

## **Oxfordshire in the Mesolithic and Upper Palaeolithic**

*Gill Hey and Alison Roberts, March 2008*

This document reviews knowledge of the Upper Palaeolithic and Mesolithic periods in Oxfordshire and is mainly based on the reports in the county Sites and Monuments Record and publications. It also includes some new observations on material in museum collections and reports by private individuals. It is clear that diagnostic material representative of most of the recognised phases of both the Upper Palaeolithic and Mesolithic periods have been found in the county, although a major review of extant collections has not yet been undertaken.

### **Upper Palaeolithic**

The Upper Palaeolithic in Britain is dated to c. 40,000 – c. 10,000 BP, or roughly from the latter part of Marine Isotope Stage (MIS) 3 to the start of the Holocene (MIS 1). People at this time would have been highly mobile hunter-gatherers living in mainly open landscapes. At present it appears that Britain was not continually occupied throughout the period and that a hiatus occurred during the extreme cold and aridity of the last glacial maximum (LGM). In Britain, the LGM traditionally divides the Upper Palaeolithic into an Early (c. 40,000 - c.22,000 BP; the later part of MIS 3) and Late (c. 13,000 – c. 10,000 BP) stage. It is possible that Neanderthals as well as modern humans were present in Britain during the Early Upper Palaeolithic, but only modern humans were present during the Late Upper Palaeolithic. No Upper Palaeolithic material of any variety was recorded for Oxfordshire in the Council for British Archaeology's *Gazetteer of Mesolithic and Upper Palaeolithic Sites* (Wymer and Bonsall 1977). However, recent work has shown that both Early and Late material does occur in the county. There is only one excavated Upper Palaeolithic site in Oxfordshire; the Long Blade site at Gatehampton Farm (Goring).

#### ***Early Upper Palaeolithic (EUP)***

The climate in Britain during the Early Upper Palaeolithic was mostly cold and dry. Sea levels were far lower than today and the landscape was sparse birch-pine woodland or grassland steppe. The fauna included animals such as mammoth, woolly rhinoceros, horse and hyena. Three main industrial traditions are currently recognized as occurring in Britain during the Early Upper Palaeolithic; these represented by Leaf Point, Aurignacian, and Gravettian industries. All three assemblage types are rare nationally and the identification and professional investigation of any new sites of this age would be of national importance. The key research questions for this period concern when fully modern humans first arrived in Britain and with what technology they are associated?

Leaf Point industries are presumed to date to c. 30-35 ka, and are have been found in both cave sites and from open air locations. They are characterised by lanceolate-shaped bifacial and unifacial stone tools, the latter often blades of triangular cross-section that were inversely retouched (Jermainovice leaf points). There are clear associations with contemporary European industries and some evidence suggests that they may be associated with Neanderthal populations instead of modern humans.

Until recently no Leaf Point material was known from the county. However, a single bifacial example was found by the Abingdon Area Archaeological and Historical Society at Sutton Courteney a few years ago from the floodplain gravels. In addition, during the work for this research framework a unifacial point was found in the collections of the Ashmolean Museum. The point, labeled “Dredged up in North Hinksey backwater: 1904”, was presumably also from the floodplain gravels. There is clearly a potential for discovering material of this age in the county, at least from the floodplain gravels of the Thames.

Aurignacian industries are thought to have occurred in Britain c. 28-32 ka, and finds are so far confined to limestone caves. Although it was claimed in 1913 that Aurignacian material was found in Oxfordshire at Nettlebed (Peake 1913), this is not the case. The material is of Neolithic age, with a small Mesolithic component, and the misidentification was presumably not unrelated to contemporary claims by Reginald Smith of the British Museum that Grimes Graves was an Aurignacian site (Smith 1912). No Aurignacian material has yet been found in Oxfordshire. Similar to the Aurignacian, the slightly later Gravettian industries seem also to be found mainly in caves sites at present. There is no evidence for any Gravettian material from Oxfordshire.

### ***Late Upper Palaeolithic (LUP)***

Three main industrial traditions are currently recognised for the Late Upper Palaeolithic in Britain; these are represented by Creswellian (c. 13,000-12,000 BP), Final Palaeolithic (c.12,000-10,700 BP) and Long Blade or Epipalaeolithic (c. 10,300-9800 BP) industries. All of the industries have direct affinities with those found on the European mainland - to which the southeast corner of Britain, including parts of East Anglia, were attached throughout the period. Although the Lateglacial period is traditionally seen as being marked by a series of rapid climatic changes, there is a current lack of consensus on the exact succession and dating of environmental subdivisions for this period in Britain. The key research questions for this period concern the timing of human activity in Britain, the relationship between human activity in Britain and adjacent areas of Europe, if there is any evidence for regional differences, and how humans were using the landscape.

