The Hunter-Gatherers of Leicestershire and Rutland

Lynden Cooper

Introduction

This paper has a wide remit, to present the local evidence for human existence over a period of perhaps 600,000 years. The final 6,000 years are covered in the other papers in this volume! This study crosses geological time from the Pleistocene ('most recent' period), to the present epoch, the Holocene ('wholly new' period). The Pleistocene, often termed the Ice Age, was actually an epoch with cyclical climatic oscillations, ranging from fully glacial conditions with ice sheets extending across the land mass and, as these ice sheets retreated to more northern latitudes, arctic deserts, then periglacial steppe and tundra, to warm temperate and even periods of tropical warmth. These climatic cycles meant that human occupation of Britain was intermittent – apparently restricted to the more open environments during the slow cooling periods before glacial stages or the slow warming periods that followed. Human adaptation to warm, wooded environments seems to have been a very late phenomenon, only occurring towards the end of the Pleistocene.

During this time period Britain was host to *at least* three hominid species which, more or less, can be equated with three sub-divisions of the 'Old Stone Age': the Lower, Middle and Upper Palaeolithic. However, human remains are extremely rare and none have been found in our study area. The principal evidence for this occupation is the stone tools and waste from their manufacture, although tools of organic materials are occasionally found. Each broad period shows different technological modes of stone tool manufacture (Clark 1977; Barton 1997). The Lower Palaeolithic has modes 1 and 2; the Middle Palaeolithic has the introduction of mode 3; the Upper Palaeolithic has mode 4 while the Mesolithic sees mode 5 (Table 1). From the later Middle Palaeolithic onwards increasingly marked typological differences are seen in the tool inventories. These technologies and typologies are further discussed below.

Table 1: Technological modes of lithic production

Mode 1	'Clactonian' flake and chopper industries with some crude bifaces
Mode 2	'Acheulian' bifacially flaked handaxes and flake tools
Mode 3	'Levallois' prepared core technology
Mode 4	Blades (flakes with length at least twice that of their breadth) struck from prismatic cores
Mode 5	Microlithic industries

The final melting of the ice sheets in Scotland at *c.*10,000 years ago marked the beginning of the Holocene and the change from the Palaeolithic to the Mesolithic (Middle Stone Age). It is uncertain if the changes in stone and organic tool technology represent the cultural adaptation to a changing environment or the influx of new human groups. As will be seen below, Leicestershire has a rare site that straddles the Upper Palaeolithic-Mesolithic transition, presenting evidence for cultural links with the continent. A hunting and gathering lifestyle continued to around 6,000 years ago at which time there is an apparent rapid change in material culture with the advent of the early agriculturalists of the Neolithic (Beamish, this volume). Whether the latest hunter-gatherers adapted to new economic and technological traditions from the continent or the changes signal incursions of new groups of people is still uncertain.

Recent work has seen great advances in our understanding of the earliest hunter-gatherers reflected in comprehensive national surveys of the Lower and Middle Palaeolithic (Wymer 1999) and the Upper Palaeolithic (e.g. Jacobi 1990, 1991, 1997). The wider national research aims for the Palaeolithic and Early Mesolithic are currently the focus of the Ancient Human Occupation of Britain (AHOB) project, an inter-disciplinary study bringing together specialists in Quaternary research including archaeologists, geologists and palaeontologists (Stringer 2002). The early results are encouraging and much useful research is anticipated. The scope of this paper precludes all but fleeting references to these works but the interested reader is directed to the following publications for further information. An excellent introduction to the period is 'Stone Age Britain' (Barton 1997) which covers the history of research, methods of investigation, environmental background and a chronological overview of the period. Also recommended is the popular publication about the internationally significant Lower Palaeolithic site of Boxgrove (Pitts and Roberts 1998). McNabb and Myers (forthcoming, with draft papers online) have reviewed the regional picture for the Palaeolithic and Mesolithic respectively as part of the East Midlands Archaeological Research Framework Project. These works summarise the regional evidence, propose current research agendas for our study area and relate them to the national context. Furthermore, Graf (2002) presents a detailed account of the 'progress and potential' of Lower and Middle Palaeolithic studies for Leicestershire and Rutland, summarising the archaeological evidence for our area, set within its landscape and environmental context. The paper includes illustrations of many of the artefacts discovered in recent work and serves as a good point of reference to the range of material found in the area.

A number of chronological frameworks are used in Quaternary and early Holocene studies, including direct scientific dating (radiocarbon, thermoluminescence),

pollen chronozones, geological periods and oxygen isotope stages. The latter, OIS dating, is based on deep sea and ice cores that show alternating levels of oxygen isotopes that have resulted from the climatic oscillations of the Pleistocene. Odd numbers represent warm interglacial periods and even numbers indicate cold glacial periods, the ice ages. The OIS framework will be presented with each of the period discussions below together with some indication of the time-scale. Much of the dating from the end of the Middle Palaeolithic (*c.* 30,000 BP) onwards is based on radiocarbon assay; the figures referred to are uncalibrated radiocarbon dates that can often be younger than a calendar date by several millennia.

Local Archaeological Background

Although Liddle (1982, 5) helped to debunk the myth of Leicestershire and Rutland as an archaeological desert, it does seem that the Palaeolithic and Mesolithic periods have received scant study until fairly recently. Pickering (1917) made valiant attempts to locate the local Palaeolithic, reporting a few 'cave period' finds from fieldwalking in the Hinckley area, but it was only in 1955 that Posnansky reported the first handaxe find from Leicestershire, an Acheulian handaxe from Shipley Hill, Ratcliffe-on-the-Wreake. The only other definite Palaeolithic piece was a flake implement from Blackbird Road (misreported as Bluebird Lane), Leicester, now recognised as a Middle Palaeolithic, possibly Mousterian, side scraper (Posnansky 1955; Graf 2002). Posnansky (1963) later reviewed the regional Palaeolithic picture and the evidence was still rather sparse. Wymer's 1977 gazetteer of Mesolithic and Upper Palaeolithic sites showed a complete lack of Upper Palaeolithic finds in the two counties but a significant number of Mesolithic find-spots, including some of the first finds by community archaeologists.

Some 20 years ago John Martin summarised the then 'present state of knowledge' for the two counties (Liddle 1982). He could report on 'less than 10 Palaeolithic artefacts', noting that this was a reflection of the lack of local collectors and the relatively late development of gravel working in the region, and then with mechanical excavation. Earlier extraction of sand and gravels along the southern English rivers had been slow working, presenting good opportunities for the discovery of Lower and Middle Palaeolithic artefacts. Their recovery was fuelled by a strong antiquarian interest with fine specimens of handaxes being exchanged for several pounds. Leicestershire and Rutland, along with much of the Midlands, lacked these antiquarian stormtroopers of Palaeolithic research. A similar story exists for the Mesolithic of the region. Despite some early and continuing research in areas such as the Peak District and the limestone caves of Nottinghamshire and Derbyshire, the area of Leicestershire and Rutland along with much of the Midlands has a poor history of research (Myers forthcoming). However, these gaps in Midlands prehistory are beginning to be plugged, mostly due to the simultaneous rise in community and professional archaeology since the 1970s.

The Lower Palaeolithic (OIS 15-8, 500-250,000 years ago)

The earliest hominids in western Europe appear to be the so-called *Homo antecessor* known only from two sites in Spain, thought to date to at least 780,000 BP (Falguéres *et al.* 1999; Gutin 1995). However, the few individuals of this 'species' are arguably early examples of *Homo heidelbergensis*, descendents of *Homo erectus* or *Homo ergaster* - the first hominids 'out of Africa'. 'Boxgrove man', dated to *c.* 500,000 BP, represents the only physical remains of *H. heidelbergensis* in Britain that, with their associated remains of stone tools and modified bone, were thought to represent the earliest evidence for humans in the country. However, at the time of writing there have been some important developments in the study of the earliest humans in Europe. The AHOB project has made some tantalising announcements about recent finds from East Anglia. Cut-marked animal bones and stone tools have been recovered from deposits possibly as early as 6-700,000 BP, at least 100,000 years older than the Boxgrove site. These findings have an important resonance for Palaeolithic research in the East Midlands as deposits of this period occur within our study area (Graf 2002, see below).

Lower Palaeolithic tools are ubiquitous across southern Britain, comprising Clactonian industries based on choppers and flake tools, and Acheulian industries, based upon handaxes, lithic modes 1 and 2 respectively (Clarke 1977, 23; Barton 1997, 19-24). Until recently it was thought that these modes represented a technological evolution from the crude Clactonian flake industries to the more refined Acheulian handaxes. However, the archaeological evidence from sites such as Boxgrove demonstrated that mode 2 industries could be as early as 500,000 BP (Pitts and Roberts 1998). It has been suggested that the two modes might merely reflect differences in raw material availability, though recent debate has again raised the possibility that the different technologies might indicate different hominid groups with distinct lithic production traditions (McNabb forthcoming).

The Bytham River

Pioneering geological survey in the Midlands by the late Professor Shotton (1953) identified a major pre-Anglian river channel, the 'proto-Soar'. The Bytham River (after Castle Bytham, Lincolnshire), as it is now called, has been further defined in Leicestershire by Rice (1991) and Brandon (1999) and is now seen to be a major river during the Cromerian period. The ancient channel has been traced across the Midlands flowing northeast past Coventry, into Leicestershire (along the later Soar Valley) via Huncote, Aylestone, Leicester, Thurmaston and Syston. From there it headed east via the present day Rearsby Brook, south and parallel to the Wreake, then

turning north past Melton Mowbray and on to a gorge (now buried) through South Witham and Castle Bytham and on to East Anglia (Graf 2002). The river appears to have been long-lived with four distinct terraces identified in East Anglia, each corresponding to different glacial episodes, the last being pre-Anglian. Although this level of detail is lacking in our study area, Brandon (1999) has mapped terrace remnants that are older than the Brooksby Sand and Gravel and the Baginton Sand and Gravel, the principal known Leicestershire deposits of the Bytham. The major significance of the Bytham is its early, Pre-Anglian date and associated archaeology, feasibly amongst the earliest in Britain. The lack of pre-Anglian archaeology associated with the other major river, the Thames, might suggest that the Bytham was the earliest colonisation route for Britain (note in *British Archaeology* 5, 1995).

The remarkable local archaeological potential of the Bytham channel has been clearly demonstrated at Waverley Wood Farm Pit, near Leamington, Warwickshire where four successive channels were identified with the earliest Channels 1 and 2 containing environmental evidence including animal bones, plant fossils, insects and molluscs (Wise 1993). A single worked quartzite flake was found in Channel 1, and several other artefacts were recovered by quarrymen presumably from similar deposits. These include two fine handaxes made from andesitic tuff (Shotton and Wymer 1989) and other artefacts made from quartzite (flint was absent from this part of the Midlands until derived material arrived with the Anglian tills). Amino acid dating of molluscs from Channel 2 deposits suggested that they were of OIS 13 and/or OIS 15 date, demonstrating that the human occupation was from *at least* 500,000 years ago. In Leicestershire there have been no such archaeological discoveries, as yet, although a surface find of an andesitic tuff handaxe at Rearsby was possibly derived from outcropping 'Brooksby Group' deposits (Graf 2002, 18). The original source of most Warwickshire and Leicestershire tuff handaxes is believed to be from North Wales or the Lake District. The lack of glacial erratics of andesitic tuff has led to the suggestion that the handaxes were brought to the Midlands as finished artefacts (Wise 1993), behaviour not recorded elsewhere for the Lower Palaeolithic. The discovery of a biface from Burbage of tuff similar to the Charnian 'Beacon Beds' (Graf 2002, 22 & Fig. 4) and a handaxe/chopping tool made from tuff at Scalford (see below) has raised the possibility of a more local source; there are tuff outcrops of the Beacon Hill Formation at Bradgate Park, Newtown Linford.

Archaeological evaluation and earlier boreholes at the proposed Brooksby quarry have revealed organic deposits within the Brooksby Sand and Gravels (Graf 2002; Rice 1991). As McNabb (forthcoming) comments such environmental sites have to be considered as important to our understanding of the Palaeolithic as those sites with evidence of human agency. At Brooksby the environmental indicators point to a slow-moving river in the mild climate of a warm interglacial or interstadial.

