclair, J M, 2000 Sediments and ostracoda from Courteenhall, Northamptonshire, U.K., and their implications for the depositional environment of the Pleistocene Milton Formation, *Proceedings of the Geologists Association*, **111**, 253-268
- Stringer, C B, 1984 Hominid Finds, in H Stephen Green (ed), 159-170
- Stringer, C B, 1986 The British Fossil Record, in S N Collcutt (ed), 59-61
- Stringer, C B, 1996 The Boxgrove Tibia: Britain's oldest hominid and its place in the Middle Palaeolithic, in C S Gamble and A J Lawson (eds), 52-56
- Stringer, C B, and Trinkaus, E, 1999 The human tibia from Boxgrove, in M B Roberts and S A Parfitt (eds), 420-422
- Taylor, J A, (ed) 1980 *Culture and Environment in Prehistoric Wales*, British Archaeology Reports British Series, **76**, Oxford
- Thomas, J, and Jacobi, R M, 2001 Glaston, *Current Archaeology*, **173**, 180-4
- Tingle, M, (ed) 2004 *The Archaeology of Northamptonshire*, Northamptonshire Archaeological Society
- Trinkaus, E, and Holliday, I, 2000 The human remains from Paviland Cave, in S Aldhouse-Green (ed), 141-204
- van Andel, T, and Davies, W, (eds) 2003 *Neanderthals and modern humans in the European landscape during the last glaciation: archaeological results of the Stage 3 project*, Oxford: Oxbow Monographs
- Ward, G K and Wilson, S R 1978 Procedure for comparing and combining radiocarbonage determination: a critique, *Archaeometry*, **20**, 19-31
- Wenban-Smith, F, 1998 Clactonian and Acheulian industries in Britain: Their chronology and significance reconsidered, in N Ashton *et al* (eds), 89-87
- White, M, and Jacobi, R M, 2002 Two sides to every story: *bout coupé* handaxes revisited, *Oxford Journal of Archaeology*, **21** (2), 109-133
- White, M, and Schreve, D C, 2000 Insular Britain - peninsula Britain: palaeogeography, colonisation and settlement history of Lower Palaeolithic Britain, *Proceedings of the Prehistoric Society*, **66**, 1-28
- White, M, 2000 The Clactonian question: on the interpretation of core-and-flake-assemblages in the British Lower Palaeolithic, *Journal of World Prehistory*, **14**, 1-63
- White, M, Scott, B, and Ashton, N, 2006 The Early Middle Palaeolithic in Britain: archaeology, settlement history and human behaviour, *Journal of Quaternary Science*, **21** (5), 525-541
- Whitehead, P, 1988 Lower Palaeolithic artefacts from the lower valley of the Warwickshire Avon, in R J MacRae and M Maloney (eds), 103-122
- Williams, J H, 1979 *St Peter's Street, Northampton. Excavations 1973-6*, Northampton Development Corporation Monograph, **2**
- Williams, J H, and Shaw, M, 1981 Excavations at Chalk Lane, Northampton, *Northamptonshire Archaeology*, **16**, 87-136
- Wymer, J, 1962 Excavations at the Maglemosian sites at Thatcham, Berkshire, *Proceedings of the Prehistoric Society*, **28**, 329-361
- Wymer, J, 1968 Lower Palaeolithic Archaeology in Britain as represented by the Thames Valley, London: John Baker
- Wymer, J, 1977 *Gazetteer of Mesolithic Sites in England and Wales*, Council for British Archaeology Research Report, **20**
- Wymer, J, 1985 *The Palaeolithic Sites of East Anglia*, Norwich: Geo Books

- Wymer, J, 1996 *The English Rivers Palaeolithic Project Report No. 2 1995-1996. The Great Ouse Drainage and the Yorkshire and Lincolnshire Wolds*, Salisbury: Trust for Wessex Archaeology and English Heritage
- Wymer, J, 1999 *The Lower Palaeolithic Occupation of Britain*, Salisbury: Trust for Wessex Archaeology and English Heritage
- Wymer, J, 2004 The Palaeolithic Period of the Nene, in H.E. Langford and R.M. Briant (eds), 59-62