The Creswellian (Late Glacial Interstadial) now appears to be a regional variant of the continental Late Magdalenian dating to c. 13,000 - 12,000 <sup>14</sup>C years BP and represents the earliest reoccupation Britain following the LGM (Barton *et al.* 2003). The diagnostic artefact for this industry is the bi-truncated angle-backed ‘Cheddar point’, although it can also be defined on the basis of technological features such as the presence of blades with butts *en éperon*. The recent re-evaluation of the British and European Creswellian concluded that there was a correlation between the location of Creswellian sites and the edges of the upland margins – topographic positions which would favour the exploitation of a number of varying resources within a small area (ibid). Although assemblages of this type are mainly found in limestone cave sites, an increasing number of stray finds of Cheddar points from open air locations in Southern England indicates that Creswellian human activity was far more widespread. The first major open air Creswellian site was discovered at Bradgate Park (Leicestershire) in 2001 and has the potential to add considerably to knowledge about human activity during this period when the investigations are complete. The

Creswellian is represented in Oxfordshire by find of the lower half of a Cheddar Point from Mingies Ditch (Hardwick-with-Yelford).

There appears to be a great deal of diversity during the Final Palaeolithic in Britain, indicated by the use during this time of a variety of point types that are diagnostic of different continental industries. During this period, straight-backed; curve-backed, Penknife point (*Federmesser*), and tanged point industries are all found throughout Britain. The distribution of assemblages of this period in Britain is far more extensive and widespread than in the Creswellian, and there are a far higher number of open air sites. Assemblages of this age seem to be made on locally-available lithic raw materials, and they have a different manufacturing technology from Creswellian industries. Whether the apparently simultaneous occurrence of these forms is indicative of different populations, chronology, function or style is unknown, but there is certainly more variety represented in the archaeological record than in the Creswellian. Current knowledge about this period is summarised in Barton and Roberts 1996, and is based on data from both caves and open air sites, especially the well-known open-air site of this period at Hengistbury Head, Dorset (Barton 1992). Two new open air sites of this period have been found recently in Hampshire, not far from Hengistbury and will add considerably to knowledge about this period. At present there are records of finds of curve-backed (Mingies Ditch, Hardwick-with-Yelford; and Drayton Cursus), and Penknife points (Hardwick, T. Hardaker pers comm.) from Oxfordshire. The Mingies Ditch excavation also produced a LUP blade end-scraper, The Drayton Cursus excavation also produced a blade end-scraper and a core attributed to the Late Upper Palaeolithic. Terry Hardaker has also found a LUP opposed platform blade core from Hardwick. No straight-backed material or tanged points have been recorded for the county as yet, although they occur in both Berkshire and Hampshire. Another LUP opposed platform blade core was found in the collections of the Ashmolean Museum (AN1917.10), recorded as coming from Benson. Two blade end-scrapers of this age were also found in the Ashmolean collection, one from New Hinksey, Waterworks (AN1921.61) and the other from Oxford, Bardwell Road (AN1921.60). Re-examination of extant collections is beyond the scope of this report, but on the basis of examining only a few boxes of the material that is still accessible during the Ashmolean redevelopment, it seems likely that re-evaluation of museum and private collections will reveal more Final Palaeolithic material from the county. At present it can be said only that a few diagnostic artifacts from this period have been found in Oxfordshire, and that it is possible that the county was used by humans during this period in a manner similar to that proposed for better studied areas in the adjacent regions such as Hampshire.

Long Blade assemblages seem to occur at the very end of the Pleistocene and beginning of the Holocene, and may overlap with the earliest Mesolithic. They were defined for Britain by Barton (Wymer date) and are mainly found in floodplain or river valleys close to the sources of high quality *in situ* flint (Barton 1986). The technology is characterised by the production of very long blades, and in many respects they resemble European Ahrensburgian industries. These assemblages are defined by the occurrence of *lames mâchurées*, large blades with distinctive battering damage on their lateral edges. A Long Blade site was discovered at Gatehampton Farm, Goring, in 1987, and has been interpreted as being a kill/butchery site (Barton, reference). That other sites may be present in the county is indicated by presence in

the Ashmolean Museum of a *lame mâchuré* from the South Allotments in Headington (AN1968.652).

Although until recently it was thought that there was no Upper Palaeolithic presence in Oxfordshire, it is now apparent that people visited the county throughout the period. With the exception of the excavations at Gatehampton Farm, however, much of the evidence for such human activity in the county is today very fragmentary and cannot contribute much to knowledge of these early periods apart from by comparison with better studied areas.