Two major tributaries flowing south-east into the main Bytham channel have also been identified, one running along the Hinckley Valley, joining the Bytham south of Hinckley, and the 'Derby river' running from Derbyshire and joining the main river at Syston. The latter has a remnant of surviving terrace at Hathern (Brandon 1999, 35). These have, as yet, unrealised potential but mapping and targeted field survey of areas where there are surface deposits of the Bytham and tributaries might yield results.

The Anglian glaciation of *c.* 470,000 years ago blocked the Bytham River leading to ice-dammed lakes such as Lake Harrison in South-west Leicestershire (Rose 1989, Graf 2002). The British Geological Survey map the lake deposits as Bosworth Clays and Silts. Although no archaeological material has yet been found in these deposits, Graf (2002, 20) points out the potential for lakeside occupation during warmer climatic intermissions.

Local evidence: the Waite collection

A remarkable collection of Lower Palaeolithic artefacts has been found around the Warwickshire and Leicestershire border, almost entirely the efforts of a single fieldworker, Ron Waite. Some of the Warwickshire material has been described by Saville (1988) while the Leicestershire material is currently the subject of research by Anne Graf. The material is predominantly quartzite and includes handaxes, choppers and flake tools all showing varying degrees of rolling (Graf 2002, 6). Shotton (1988) mapped the available Warwickshire material and showed an apparent correlation with Wigston sand and gravels of early Anglian age (see also Wymer 1999, map 54). The finds were seen to be transported to the area by glaciers, originally deposited in the Pre-Anglian or early Anglian at sites further north. However, numerous further finds by Ron Waite now show that the extent of discoveries is not in any way restricted to the Wigston sand and gravel, and occur wherever he has been able to search, on a variety of geologies (*pers. comm.* A. Graf).

There are still many uncertainties with the collection regarding its date, whether it is a palimpsest and the depositional mechanisms that preserved the material. However, as John Wymer has stated: "It may suggest a considerable human presence during Period 1 [i.e. before OIS 12, pre-Anglian] of this survey and raise the question as to what else has either been unpreserved or not yet discovered." The latter point echoes a famous quote from Evans in his second edition of Ancient Stone Implements (1897) following the discovery of a quartzite handaxe at Saltley, Birmingham: "the absence of palaeolithic implements in Britain north of an imaginary line drawn from the mouth of the Severn to the Wash…may be due to their not having yet been found, and not to their non-existence" (Evans 1897, 580 cited in Wymer 1999, 114). That the material is predominantly

quartzite might also support an early date, as a local flint resource was only available from the Anglian glaciation. Graf (2002) has highlighted the use of non-flint raw material for other Lower Palaeolithic findspots in the study area including handaxes of andesitic tuff (Rearsby) and Charnian tuff (Burbage). A recent find by Alan Massey of a handaxe/chopping tool at Scalford (Fig. 1), was also made of a volcanic tuff, probably of a Charnian type from the Charnwood area (R. Clements, *pers. comm.*). This example serves to make an interesting point regarding the visibility of non-flint artefacts; on being shown the biface several professional colleagues admitted that they would not have recognised the piece as an artefact. A training programme for the identification of non-flint artefacts appears to be necessary for both amateur and professional fieldworkers!

For an up-to-date summary of the Lower Palaeolithic evidence in our study area the reader is directed to Wymer (1999) and Graf (2002). Exceptions are the Belvoir Scarp handaxe/chopper discussed above and a surface find of a rolled Acheulian handaxe from Huncote, found during a recent fieldwalking survey by ULAS.

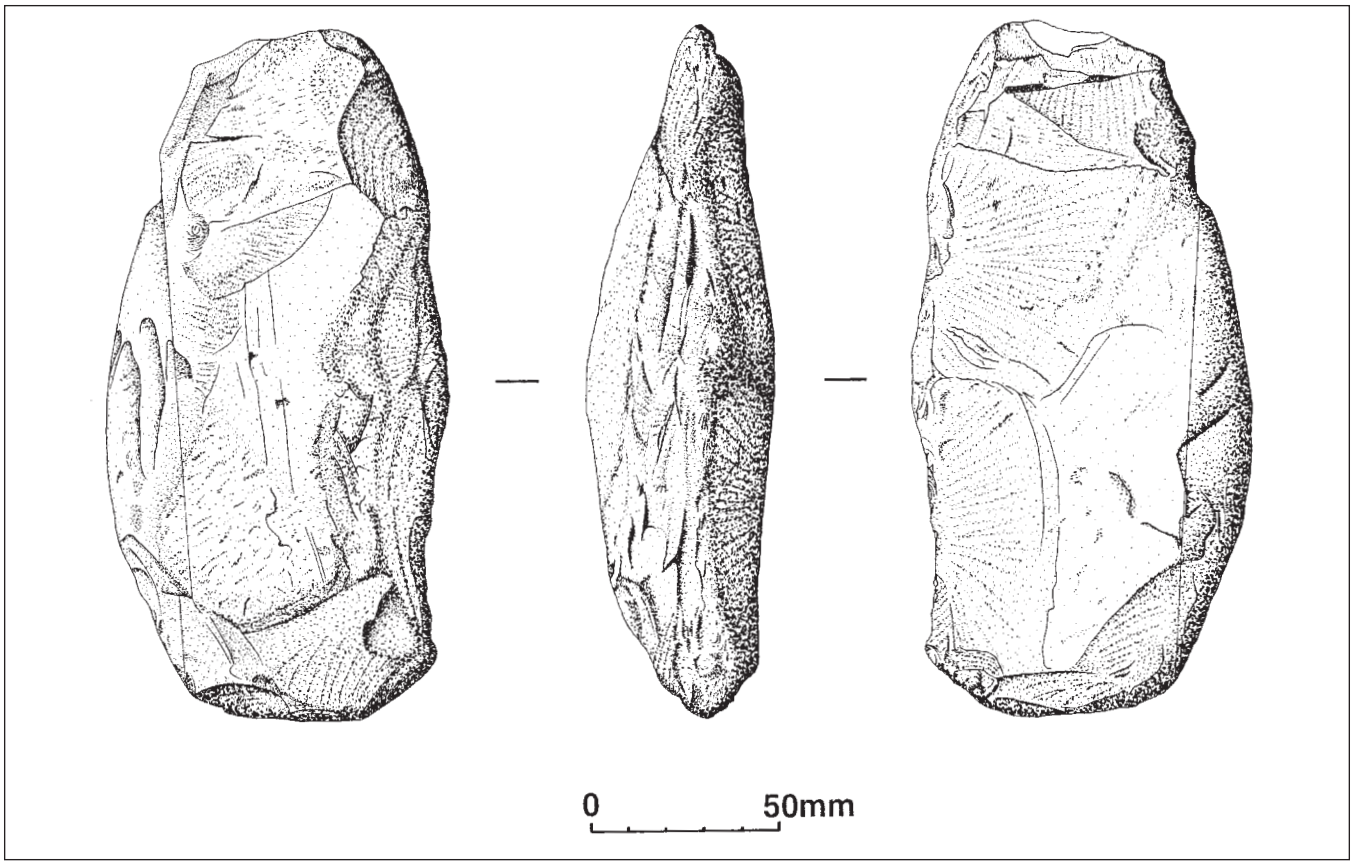
The Middle Palaeolithic (OIS 7-3, c.250-30,000 years ago)

The Middle Palaeolithic is defined by the appearance of the mode 3 of lithic production, the use of prepared core technology, the Levallois and discoidal technique (Clark 1977; Barton 1997). This appears to have arrived, or evolved, around 250,000 years ago in OIS 8-7. There are hominid remains from this period from sites such as Swanscombe but their species is uncertain – they appear to resemble the later Neanderthals (Stringer and Gamble 1993). There are a few isolated Levallois or possible Levallois finds from the study area including a handaxe from Eastwell, a scraper from Leicester, a flake from Syston and a transverse scraper from Sutton Cheney, the latter of andesitic tuff (Graf 2002, 31).

The glacial episode of OIS 6 might have led to ice cover over our study area, though this is a subject still being researched. Human groups apparently abandoned Britain in favour of more southerly latitudes. The following warm period, the Ipswichian interglacial of OIS 5e, led to tropical climes in Britain with a rich fauna including hippopotamus, elephant, rhinoceros, deer, bison and aurochs (Barton 1997). Curiously, human occupation appears to be absent during this warm period and the subsequent cold stages of OIS 5a-d and OIS 4. It is not until OIS 3 at *c.* 58,000 BP that Neanderthals colonised Britain. It is possible that the North-west European peninsula was too marginal for them and their re-appearance might reflect pressure from the incursion of anatomically modern humans into the favoured territories of the Neanderthals (White and Jacobi 2001).

The few lithic assemblages that seem to be of this date show signatures very similar to the Mousterian of

Fig. 1. A handaxe or chopping tool made from a possibly local tuff; surface find, Scalford.



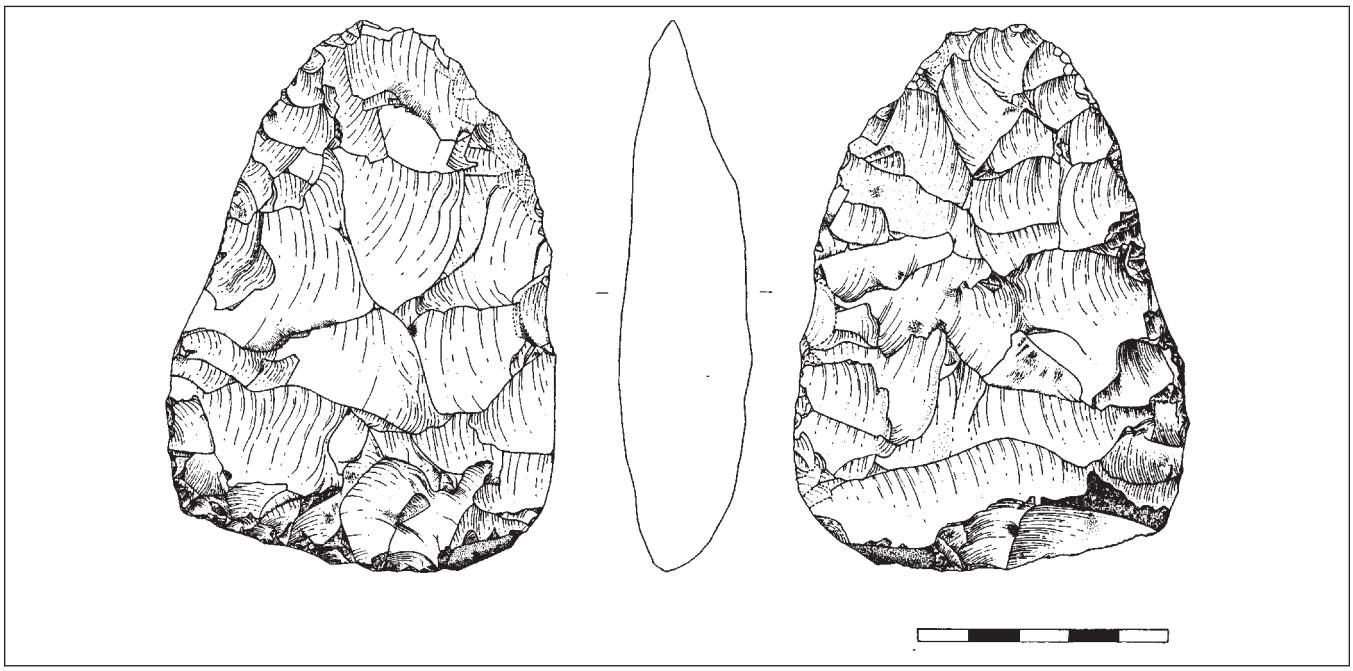


Fig. 2. A *bout coupé* handaxe, Marston Trussel, Northamptonshire.

France, although a feature of the British Mousterian appears to be the distinctive *bout coupé* handaxes. These fine handaxes hint at an increasing regionalisation of the Neanderthals. There are no hominid fossils from this period in Britain although important remains have been found in France and Germany. Indeed, British Mousterian assemblages are far from common although a recent find in a silted pond at Lynford, Norfolk demonstrates that sites of this date can be very productive. The site has abundant handaxes and knapping debris around the butchered remains of mammoths, though whether this was a kill or scavenging site remains uncertain (Boismier 2002).

Mousterian finds in our area include the previously mentioned side scraper (Posnansky 1955) and probable bout coupé handaxes from Stanton-under-Bardon (Liddle 1992) and Aylestone (Cookson and Tyldesley 1985). Incidentally, following the presentation of a version of this paper at the LAFG conference Dr. A.E. Brown presented a rather fine example of a classic bout coupé handaxe to the author. This was found at Marston Trussel, Northamptonshire on the Devensian terrace of the Welland, barely beyond the limits of our present study. However, it is such a good example of these rare finds that an illustration of the piece in this paper seems justified (Fig 2). It might also serve to encourage fieldworkers on the northern bank of the Welland to seek out something equally impressive!

The Upper Palaeolithic (OIS 3-2, 35-10,000 BP)

During the latter half of OIS 3, *c.* 40-30,000 BP, the 'Cro-Magnons', anatomically modern humans, moved into northwest Europe. In areas where the archaeology of these people is well preserved and researched, such as the Dordogne, France, there is compelling evidence for a very different people compared with the Neanderthals. The newcomers leave evidence for tent structures, hearths and symbolic expression in their artwork on artefacts and cave walls. Behavioural differences are also evident in the formal burial of the deceased, often with some elaboration. The 'Red Lady' of Paviland is the most westerly example of a wide burial tradition extending across much of Europe (Aldhouse-Green 2000).

Upper Palaeolithic stone tool technology is based upon the controlled production of blades (mode 4) that were either used unmodified or else served as blanks for tools such as projectile points, knives, scrapers, burins and piercers. The use of organic material such as bone, ivory and antler to make other tools is common, while the presence of needles suggests that clothing was more elaborate. These humans appear to have wide-ranging territories or contacts with exotic items such as amber found long distances away from their source. In parts of France the Upper Palaeolithic sequence is continuous, while in Britain there is a hiatus in occupation during the colder part of OIS 2 from *c.* 22-13,000 BP. Ice sheets extended south as far as the Lincolnshire Wolds and periglacial conditions prevailed across the area of Britain to the south of the ice mass.

Neanderthal-Modern transition and the Early Upper Palaeolithic

Three successive stages have been proposed for the British Early Upper Palaeolithic (Jacobi 1980). The earliest stage's identity relies upon the finding of distinctive leaf-shaped flint points (blades or bifacial pieces). Leaf point industries are found across a wide area of Northern Europe from Poland to Wales and are

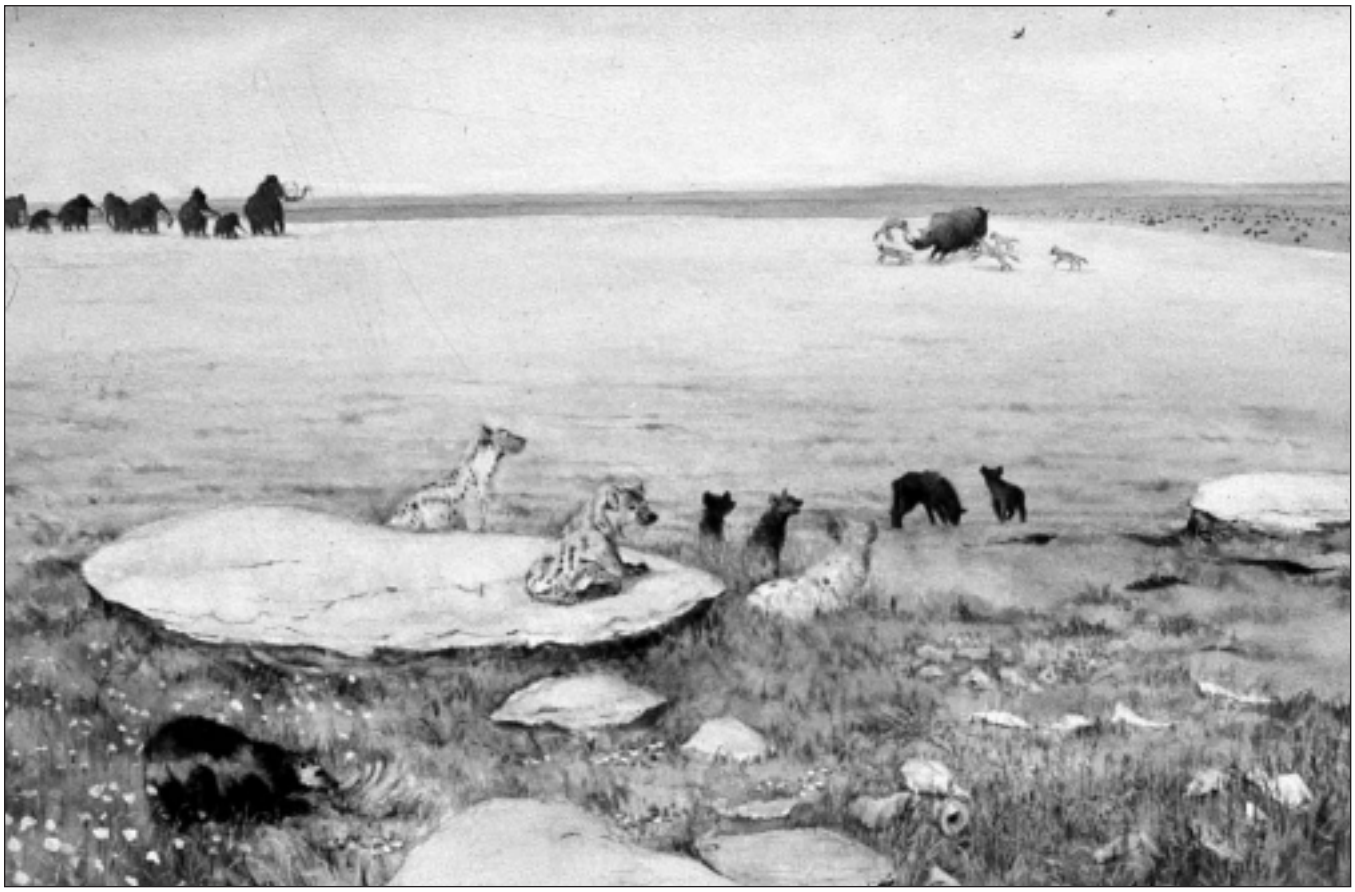
thought to date to 40-28ka (Aldhouse-Green and Pettitt, 1998). During this period northern Europe is host to both the last of the Neanderthals and the newly arrived modern humans. It is unknown which species was responsible for leaf points, though current opinion suggests that they may be products of the Neanderthals (*ibid*). Some 24 leaf point sites are reported from Britain, mostly finds from old excavations of caves, the nearest being at Creswell Crags (Jacobi 1990). The contextual information from these excavations is rather pitiful and their chronological positions are far from clear. There is a single radiocarbon date of 34,500 BP from a hyaena jaw found resting on a leaf point at Bench Tunnel Cave, Devon *(ibid*).

An important addition to the national dataset is an open-air site that was recently excavated at Glaston, Rutland by ULAS with collaboration from the British Museum and Natural History Museum (Cooper 2001; Thomas and Jacobi 2001; Fig. 3). The site lies on a ridge flanked by tributaries of the rivers Chater and Welland, a location that probably dictated the original occupation and the subsequent survival of deposits. At the ridge summit were a series of sandstone rafts, the basal Collyweston facies of the Lincolnshire Limestone series, overlying Lower Estuarine sands. The location was a focus for two Pleistocene hunters, humans and hyaena. The hyaena took advantage of the site geology, digging burrows in the soft sands beneath the stone rafts. Remains of their prey were littered around the den and included long extinct species such as woolly rhinoceros, wild horse, woolly mammoth, and animals now exotic such as wolverine (glutton), mountain hare and reindeer. The evidence for the humans was slight comprising a small number of worked flints including a leaf point, a core, several flakes, a few modified into tools, and minute chips. The latter demonstrate that humans stayed at the site and worked flint there, albeit probably for a limited period of time. It is possible that some of the flints were deliberately left at the site as insurance for a possible future visit. The animal bones are currently being investigated at the Natural History Museum; and a principal objective of this work is to examine them for signs of human modification, such as butchery marks.

The remains appeared to have been preserved due to a 'Sackung process' whereby deposits on the ridge crest subsided into a fault basin caused by cambering of the valley sides (Collcutt 2001). The bone survived due to the calcareous ground chemistry caused by the leaching of solution from the Collyweston sandstone rafts. Ed Rhodes of the Oxford Dating Lab. has recently announced a date of 30,000 ± 3,000 BP obtained by optical stimulated luminescence of sand deposits directly beneath the leaf point, effectively dating the most recent exposure of quartzite grains to sunlight. Further dates may be obtained from the animal bone.

Glaston has been important in that it has highlighted the great potential for survival of Palaeolithic deposits on

Fig. 3. Reconstruction of the Glaston landscape when the site was occupied by a pack of hyaena. © Jane Brayne



ridge tops and Clive Jones (2002) has suggested that graben structures are likely to extend along the entire length of ridge crests in Rutland (Graf 2002, 30). Collcutt's assertion that the survival of the Glaston site might not be entirely capricious means that we might anticipate Palaeolithic deposits being located elsewhere along the Jurassic Stone Belt of the East Leicestershire Uplands and Rutland. Possibly pertinent here is a single large, patinated flake recovered from a fissure in the bedrock at Ridlington, located on a ridge top some 9 km to the west (Cooper 2002b). Another possible Early Upper Palaeolithic site might be indicated by a chance surface find from Whatborough Hill (*ibid*). This core tablet, a flake struck off to rejuvenate a core platform, displays a surface condition suggesting considerable antiquity (heavy patina, wind gloss and frost fractures).

The second stage in the British Palaeolithic is equated with the classic French sequence as Aurignacian II where we see the first positive signs of modern humans. In turn this is followed by the Gravettian, where the distinctive lithic signature is the presence of tanged blades, Font Robert points (Jacobi 1980). The national evidence for these stages is extremely limited so we should not be surprised that there are no remains in the two counties. However, we can recognise some local potential as with the terraces along the river Soar that have produced remains of Pleistocene fauna such as mammoth.

Around 22,000 BP the climate became much cooler with the onset of the Dimlington Stadial, culminating with the Late Glacial Maximum at *c*. 18,000 BP. Ice sheets moved down into the Midlands reaching the high ground in Lincolnshire and the Peaks, creating periglacial conditions in our study area. It is believed that the polar desert conditions precluded human occupation and, for most of this period, the area was abandoned by all of the large mammals. Humans once again left Britain and northern Europe retreating to more southern refuges such as southern France.

Later Upper Palaeolithic (OIS 2-1, 13-10,000 BP)

Following the climatic amelioration of the Lake Windermere Interstadial Britain was re-colonised, but this was probably not a continuous process, being affected by rapid fluctuations in climate and environment. Radiocarbon dating and distinct typological and technological differences in material culture (lithics and organic tools) suggests that the process was punctuated. Four different traditions are apparent and it is suggested that these are broadly chronological, although the genetic linkage of the populations responsible for these traditions remains uncertain.

Fig. 4. Reconstruction of the Glaston landscape when the site was a temporary stopover by a small group of humans. © Jane Brayne. The originals of figs 3 and 4 are on display at Rutland County Museum, Oakham.