## **Mesolithic**

### **Introduction: Investigations in Oxfordshire**

Relatively few Mesolithic sites in the county have been professionally excavated in recent years. New Plantation (Fyfield and Tubney) and Windmill Hill (Nettlebed) are the two major sites that have been dug specifically because of Mesolithic component. Other sites have been identified as a result of systematic fieldwalking projects, especially those in the Upper Thames Valley and Chalk Down in the early 1980s by Robin Holgate and Steve Ford (REFERENCES). Fieldwalking, however, raises the perennial problem of knowing what proportion of a site has been seen (a small part of a large site or most of a small one), and whether the assemblages represent single episodes of activity or many. Many other 'sites' have been identified only on the basis of stray finds, often classified only as being 'Mesolithic' with no description of the assemblage let alone identification of diagnostic artefacts. This is exacerbated by the lack of typological definition for much of this material which leads to problems with chronological definition of human activity in the county during this period (see below).

Finds recovered over many years from one area can, eventually, provide a more significant pattern than the individual episodes of recovery suggest, and I would suggest that this is the case around Abingdon where small amounts of finds came from the causewayed enclosure, Barton Court Farm, Goose Acre Farm and Andersey Island, with larger quantities from Otney, Pumney, Thrupp, Corporation Farm and Culham Reach (information from AAAS). Some of these collections have been assembled over many years.

This raises the possibility that sites that might have been dismissed as only 'background noise' might be more important if seen within a wider context. An example of this could be the results of the recent field evaluation at Kingston Bagpuize (OA 2006). Even very small groups of material can be revealing when seen in the long-term settlement of an area. For example the small numbers of Mesolithic artefacts recovered from Yarnton on the same gravel island as early Neolithic activity, could suggest the later use of a woodland clearing near to the river which had also been used in the Mesolithic.

## Chronology

### *Oxfordshire chronologies*

Chronological definition of sites within the county is poor, and is overwhelmingly achieved on the basis of flint-tool typologies and manufacturing techniques. There are difficulties of distinguishing between early and late Mesolithic groups, especially where there few diagnostic tools are present, and even between late Mesolithic and early Neolithic assemblages. Even where it has been possible to differentiate, these periods span thousands of years. Some sites have been dated on the basis of their artefact types as early:

- Tubney Wood (Bradley and Hey 1993)
- Ascott-under-Wychwood (majority of assemblage) (Cramp in Benson and Whittle 2007)
- North Stoke (Ford 1987)
- Nettlebed (Peake 1915)
- Goring (Brown 1995)
- 

and others as predominantly late:

- Nettlebed (Boismier 1995)
- Gravelly Guy (Holgate 2004)
- Ascott-under-Wychwood (small group; Cramp 2007)
- Kidlington Lock Crescent (Booth 1997)
- Sites in the Abingdon area and Drayton (various and AAAHS)
- North Stoke (Ford 1987)
- Goring (Brown 1995)

Where assemblages are of reasonable size, it can be possible to distinguish chronological traits within early Mesolithic groups (Reynier 1998), for example the early 'Star Carr' assemblages have been found as far south as Thatcham (III), Berkshire though none have yet been identified within Oxfordshire (???). A slightly later 'Deepcar' assemblage has, however, been recovered at Tubney Wood, perhaps dating to around 9,400 years ago. Later early Mesolithic 'Horsham' assemblages (after around 9,000 years ago) are more common and have been recognised, for example, at Ascott-under-Wychwood (Cramp 2007). Within late Mesolithic assemblages, smaller geometric microliths and, especially rod microliths, are seen as indicative of very late dates (for example at Kidlington Lock Crescent, Gravelly Guy and Thrupp).

But many other sites are of uncertain date within the Mesolithic, such as Rollright (Holgate 1988), Spelsbury Down (Mudd 1987) and the sites around Hanborough and Combe (Hardaker \*\*\*). This probably includes a number of the sites listed by Holgate as late Mesolithic in *Neolithic of the Thames Basin* (eg Longworth and Iffley), and most of the lithic scatters listed in the county SMR.

## ***Radiocarbon and other scientific methods***

Very few radiocarbon dates are available for sites. I can only think of the late 6th and 5th millennium dates from Ascott-under-Wychwood on roe deer from an early Neolithic midden (\*\*\*) and birch [or beech? check] charcoal from a posthole (Bayliss *et al.* 2007, in Benson and Whittle).