The Creswellian hunter-gatherer (12,600 – 12,000 BP)

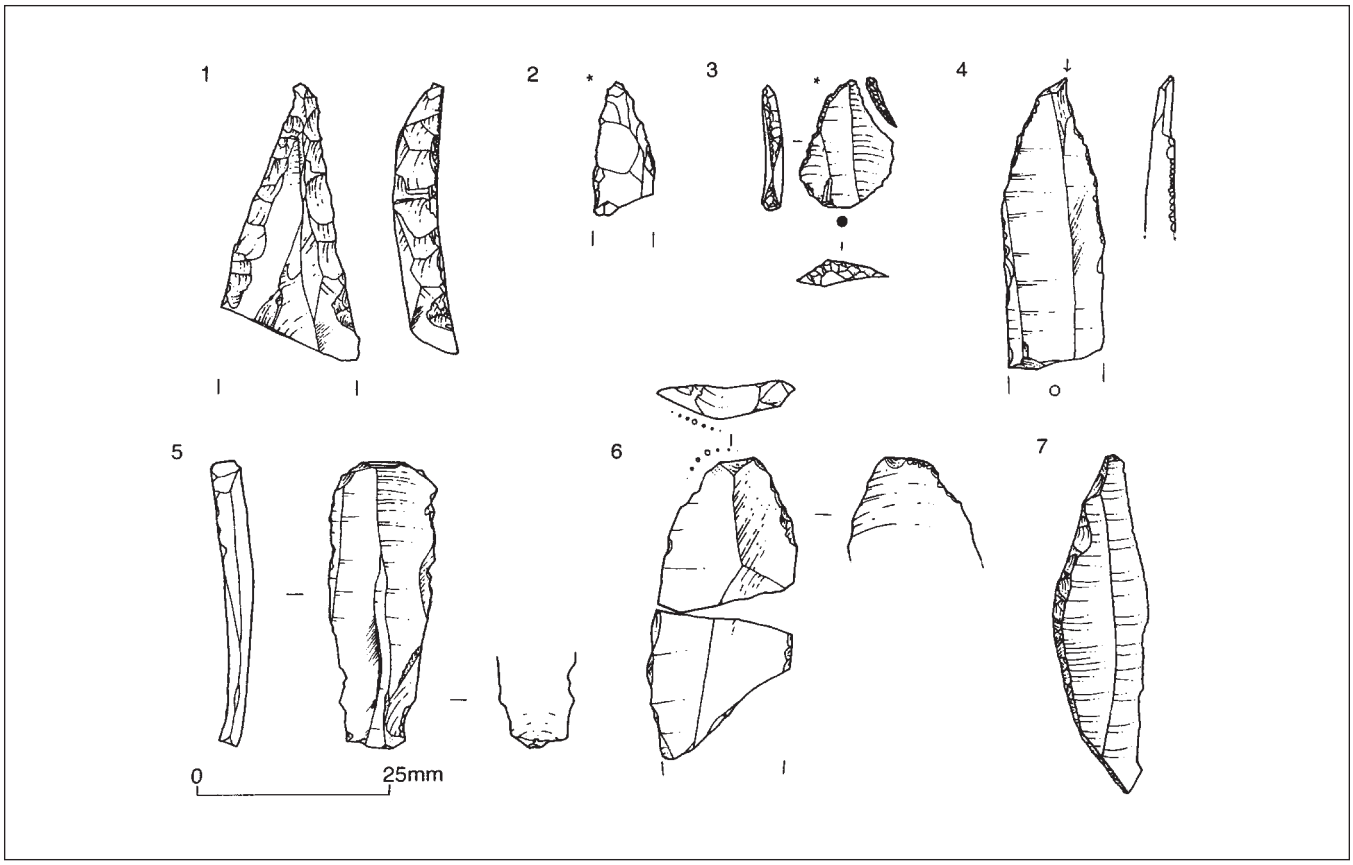
Radiocarbon determinations on cut-marked animal bone suggests that Britain was re-colonised around 12,600 years ago, possibly with some previous pioneering incursions indicated by a few older dates (Jacobi 1991). The distinctive culture that appears in Britain is termed the Creswellian, named after the cave sites at Creswell Crags on the Nottinghamshire/Derbyshire border - Mother Grundy's Parlour cave being the type site (Garrod 1926). The type fossil for this period is now seen as the trapezoidal backed blade or Cheddar point (Jacobi 1991). A variant of the Cheddar point is the Creswell point (angle backed), but these pieces are not so chronologically or culturally restricted, being also found in the succeeding Final Upper Palaeolithic. Blade production is also very distinctive, and a particular method of platform preparation, the *en éperon* technique has been regarded as a Creswellian signature (Barton1990). The technique is not found in any of the other Late Glacial lithic traditions, although it is seen in the continental Late Magdelenian, suggesting some cultural links and/or that the current typo-chronological classification is perhaps too rigid.

Jacobi (1991) records some 28 British Creswellian find-spots though this figure will have increased slightly from new discoveries such as two recent Leicestershire sites. Fieldwalking by the then Trent and Peak Archaeological Trust at Lockington-Hemington produced a Cheddar point and three possibly contemporary blades (Cooper and Jacobi 2001). This find adds to a number of Cheddar points recovered by fieldwalking in Nottinghamshire (Jacobi *et al.* 2001). These were mostly isolated finds but an important open-air site was identified at Farndon, near to Newark (Garton 1993). The Shotton Project (see below) has offered to support the re-surveying of the Lockington-Hemington findspot area.

The second Creswellian site was a remarkable recent find by G. and C. Coombs of the Shepshed Fieldworkers made at the Bradgate Park Estate, Newtown Linford (Cooper 2002a). What might have been recorded as a Mesolithic site, due to the high proportion of blades and bladelets, was recognized as a likely Upper Palaeolithic site when R. Knox identified a distinctive Cheddar point while identifying material for the SMR.

The Coombs and the author have recovered a tight cluster of flints from deposits eroded by a footpath. The assemblage of more than 450 flints includes two Cheddar points, backed blades, burins and several piercers, many represented by broken tips (Fig 5). A core, unmodified flakes and blades and numerous small chips indicate flint knapping at the site. Seven of the blades exhibit the distinctive en éperon butts thus confirming the Creswellian identity. The presence of minute flint chips and dust indicates that the site had

Fig. 5. Selection of tools from the Creswellian site at Newtown Linford (1-7): Piercers (1 and 2), micro-piercer (3), obliquely truncated blade with a burin scar (4), retouched blade with *en éperon* preparation (5), blade with worn end (6), Cheddar point (7).



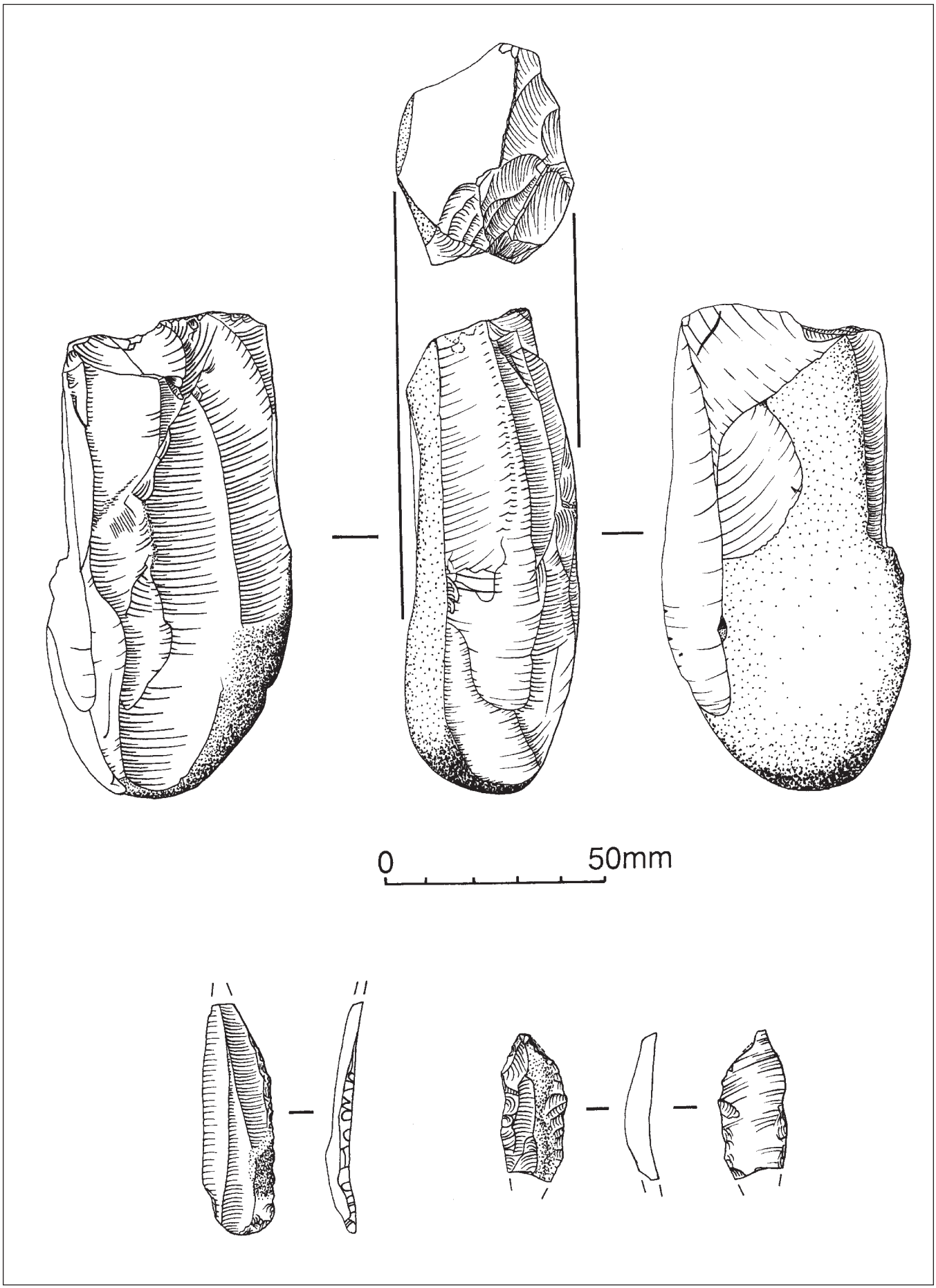


Fig. 6. Late Upper Palaeolithic blade core and backed blades, Scalford and Eaton border.

been buried rapidly, possibly by loessic deposits (wind-blown cover sands). A high proportion of burnt flint would suggest that the knapping and other activities occurred around a hearth. The hunters appear to have been taking advantage of the site's topography, probably using the narrow gorge to corral animals such as wild horse to an ambush site. This situation mirrors in small part the topography and hunting techniques inferred from remains at Cheddar Gorge (Jacobi 1997, 501). This is the first *in situ* open-air Creswellian site identified in Britain and is arguably of international significance (Cooper 2002a). In contrast to assemblages from cave sites, where multiple occupations appear likely, the Newtown Linford site presents a clean assemblage from a limited occupation and the structure of the assemblage should throw new light on some of the museum collections derived from cave excavations (R. Jacobi *pers. comm.*; McNabb forthcoming).

Two other Creswellian find-spots have also been recorded in the near vicinity, presenting important clues as to how these pioneering hunters exploited their landscape. Such recent finds highlight the great potential for Upper Palaeolithic and Mesolithic archaeological evidence from the Charnwood uplands, an area where further fieldwork would be beneficial. Much of the area has been marginal, such that there are areas that have escaped ploughing, or have only recently been cultivated. The possible loess (wind-blown sand) cover over the Newtown Linford site is of some interest as there are many examples of continental Late Glacial sites surviving beneath such deposits (Graf 2002, 29; Stapert 2000). The Charnwood area also has great potential for rock shelters, with potential survival of *in situ* sites on down-slopes (Graf 2002, 22).

Hengistbury Head type sites (Straight-backed blades, c.12,000 BP)

There are a small group of British sites that appear to be of a slightly younger date and different character to the classic Creswellian. The type-site Hengistbury Head, Dorset was a residential hunting camp situated on the Head's promontory (Barton 1992). Straight-backed blades followed by end scrapers and burins dominated the tool repertoire. Also represented were tanged points, shouldered points, truncated blades and a few angle-backed points including Creswell points. No such sites have yet been identified in our study area, though intuitively the Creswellian and other Late Glacial evidence suggest the presence of hunter-gatherers. As mentioned above there are reasons for regarding the Hengistbury Head site types as younger, although this has been difficult to demonstrate as the two traditions have been dated by differing methods; the Creswellian by radiocarbon and the Hengistbury Head sites by thermoluminesce dating (TL) of burnt flint. Proposed TL dating of the Newtown Linford assemblage will allow for the first time comparison of these two traditions.

'Federmesser' sites (convex-backed blade assemblages, 12-10,800 BP)

The pollen record of Northern Europe shows a change to a more wooded environment around 12,000 BP, the beginning of the *Allerød* chronozone. The distinctive lithics associated with this phase are the *federmesser* (convex backed blades) including a variant, the penknife point (shouldered, convex backed blade). *Federmesser* technologies appear across much of northern Europe and are probably linked to Azilian industries from southern Europe (Schwabedissen 1954). The small size of some *federmesser* and penknife points has been seen as an indication of a change in hunting weaponry from the spear thrower to the bow and arrow, probably an adaptation to the greater tree cover with hunters having to adapt to more encounter-based hunting strategies. Of the four distinct Late Upper Palaeolithic traditions the Federmesser sites are the most numerous suggesting relatively high population densities.

A single *federmesser* was found at Castle Donington on the Devensian terrace of the Trent (Cooper and Jacobi 2001). Curved backed pieces also occur in the Mesolithic, and it is possible that smaller examples of *federmesser* have been assigned to the Mesolithic.

Terminal Palaeolithic 'long blade' sites (10,300 – 9,700 BP)

A rapid cooling phase *c.* 10,800 BP, the Loch Lomond re-advance (equivalent to the continental Younger Dryas), has been termed the last gasp of the ice age (Barton 1997). It saw the development of ice sheets in Scotland and the likely withdrawal of humans from the more northerly latitudes of North-west Europe. The gradual amelioration from *c.* 10,300 BP allowed hunters to return in pursuit of animals of the open tundra landscape such as reindeer and horse. The lithic assemblages of this period have been termed 'long blade' sites, having close analogues in a series of sites in northern France (Fagnart 1991). They also bear some similarity to the Ahrensburgian sites of Germany, Holland and Belgium (Johansen and Stapert 2000). Of the 28 reported English 'long blade' sites only Three Ways Wharf, Uxbridge, Greater London has been dated directly with two radiocarbon dates of *c.* 10,000 and 10,200 BP returned on butchered horse remains (Lewis 1991). These dates fall within a span of 10,300-9,700 BP attained from the French 'long blades' sites and those of the German-Dutch Ahrensburgian (Fagnart 1997; Deeben et al. 2000).

An important 'long blade' site was excavated by ULAS at Launde in advance of the construction of the Wing – Whatborough pipeline (Cooper 1997). This comprised a small, dense scatter of worked flint surviving just beneath the plough zone. The flint scatter was only 7m in diameter, probably representing short-term occupancy of the site. The small size has repercussions when considering site prospection - close-spaced fieldwalking or sub-surface sampling is essential to locate such small hunter-gatherer campsites. For much of the Upper

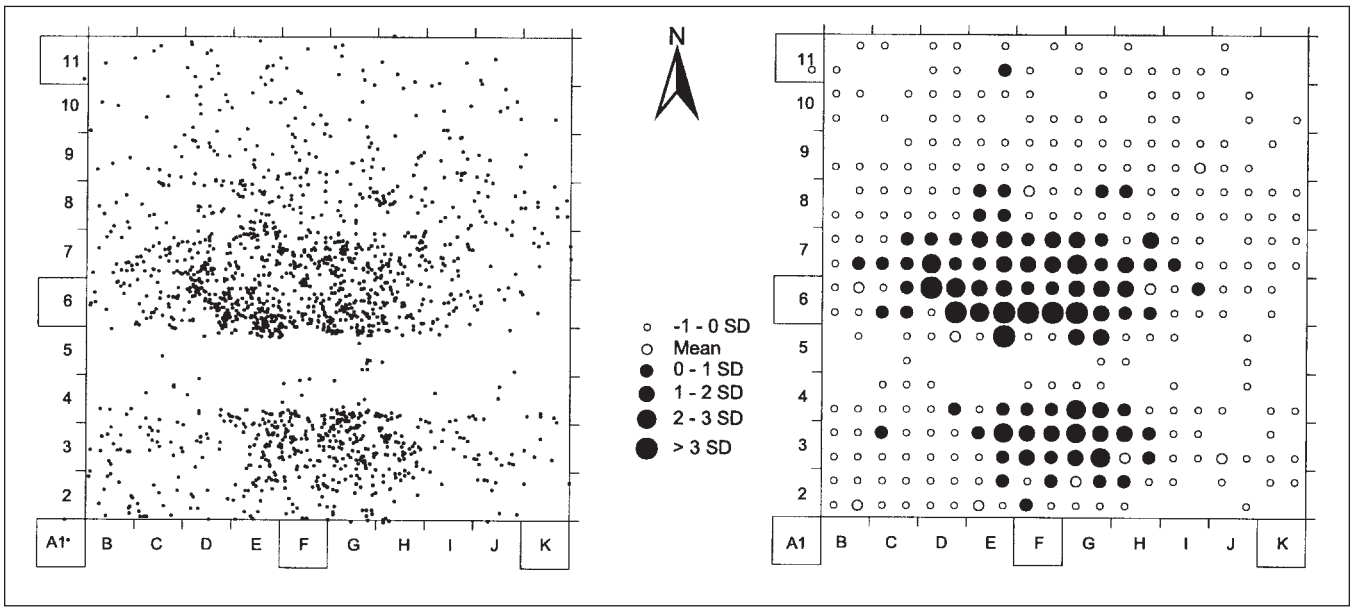
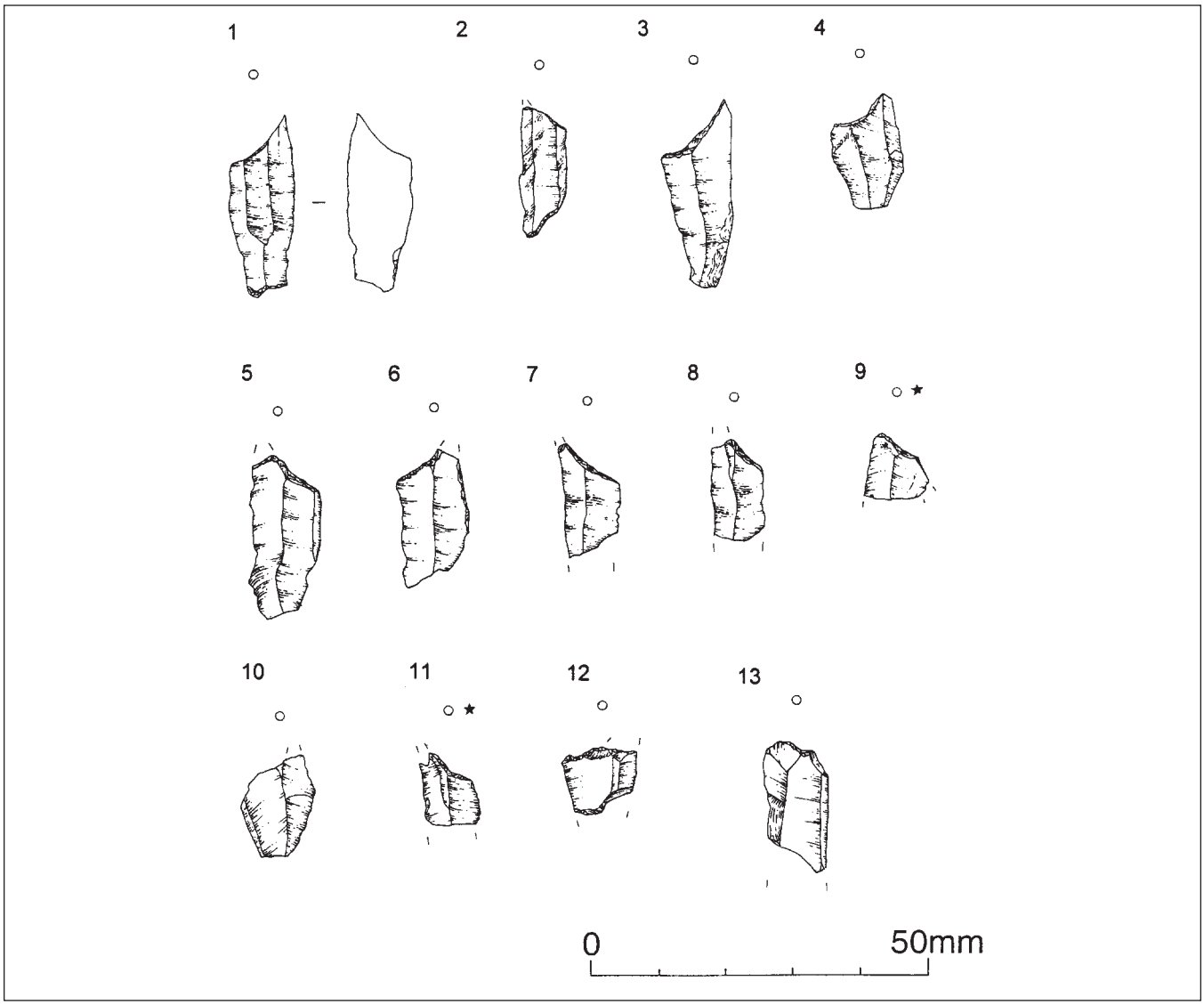


Fig. 7. Spatial plots of tools and long blade debitage from the Terminal Palaeolithic site at Launde. Note the blank swathe caused by a previous evaluation trench.

Fig. 8. The projectile points from Launde.



Palaeolithic, occupation in Britain was probably by small pioneering groups, such that their archaeological remains will be mostly from such small sites.

Much of the Launde scatter is the distinctive debris from blade and bladelet production including blade cores, crested blades, platform preparation flakes and hundreds of blades and bladelets. The raw material used was probably from the boulder clay in the near vicinity. The large size of the nodules, in comparison with the debitage of later periods, probably reflects the recovery of choice pieces from the surface of the boulder clay plateaux. Some of the blades were as long as 150mm, though medium-sized blades of 80-120mm showed the greatest care in their production. Blade debitage followed a distinctive *chaîne opératoire* or operational sequence, differing considerably from the techniques known from the Creswellian and the succeeding Mesolithic period. Blade production was usually from prismatic cores with opposed platforms. The detachment of blades alternated between the two platforms thereby producing long blades with a straight profile. The platforms were carefully prepared before each removal either by partial edge faceting, small flakes or chips removed from the platform edge, trimming of the core front and/or abrasion of the platform edge. Consequently one third of the blades displayed faceted butts, while 95% showed some degree of core preparation. This contrasts with the platform preparation methods of the Mesolithic where large core tablets were removed to adjust the platform angles. The morphology of the butts and percussion bulbs suggests that initial core reduction employed a hard stone percussor, while the inner blades were removed by a soft stone percussor.

Much of the material had been burnt in antiquity, indicating that the knapping was undertaken around a hearth structure. A plot of the burnt pieces suggested the hearth was central to the scatter. Immediately adjacent to the inferred hearth were several obliquely truncated points, almost certainly projectile heads from arrows. Some of the points have impact fractures suggesting that hearthside activity included re-tooling of arrowshafts. Fire would be required to soften the organic mastics (e.g. birch resin) used to haft the points to their arrow shafts. The manufacture of replacement projectile points can be inferred from the high frequency of bladelets, some apparently snapped intentionally to form blanks for point manufacture. A few other tools were found around the hearth area including several broken blades with rubbed ends, some with additional retouch to aid handling. The gross wear patterns suggest a back-and-forward motion in their use similar to the graving function of burins. It is feasible that these tools were related to the maintenance of hunting equipment, perhaps for preparing arrow shafts for hafting or fletching. Several scrapers were found beyond the hearth area indicating hide processing or wood working in other activity areas. The American ethno-archaeologist Louis Binford has reported similar patterning from observations of Arctic hunters – activities such as hide scraping require space for laying out the hides. Such patterning has been recorded from many Upper Palaeolithic sites on the continent (Stapert 1989).

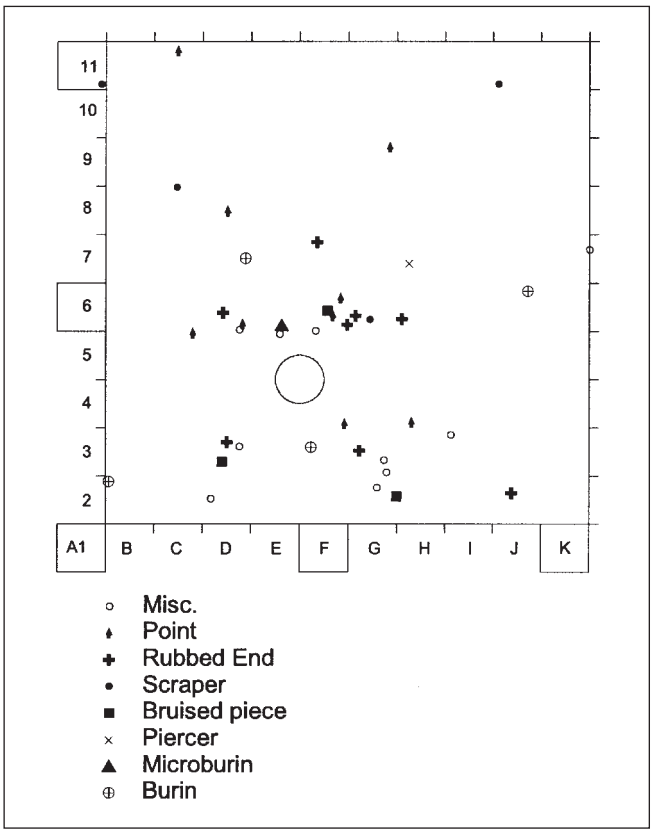


Fig. 9. Spatial plots of tools around the postulated hearth (circle) at Launde.

The proportion of retouched tools was very low at *c.* 2%, typical of other 'long blade' sites. Due to the paucity of formal tools it has been notoriously difficult to assign British long blade sites to the known Late Glacial cultures of the European mainland. However, Launde and another 'long blade' site, the afore-mentioned Three Ways Wharf, have produced notable groups of projectile points. Both sites have obliquely truncated points, some with additional basal retouch (Zonhoven points), with distinctive marked concavity of the truncation at the tip. Obliquely truncated points are known from the Ahrensburgian, but the closest parallels are with the Dutch Epi-Ahrensburgian (Johansen and Stapert 2000; Gob 1991). The typological and technological similarities of the two English sites and those in Holland and Belgium strongly suggest that they may be directly related, possibly even the same individuals operating across a wide social and hunting territory.

The Mesolithic (OIS 1, 9,700 – 5,500 BP)

The Mesolithic period is often equated with the Holocene starting at *c.* 10,000 BP. However, as we have seen above there is the distinctive 'long blade' techno-complex that straddles the Pleistocene/Holocene boundary. However, by the late pre-Boreal stage at *c.* 9,700 BP there are new tool types such as hafted axes

(transversely sharpened) and technological changes to the microlith repertoire (mode 5). Microliths are commonly made using the micro-burin technique, a feature rarely seen in Terminal Palaeolithic assemblages. Obliquely truncated points remain common and are complemented by new forms such as the isosceles triangles and elongated trapezoids (Myers forthcoming). The Upper Palaeolithic – Mesolithic transition is one of the key research questions identified by the Prehistoric Society's Working Party for the Palaeolithic and Mesolithic of Britain and Ireland (1999). While there is some evidence for technological continuity or evolution between the Terminal Palaeolithic and the Early Mesolithic (Barton 1991), there are also significant differences that might indicate a cultural rupture (Dumont 1997).

It has long been recognised that early and late stages can be identified in the British Mesolithic (Clark 1932). Generally, similar Early Mesolithic technologies, the Maglemosian, are seen across a wide area of the North European plain reflecting the physical links by an extensive land bridge between Eastern England and the continent. More recent work has suggested that further chronological distinctions can be made for the early Mesolithic, traditions named after the type-sites of Star Carr, Deepcar and Horsham (Jacobi 1978b; Reynier 1997). Another distinct grouping is the Honey Hill type assemblages, apparently restricted to the Midlands and possibly a regional variant contemporary with the Horsham tradition (Saville 1981). The Horsham and Honey Hill assemblages appear to provide a bridge between early and later Mesolithic assemblages. Late Mesolithic technologies appear during the mid 9th millennium BP and include the introduction of smaller geometric microliths, a decline in the frequency of oblique points and the disappearance of hafted axes. These technological changes indicate, in part at least, changes in hunting techniques that in turn probably reflect evolving economic strategies and social territories. The disappearance of certain forms of tools might indicate the increasing insularity of hunter-gatherers, as Britain became an island in the later Holocene (Jacobi 1982; Coles 1998). This cultural isolation remained until the explosive arrival of the Neolithic in the 6th millennium BP. The important point here is that we should view the Mesolithic as dynamic with great differences between the hunter-gatherers of the pre-Boreal, Boreal and Atlantic periods. We should resist constructing static settlement and economic models that do not take account of changes across some four millennia. This question of continuity and/or change is another of the key research questions for Mesolithic studies (Prehistoric Society 1999).

Largely due to the efforts of local fieldworkers there has been an explosion of Mesolithic sites in recent years. Since the CBA's national survey of the Mesolithic (Wymer 1977) there has been an apparent 530% increase in Mesolithic sites in Leicestershire and Rutland (Myers, forthcoming). However, most of these sites cannot be assigned to a chronological stage due to the lack of diagnostic pieces or a failure to recognise them. There may be a retrieval bias acting against the discovery of distinctive Mesolithic tools; the small size of microliths means that such pieces are rarely found by fieldwalking survey. What can be said is that the mass of sites represents a large database with great potential for further work - re-opening the archive boxes and re-walking of key sites might well lead to the identification of diagnostic pieces. Again we should perhaps follow the example of Ron Waite's fieldwalking methods; find your good sites, keep returning and look out for the smaller pieces such as microliths and microburins. It might be claimed that Mr. Waite discovered the Mesolithic in the Midlands. Long term field survey at several large Mesolithic scatters in Warwickshire and Northamptonshire produced quantities of microliths that allowed statistically significant typological analyses leading to the classification of Honey Hill type assemblages (Saville 1981a and b).

Knox (nd) has highlighted several surveys where a significant Mesolithic presence has been found including those at Medbourne, Brooksby/Rearsby, Grace Dieu Priory environs and Misterton. The latter has produced examples of both Early and Later Mesolithic microliths, and demonstrates that these small pieces can be retrieved if looked for. There is proving to be a persistent Mesolithic presence in lithics assemblages retrieved from the excavation of sites of later periods. Notable groups of material have been found at Eye Kettleby (Cooper forthcoming), Glaston (Cooper and Thomas 2001), Melton Mowbray/Freeby (Jarvis 2002), Saxby (Thomas 2001) and at several sites along the Wing - Whatborough pipeline (Cooper 2002b). Later Mesolithic microliths were recovered from Eye Kettleby, Glaston, Melton and Saxby. The considerable Mesolithic material from Eye Kettleby was recovered over a large area of *c.*12 ha, mirroring other large scatters such as Belton, Leighfield and Rearsby.

Our evidence for the Mesolithic is not entirely restricted to lithics from surface scatters or those residual in later archaeological features. Evaluation trenches at Croft revealed stratified flints beneath alluvium adjacent to a stream palaeochannel (Cooper 1993), while further excavation work by BUFAU revealed sub-alluvial features including partial ring slots (Hughes and Roseff 1995). Excavations at Ridlington revealed a small pit with a very leached fill, clearly earlier than the nearby Iron Age and Roman features. The pit contained 30 flints including cores, bladelets and two narrow microliths of Late Mesolithic date. The stratified material and a moderately-sized scatter from the general area increase the range of Mesolithic activity at Ridlington/Leighfield (Cooper 2002b); previous field survey mapped a large multi-period scatter on a ridge top promontory. This material can be highlighted as worthy of further study.

Environmental evidence from the early Holocene in the form of organics from palaeochannels has been recorded from Birstall, Croft and the Austin Friars,

Leicester (see A. Monckton, this volume). As yet there have been no detailed analyses of these deposit types. Future objectives might include close-interval sampling of peats and similar organic-rich deposits to identify short-term events such as localised clearance episodes, evident from charcoal grains and changes in the pollen profile, together with multiple radiocarbon determinations.

Human remains from the Mesolithic are rare and none are known from the two counties. However, some mention of a recent find from the East Midlands region is deserved. A chance discovery of a Late Mesolithic human femur in a sand and gravel quarry at Staplethorpe, Nottinghamshire has shed new light on the diet and geography of people in the Mesolithic (note in British Archaeology 66, 2002). In recent years there has been a tendency to view the Mesolithic as a prelude to the agricultural age, the Neolithic. Economic models have been constructed where there is an assumption that Mesolithic economic systems evolved into those of the Neolithic with increasing intensification of food gathering. Hunter-gatherers became gatherer-hunters who became farmers. However, isotope analysis on the Stapleford individual demonstrated a heavy reliance upon animal protein with little input of vegetable protein. The isotope evidence also showed there was no input of marine proteins suggesting that the economic spheres were restricted to inland areas.

The increasing quantity of sites discovered by field survey has allowed some consideration of how the Midlands landscape was being exploited during the Mesolithic (Clay 2002; Phillips nd; Hall 1985). Topographic and geological preferences have long been a research theme in British Mesolithic studies. Using the CBA Mesolithic database (Wymer 1977); Mellars and Reinhardt (1978) demonstrated a preference for settlement on free-draining soils. Intensive survey in other areas (e.g. Waddington 2000) supports the generalised preferential location of Mesolithic bases on free draining soils, close to water and wetland habitats. An assessment of the Mesolithic archaeology of Northamptonshire appears to show a similar distribution patterns with an apparent avoidance of heavy clays (Phillips nd; Hall 1985). Interestingly, eight of the nine Mesolithic sites located on the Wing-Whatborough pipeline and several sites identified during the Medbourne Survey were on the ridge-top located above the Ironstone (Cooper 2002b; Liddle *pers. comm.*, cited in N.J. Cooper 2000). However, using SMR data from across the East Midlands, Clay (2002) suggests that a more widespread distributional pattern can be seen, including the use of clayland areas. Myers (forthcoming) suggests that one reason for the apparent differences between Leicestershire and Northamptonshire site distribution patterns might be related to different survey methods, i.e. the relatively narrow transects often used by Leicestershire fieldworkers might allow the detection of smaller sites. However, this does not account for the apparent observation of larger scatters, core areas, upon clay sites in our study region (Clay 2002).

There does appear to be a trend of larger sites located on higher ground, offering wide vantage points over valleys and plateaux, but as yet it is difficult to know over what period of time these sites were formed. Phillips (nd) makes an interesting observation about the location of these larger upland sites in Northants, suggesting that they may indicate crossroads between major river systems. Pertinent here is the evidence from either side of the Welland Valley where large scatters are recorded from prominent upland sites (Phillips nd; Knox nd). Looking at the general distribution of sites in the study area there is apparent clustering of sites along the watersheds of the Soar-Avon, Trent-Avon, Welland-Wreake and Wreake-Trent, providing some support for the hypothesis (Fig. 8, Clay 2002).

It is quite obvious that the last word has not been written with regards to Mesolithic settlement patterns in the area. Key here is the ongoing survey work by local fieldworkers providing new data to test these different settlement models. However, as mentioned above, it is imperative that some chronological control be introduced to these studies; otherwise the models may be erroneously based upon a conflation of different data sets. The theme of continuity and/or change during the Mesolithic is one of the three key research questions identified by the Prehistoric Society's Working Party for the Palaeolithic and Mesolithic of Britain and Ireland (1999).

The Mesolithic-Neolithic transition has also been highlighted in national and regional research frameworks as of crucial importance (English Heritage 1997, PC1; Prehistoric Society 1999; Myers forthcoming). This transitional period has been the subject of long-term debate but is hindered by conceptual as well as chronological problems (neatly summarised in Myers, forthcoming). Disentangling the Late Mesolithic from the Early Neolithic in the study area is compounded by the conceptual problem of conflating blade industries into a combined Late Mesolithic-Early Neolithic category. It is suspected that this is partly based upon a fixed model of evolved neolithisation (Young 1988). Blade technologies have a long currency occurring from the Middle Palaeolithic to the Bronze Age (Barton 1998), although technological assessment can usually provide some chronological classification. The currency of bladelets (blades <12mm wide) is more restricted and their presence can usually be attributed to the Mesolithic (with the proviso that some could be Late Upper Palaeolithic). Their rapid decline at the beginning of the Neolithic reflects the change in projectile technology – microliths are no longer made (Holgate 1988). It is proposed that bladelet technology and microlith presence should be used to identify the Mesolitic components in multi-period scatters. The presence of patinated pieces can, in most circumstances, identify the flake components found particularly in Late Mesolithic debitage (Pitts and Jacobi 1979). With these considerations it is possible to identify a number of sites

with unequivocal evidence for both Late Mesolithic and Early Neolithic scatters e.g. at Eye Kettleby and Husband Bosworth.

Discussion

Palaeolithic and Mesolithic archaeology in the two counties has come a long way in the last twenty years. Lower Palaeolithic finds have increased appreciably although this is mostly due to the efforts of Ron Waite around the Hinckley area. The recognition of the potential for Palaeolithic contexts in the Leicestershire landscape is significant and the author anticipates further realisation of this in the near future. In particular, the crossing of our study area by the Bytham River and some of its major tributaries presents great opportunities for future discoveries. The archaeology of the Bytham is contributing to the international research agenda, addressing the questions of the nature and timing of the first occupation of Britain and North-west Europe (Stringer 2002). A sparse Middle Palaeolithic archaeological presence has begun to show itself, and more finds are awaited. Perhaps the most significant advance has been the recognition of the Upper Palaeolithic such that both counties can boast of nationally significant sites i.e. Launde and Newtown Linford, Leicestershire and Glaston, Rutland. Arguably the significance of these sites even extends beyond national boundaries given that, at the time, Britain was the northwestern peninsula of Europe. The number of Mesolithic sites has multiplied, mostly from survey work although a significant number of PPG16 projects are also revealing Mesolithic activity. The employment of suitable prospecting and recovery methods by professional archaeologists, together with the formal encouragement of such in the briefs issued by planning archaeologists, will hopefully lead to the discoveries of *in situ* Mesolithic and Palaeolithic sites. Given the increasing development of the floodplain we might one day find a Midlands' Star Carr or Lynford with the holy grail of lithics *and* organic remains.

How might we continue this positive trend, or even improve upon it? A number of simple methodological issues relating to currently perceived research priorities might be considered. These amplify those articulated by McNabb (forthcoming), Graf (2002) and others (S. Buteux, *pers. comm.*).

Much recent work has highlighted the archaeological potential in our regional landscapes (Wymer 1999; McNabb forthcoming; Graf 2002) with most of the research undertaken by geologists. It is imperative that both planning and field archaeologists keep abreast of this work; the research is current and dynamic such that new developments, particularly the dating of the earlier deposits might well change dramatically. A recent proposal by Simon Buteux of Birmingham University is the Shotton Project, a broad network of Quaternary researchers and archaeologists, which might allow the exchange of new ideas and highlight new discoveries in the Midlands. The benefits of such a Palaeolithic network were touched upon at the East Midlands Archaeological Research Framework forum. McNabb envisaged this as a discussion network, partly web-based, monitoring activity such as local research and providing a conduit between local researchers, Quaternary researchers and Palaeolithic archaeologists. One of the more ambitious objectives of the Shotton Project is the monitoring of sand and gravel quarries, ideal projects for collaboration between community and professional archaeologists.

Our main evidence for the hunter-gatherers in our study area is worked stone, particularly flint, but not exclusively. The recognition of non-flint artefacts should figure more prominently in future community archaeology training events, and it would be well for all the professionals also to familiarise themselves with non-flint lithics. The rich findings of Ron Waite suggest that much of our local Lower Palaeolithic archaeology may be invisible to most people, and it will only become apparent when local fieldworkers, amateur *and* professional, begin to recognise non-flint artefacts. With the flint artefacts the ability to recognise chronologically diagnostic tool forms and/or technological traits should also be fostered at future training events. This is not to say that all individual fieldworkers are expected to be lithics specialists, but they can be encouraged to identify artefacts with potential for being of early date.

A good rule of thumb that can be used as a chronological tool is the presence of patina. Generally, for our study area, any piece displaying a patina is likely to be pre-Neolithic, and the reporting of finds with such surface modification should be encouraged. The reporting of patina presence by Pickering (1917) highlighted his collection as worthy of re-examination, leading to the rediscovery of several Palaeolithic and Mesolithic finds by the author.

Lithics data recorded on many Sites and Monuments Records are of variable quality, which is no surprise given the disparate sources for the records. Roger Jacobi (*pers. comm.*) has, over some time, trawled most of the East Midlands Museum collections and is of the opinion that lithics identifications recorded on the SMRs are often problematical. McNabb (forthcoming) calls for a standardisation of recording and a thorough review of all Palaeolithic entries. Myers (forthcoming) reiterates this, pointing out the local failure to distinguish Early and Late Mesolithic assemblages.

Local fieldwork groups are encouraged to continue the systematic fieldwalking across the counties. There may be some value in targeted fieldwalking of certain geologies and topographies where Palaeolithic and Mesolithic potential has been recognised, although it should be remembered that such an approach might only serve to reinforce our biased perceptions of previous land-use. Indeed, a great strength of the fieldworkers has been the random sampling of different geological zones allowing the questioning of long-held assumptions about previous land use (Clay 2002). There have been an

increasing number of Palaeolithic and Mesolithic finds from higher ground (e.g. Launde and the other Palaeolithic findspots along the Wing-Whatborough pipeline). The re-surveying of areas where a Palaeolithic presence has been found, preferably at more closely spaced intervals, might pay dividends. One such project is to be the Launde environs research project involving professionals and local established groups. The Launde site can be compared to the many small and medium-sized scatters recorded across North-West Europe (Stapert 1979). Such scatters are likely to represent the small camps of limited occupation – such sites are essential in comprehending the activities performed there. In many ways they are far easier to interpret than large scatters that are probably palimpsests of multiple visits, possibly over long periods of time. The closer definition of these small 'time capsule' sites will also allow the larger sites to be disentangled.

Where Upper Palaeolithic or Mesolithic remains are suspected or encountered in a PPG16 context, the use of staged archaeological schemes of work are to be encouraged, both from the planning and field archaeologists. Desk-based assessments need to assess the potential for remains of this period, identify any likelihood of Pleistocene deposits at the site and assess whether there are geomorphological or deposits categories where survival of Palaeolithic remains might be favoured (Collcutt forthcoming). Field survey and evaluation might involve close-spaced fieldwalking and test pitting. Ideally the test pits would be at close spaced intervals, thereby having a chance to detect the smaller discrete scatters, and excavated by hand with 3D location of all finds. This is labour intensive and might be best reserved for selected sites with proven archaeology. Variations to this method might include wider intervals (say 20-30m) with follow-up test pits at closer intervals in areas where lithics are found. Finds might be located by box and spit only. A coarse methodology has been employed in Northern Holland where extensive prospection of Late Palaeolithic sites beneath coversand deposits has been undertaken (Deeben *et al.* 2000). The 'mega-bore' method employs a mechanical borer sampling deposists systematically at variable intervals, based on the perceived potential of an area (10-20m). The soil samples are screened to recover any lithics, and where these occur closer-spaced test pits are employed. It would be interesting to apply similar methods on alluvial floodplains, dry valleys or areas of marginal land with limited cultivation in the past.

Conclusion

Community and professional archaeologists have discovered that the previously envisaged archaeological desert of Leicestershire and Rutland was actually a mirage. We are beginning to recognise that our past landscapes were not marginal, but were at times favoured localities for hunter-gatherer and agricultural communities. Many of the apparent gaps in Midlands prehistory are being filled, but the newly discovered sites are not just new dots on the regional and national distribution maps. The Palaeolithic and Mesolithic archaeology of the two counties is helping to address the national research agenda, presenting fresh evidence and allowing new interpretations. Indeed, there has been much progress and this author expects much more of the potential to be realised.

Acknowledgements

Anne Graf for much useful discussion, comment, and for her encouragement to write this paper; Dr. Roger Jacobi for much assistance; Richard Knox for discussing the SMR entries providing findspot data; and Dr. R. Clements, Geology Dept., University of Leicester, for comments on the Scalford biface; Hari Anne Jacklin for illustrating Figures 2, 5, 7-9 and Michael Hawkes for Figures 1 and 6; ULAS management for time and resources that allowed the original conference presentation and this report; Paul Bowman for organising the conference and for his patience over the laborious writing of the report; Oriel Cooper and Susan Ripper for putting up with cold, windy site visits while I searched for 'shiny stones' and finally, Pete Liddle for setting the study baseline in *The Present State of Knowledge*.

References

Aldhouse-Green, S., 2000 *Paviland Cave and the 'Red Lady': A Definitive Report*. Bristol: Western Acad. and Specialist Press.

Aldhouse-Green, S. and Pettitt, P., 1998 'Paviland Cave: contextualising the 'Red Lady', *Antiquity* **72**, 756-72.

Barton, R. N. E., 1990 'The en éperon technique in the British Late Upper Palaeolithic', *Lithics* **11**, 31-3.

Barton, R. N. E., 1992. *Hengistbury Head: The Late Upper Palaeolithic and Early Mesolithic sites.* Monograph Series: Oxford University Committee for Archaeology.

Barton, R. N. E., 1997 *Stone Age Britain*. London: English Heritage.

Barton, R. N. E., 1998 'Long Blade Technology and the Question of British Late Pleistocene/Early Holocene Lithic Assemblages,' *in* N. Ashton, F. Healy and P. Pettitt (eds.) *Stone Age Archaeology: Essays in honour of John Wymer.* Oxbow Monograph **102**, Lithics Studies Society Occasional Paper **6**, 158-164.

Boismier, W., 2002 'Lynford Quarry: a Neanderthal butchery site', *Current Archaeology* **182**, 53-8.

Brandon, A., 1999 *Geology of the Wreake Valley (SK61NE, SK71NW, SK71NE and SK81NW (western part)). British Geological Survey Technical Report WA/99/17*. Nottingham, Keyworth: British Geological Survey.

Campbell, J. B., 1977 *The Upper Palaeolithic of Britain: a Study of Man and Nature in the Late Ice Age,* 2 vols. Oxford: Clarendon Press.

Challis, K., 1995 *A564 Derby Southern Bypass Contract B. Rookery Lane: Archaeological assessment and evaluation.* Unpublished report, Nottingham University Consultants.

Clark, J. G. D., 1932 *The Mesolithic Age in Britain*. Cambridge.

Clark, J. G. D., 1977 *World Prehistory in New Perspective* (3rd edition). Cambridge University Press.

Clay, P., 2002 *The Prehistory of the East Midlands Claylands*. Leicester Archaeology Monographs No. **9**. School of Archaeology and Ancient History, University of Leicester.

Coles, B. J., 1998 'Doggerland: a speculative survey,' *Proceedings of the Prehistoric Society* **64**, 45-81.

Collcutt S. N., 2001 'The Sackung Hypothesis: a challenge for Palaeolithic prospection,' *in* S. Milliken and J. Cook (eds.), *A Very Remote Period Indeed: Papers on the Palaeolithic presented to Derek Roe*. Oxbow Books, 223-233

Collcutt, S. N., forthcoming 'Appendix 2: Palaeolithic Prospection: Some Simple Guidelines', *in* J. McNabb, 'An Archaeological Resource Assessment and Research Agenda for the Palaeolithic in the East Midlands (part of Western Doggerland)', *in* N. Cooper (ed.), forthcoming *An Archaeological Resource Assessment and Research Agenda for the East Midlands.* http://www.le.ac.uk/archaeology/pdf_files/emidpal.pdf

Cookson, A. P. and Tyldesley, J. A., 1985 'A Middle Palaeolithic flint handaxe from Aylestone, Leicester' *Trans. Leics. Archaeol. Hist. Soc.* **59**, 13-16.

Cooper, L., 1993 An archaeological evaluation at Croft, *Trans. Leics. Archaeol. Hist. Soc.* **67**, 99-100.

Cooper, L., 1997 'Launde,' *Trans. Leics. Archaeol. Hist. Soc.* 71, 91-3.

Cooper, L., 2001 'The Glaston glutton and other strange beasts', *Rescue News* **83**, 1-3.

Cooper, L., 2002a 'A Creswellian campsite, Newtown Linford', *Trans. Leics. Archaeol. Hist. Soc.* **76**, 78-80.

Cooper, L., 2002b 'The lithics', *in* M. Beamish, *Archaeology of the Wing to Whatborough Hill Trunk Main*, ULAS report 2002/099.

Cooper, L., forthcoming 'The lithics', *in* N. Finn, forthcoming 'Excavations at Eye Kettleby'.

Cooper, L. and Jacobi, R., 2001 'Two Late Glacial finds from north-west Leicestershire', *Trans. Leics. Archaeol. Hist. Soc.* **75**, 118-121.

Cooper, L. and Thomas, J., 2001 'Glaston, Grange Farm', *Trans. Leics. Archaeol. Hist. Soc.* **75**, 158-9.

Deeben, J., Dijkstra, P. and Van Gisbergen, P, 2000 'Some new 14*c* dates from sites of the Ahrensburg Culture in the Southern Netherlands,' *Notae Praehistoricae* **20,** 95-109.

Dumont, S., 1997 'Nouvelles recherches sur la transition Tardiglaciaire-Préboréal dans le Sud et l'Est de l'Angleterre', in J.-P., Fagnart and A. Thévenin (eds.) *Le Tardiglaciaire en Europe du Nord-Ouest.* Paris: Éditions du Comité des travaux historiques et scientifiques, 517-528.

English Heritage 1997 *Archaeology and English Heritage: Agenda for the Future.*

Evans, J. G., 1897 *The Ancient Stone Tools, Weapons and Ornaments of Great Britain* (2nd ed.). London: Longmans, Green and Co.

Fagnart, J.-P., 1991 'New observations on the Late Upper Palaeolithic site of Belloy-sur-Somme (Somme, France),' in N. Barton, A. J. Roberts and D. A. Roe (eds.) *The Late Glacial in north-west Europe: Human adaptation and environmental change at the end of the Pleistocene.* CBA Research Report **77**, 213-226.

Falguéres, C., J.-J., Behain, Y., Yokoyama, J. L., Arsuaga, J. M., Bermúdez, E., Carbonell, J.L., Bischoff and Dolo J.-M., 1999 'Earliest humans in Europe: The age of TD6, Gran Dolina, Atapuerca, Spain', *Journal of Human Evolution*, **37, 3/4**, 343-352.

Garrod, D. A. E., 1926 *The Upper Palaeolithic Age in Britain.* Oxford: Clarendon Press.

Garton, D., 1993 'A Late Upper Palaeolithic site near Newark, Nottinghamshire', *Transactions of the Thoroton Society* **98**, pp. 126-9.

Gob, A., 1991 'The early Postglacial occupation of the southern part of the North Sea Basin', in N. Barton, A. J. Roberts and D. A. Roe (eds.), *The Late Glacial in north-west Europe: Human adaptation and environmental change at the end of the Pleistocene.* CBA Research Report **77**.

Graf, A., 2002 'Lower and Middle Palaeolithic Leicestershire and Rutland: progress and potential', *Trans. Leics. Archaeol. Hist. Soc.* **76**, 1-46.

Gutin, J. C., 1995 'Remains in Spain now reign as oldest Europeans', *Science*, **269**, 754-755.

Hall, D., 1985 'Survey work in Eastern England,' *in* S. Macready and F. H. Thompson (eds.), *Archaeological Field Survey in Britain and Abroad.* Society of Antiquaries Occasional Paper **VI**, 25-44.

Holgate, R., 1988 *Neolithic Settlement of the Thames Basin.* BAR British Series **194**.

Hughes, G. and Roseff, R., 1995 'Excavations at Croft Quarry (SP 517 968),' *Trans. Leics. Archaeol. Hist. Soc.* **69**, 100-108.

Jacobi, R.M., 1978a 'Population and landscape in Mesolithic lowland Britain,' in S. Limbrey and J.G. Evans (eds.) *The Effect of Man on the Landscape*, CBA Research Report **21**, 77-85.

Jacobi, R. M., 1978b 'The Mesolithic of Sussex,' *in* P.L. Drewett (ed.) *Archaeology in Sussex to AD 1500*, CBA Research Report, 15-22.

Jacobi, R. M., 1980 'The Upper Palaeolithic in Britain, with special reference to Wales', in J.A. Taylor (ed.) *Culture and Environment in Prehistoric Wales*, BAR British Series **76:** Oxford, 15-99.

Jacobi, R. M. 1982. 'Later hunters in Kent: Tasmania and the earliest Neolithic,' *in* P.E. Leach (ed) *Archaeology in Kent to AD 1500.* CBA Research Report **48**.

Jacobi, R., 1990 'Leaf-points and the British Early Upper Palaeolithic', in J.K. Kozlowski (ed.) *Feuilles de Pierre: Les Industries à Pointes Foliacées du Paléolithique Supérieur Européen.* Études et Recherches Archéologiques de l'Université de Liège **42**, 271-89.

Jacobi, R., 1991 'The Creswellian, Creswell and Cheddar', *in* N. Barton, A. J. Roberts and D. A. Roe (eds.), *The Late Glacial in north-west Europe: Human adaptation and environmental change at the end of the Pleistocene.* CBA Research Report **77**.

Jacobi, R., 1997 'The 'Creswellian' in Britain', *in* J.-P. Fagnart and A..Thévenin (eds.) *Le Tardiglaciaire en Europe du Nord-Ouest.* Paris. Éditions du Comité des travaux historiques et scientifiques, 497-505.

Jacobi, R., Garton, D. and Brown, J., 2001 'Field-walking and the Late Upper Palaeolithic in Nottinghamshire,' *Transactions of the Thoroton Society* **105**, 17-22.

Jarvis, W., 2002 'Melton Mowbray, Brentingby Embankment site – east of river Eye,' *Trans. Leics. Archaeol. Hist. Soc.* **76**, 119.

Johansen, L. and Stapert, D., 2000 'Two 'epi-Ahrensburgian' sites in the Northern Netherlands: Oudehaske (Friesland) and Gramsbergen (Overijssel)', *Palaeohistoria* **39/40**. A. A. Balkema/Rotterdam/Brookfield.

Jones, C.R., 2002 'Late camber-induced ridge crest grabens in Rutland', *Jurassic Times* **26**. Stamford and District Geological Society, 1-2.

Knight, D. and Howard, A.J., 1994 'The Trent Valley Survey', *Transactions of the Thoroton Society* **99**, 126-9.

Knox, R., nd 'An archaeological resource assessment of the Mesolithic in Leicestershire and Rutland,' *East Midlands Archaeological Research Framework*, online paper. http://www.le.ac.uk/archaeology/pdf_files/08leicmeso.pdf

Lewis, J., 1991 'A Late Glacial and early Postglacial site at Three Ways Wharf, Uxbridge, England: Interim report', in N. Barton, A. J. Roberts and D. A. Roe (eds.), 246-255.

Liddle, P., 1992 'Reports of fieldwork [Stanton-under-Bardon]', *Trans. Leics. Archaeol. Hist. Soc.* **66**, 190

Mangerud, J., Andersen, S.T., Berglund, B.E. and Dönner, J.J., 1974 'Quaternary stratigraphy of Norden, a proposal for terminology and classification', *Boreas* **3**,109-127.

Martin, J., 1982 'Palaeolithic Leicestershire', *in* P.Liddle *Leicestershire Archaeology – ThePresent State of Knowledge: Vol. 1 To the End of the Roman Period.* Leicester: Leics. Museums, Art Galleries and Records Service, 6-8.

McNabb, J., forthcoming 'An Archaeological Resource Assessment and Research Agenda for the Palaeolithic', in the East Midlands (part of Western Doggerland)', *in* N. Cooper (ed.) forthcoming *An Archaeological Resource Assessment and Research Agenda for the East Midlands.* http://www.le.ac.uk/archaeology/pdf_files/emidpal.pdf

Mellars, P. A. and Reinhardt, S. C. 1978 'Patterns of Mesolithic land-use in southern England: a Geological perspective', in P. A. Mellars (ed.) *The Early Postglacial Settlement of Northern Europe.* Duckworth, 243-293.

Myers, A. M., 'An archaeological resource assessment and research agenda for the Mesolithic in the East Midlands,' *in* N. J. Cooper (ed.) forthcoming, *An Archaeological Resource Assessment and Research Agenda for the East Midlands.* http://www.le.ac.uk/archaeology/pdf_files/emidmeso.pdf

Phillips, G., nd 'An archaeological resource assessment of the Mesolithic', in Northamptonshire, East Midlands Archaeological Research Framework, online paper. http://www.le.ac.uk/archaeology/pdf_files/10nhmeso.pdf

Pickering, A. J., 1917 'Flint implements from the ploughlands of South-west Leicestershire', Proceedings of the Prehistoric Society of East Anglia **2.4**, 549-55.

Pitts, M. and Roberts, M., 1998 *Fairweather Eden.* Arrow.

Posnansky, M., 1955 'A Palaeolithic implement from near Shipley Hill, Ratcliffe-on-the-Wreake', *Trans. Leics. Archaeol. Hist. Soc.* **31**, 304.

Posnansky, M., 1963 'The Lower and Middle Palaeolithic industries of the English East Midlands', *Proc. Prehist. Soc.* **29**, 357-94.

Prehistoric Society, 1999 *Research Frameworks for the Palaeolithic and Mesolithic of Britain and Ireland: A Report by the Working Party for the Palaeolithic and Mesolithic Day Meeting and the Council of the Prehistoric Society.* Prehistoric Society: Salisbury.

Reynier, M. J., 1998 'Early Mesolithic settlement in England and Wales', *in* N. Ashton, F. Healy and P. Pettitt (eds.) *Stone Age Archaeology: Essays in honour of John Wymer.* Oxbow Monograph **102**, Lithics Studies Society Occasional Paper **6**, 174-84.

Rice, R. J., 1991 'The distribution and provenance of the Baginton Sand and Gravel in the Wreake Valley, Northern Leicestershire, England: implications for inter-regional correlation', *Journal of Quaternary Science* **6**, 39-54.

Rose, J., 1989 'Tracing the Baginton-Lillington Sands and Gravels from the West Midlands to East Anglia' *in* D.H. Keen (ed.), *The Pleistocene of the West Midlands:Field Guide*. Quaternary Research Association, 102-10.

Saville, A., 1981a 'Mesolithic industries in Central England: an exploratory investigation using microlith typology', *The Archaeological Journal* **138**, 49-71.

Saville, A., 1981b 'Honey Hill, Elkington: a Northamptonshire Mesolithic site', *Northamptonshire Archaeology* **16**, 1-13.

Schwabedissen, S. H., 1954 *Die Federmesser-Gruppen des nordwesteuropäisschen Flachlandes. Zur Ausbreitung des Spät-Magdelénien.* Neumünster. karl Wachholtz.

Shotton, F. W., 1953 'Pleistocene deposits of the area between Coventry, Rugby and Leamington and their bearing upon the topographic development of the Midlands', *Phil. Trans. R. Soc. Lond.* **B237**, 209-60.

Shotton, F. W., 1988 'The Wolstonian geology of Warwickshire in relation to Lower Palaeolithic surface finds in north Warwickshire', in R.J. MacRae and N. Moloney (eds.) *Non-flint Stone Tools and the Palaeolithic Occupation of Britain*. Oxford: BAR, British Series **189**.

Shotton, F. W. and Wymer, J. J., 1989 'Handaxes of Andesitic Tuff from beneath the Standard Wolstonian Succession in Warwickshire', *Lithics* **10**, 1-7.

Stapert, D. 1989 'The ring and sector method: intrasite spatial patterns of Stone Age sites, with special reference to Pincevent', *Palaeohistoria* **31**, 1-57.

Stapert, D., 2000 'The Late Palaeolithic in the Northern Netherlands', L'Europe Centrale et Septentrionale au Tardiglaciaire, Mémoires du Musée de Préhistoire d'Ile de France **7**, 175-95.

Stringer, C. and Gamble, C., 1993 *In search of the Neanderthals.* London: Thames & Hudson.

Stringer, C., 2002 'The Ancient Human Occupation of Britain (AHOB) project', *in Before Farming: the archaeology of Old World hunter-gatherers* 2002/1. Western Academic and Specialist Press. Online publication: http://www.waspjournals.com/journal/news/occupation.php

Thomas, J., 2001 'Saxby, Saxby Village Drain', *Trans. Leics. Archaeol. Hist. Soc.* **75**, 152-3.

Thomas, J. and Jacobi, R., 2001 'Glaston', *Current Archaeology* **173**, 180-4.

Waddington, C., 2000 'Recent research on the Mesolithic of the Millfield Basin, Northumberland', in R. Young (ed) *Mesolithic Lifeways: Current Research from Britain and Ireland*. Leicester: Archaeological Monograph **7**.

White, M. J. and Jacobi, R. M., 2002 'Two sides to every story: *bout coupé* handaxes revisited', *Oxford Journal of Archaeology* **21**, **2**, 109-133.

Wise, P., 1993 'Waverley Wood Farm Pit', *Current Archaeology* **133**, 12-14.

Wymer, J. J., 1977 *Gazetteer of Mesolithic Sites in England and Wales.* CBA Research Report **20**.

Wymer, J., 1999 *The Lower Palaeolithic Occupation of Britain,* Vols 1 and 2. Salisbury: Wessex Archaeology and English Heritage.

Young, R., 1988 'Mixed lithic scatters and the Mesolithic-Neolithic transition in the north-east of England: a speculation', *in* I. Brooks and P. Philips (eds.), *Breaking the Stony Silence: Papers from the Sheffield Lithics Conference*. Oxford: BAR (British Series) **213**, 161-86.