## **Landscape and land use**

### ***Key characteristics of the landscape***

Pollen work by Petra Day at Sidlings Copse, to the north-east of Oxford, showed that at c 10,000 BP this part of the Thames Valley was \*\*\*\*\* (Day 1991, \*\*\* - sorry need to check this). At Mingies Ditch in the Lower Windrush Valley (Robinson 1993), a sample of a similar date (Late Devensian Zone III) from a channel in the floodplain gravel contained arctic fauna and flora. This included an arctic-alpine species of beetle, *Helophorus glacialis*, which lives in pools at the edge of melting patches of snow and is now only found in the far north of Europe (Angus 1973, 317), and fruit scales and leaves of dwarf birch (*Betula nana*; Robinson 1993, 7-9). No trees were present, although pollen analysis suggested that clumps of birch and pine grew beyond the edge of the floodplain terrace. Twigs from this sample produced a radiocarbon date of 11,150 - 10,650 cal BC (HAR-8356: 10860± 130). Around 200 years later (9150 - 8300 cal BC; HAR-8366: 7430± 110), the climate was much more temperate and all the species from a sample in another floodplain channel at Mingies Ditch can be found growing in England today (*ibid.*, 9). Trees were present, mainly birch and willow with some pine and juniper, but half the terrestrial pollen was from grasses, showing a relatively open environment. This area was quite heavily wooded by the 7th millennium cal BC, however, and closed alder woodland prevailed by the mid 6th millennium (*ibid.*, 9-12). Pre-Boreal tree pollen on the Corallian Ridge at Cothill Fen suggests open woodland dominated by birch, with willow and pine also present (Day 1991). Around 9,500 years ago, there was a rise of pine, hazel and elm around this area, with birch and willow declining, and then oak and later hazel increasing at the expense of pine. Mixed deciduous woodland appeared to be present over much of the valley by the 5th millennium (Day 1991), with alder growing in the valley bottoms and lime, oak, hazel, ash and elm on the better drained gravel terraces and higher slopes.

The channels of the Thames seem to have been incised to their greatest extent at the start of the Holocene. Thereafter, the regime has been one of channel silting and simplification from an anastomosed system - a relatively stable multi-channelled system with cross linkage between channels - towards a single channel system (Robinson 1992a, 47-8; Parker and Robinson 2003). The early and mid Holocene environment of the Upper Thames differed from that of the Middle Thames, becoming dryer as a result of increasing woodland cover (Robinson and Lambrick 1984, \*\*\*). Under climax vegetation, channels ceased to flow.

Evidence from Yarnton provides recent supporting data for this landscape reconstruction, but it does provide a little supporting data. Inorganic silt deposited within the Late Devensian channel to the south of its Bronze Age successor on Site 1,

showed that water was flowing and sediment accumulating in the early Holocene. An OSL date from this deposit yielded the result of 9450 - 6850 BC (OSL 866d; Fig. 14.9). By 4460 - 4250 cal BC (OxA-10713: 5535±50; Fig. 14.9), this channel, lying between Islands 1 and 2, was dry and alder was growing within its bed, as shown by the radiocarbon date on an alder root found there, and this situation appears to have continued throughout the Neolithic period. In addition, some tree-throw holes on low-lying Site 2 (Island 2) contained molluscs with shells of *Pomatias elegans*, a dry ground mollusc of leaf litter and other friable substrates such as loose soil (Chapter 8.1.1). These faunas probably reflect relatively dry woodland growing on the site in the mid Flandrian (later Mesolithic, c 6500 - 4000 BC), or possibly the Neolithic period.

### ***The use of rivers, streams and lakes***

The riverine distribution of Mesolithic sites of early and late Mesolithic date is striking (Fig. 1), with sites such as Gravelly Guy, Abingdon, North Stoke and Goring along the Thames. Indeed, with the exception of the sites along the Corallian Ridge, Nettlebed at the edge of the Chilterns and on the Cotswolds, these provide the dominant picture of the Mesolithic in Oxfordshire. Even the Corallian Ridge sites are not very far from the Thames, and some of the Cotswold sites are at the upper reaches of tributary rivers and streams. This indicates the significance of rivers as routeways, but also as important sources of plant and animal food, both in the river and on its banks.

### ***The use of valley slopes and hills***

Both early and late Mesolithic sites are known on the Corallian Ridge, and many of these are situated near the scarp slope overlooking the Thames Valley. They may have provided single locations with a number of different environmental niches within easy reach (Bradley and Hey 1993). The Cotswold and Chilterns sites are further away from the main river valley, although in the case of those on the Cotswolds, often near to tributary streams. It seems probably that woodland cover was not as dense in these higher areas as on the intermediate valley slopes, and clearings would have provided important areas of resource aggregation.

Other parts of the county appear, on present evidence, to be little used, for example the Vale of the White Horse, the Berkshire Downs and other slopes away from the river.

### ***Woodland***

As indicated above, woodland was the dominant feature of the Mesolithic landscape. There is little direct evidence for woodland clearance by Mesolithic communities (that I have found), with the exception of the quantities of charcoal found in the Cothill cores by Petra Day, and suggested by her to be the result of human clearance of he pine woodland on the Corallian Ridge at around 8800 - 7700 BP (Day 1991, 465).

However, there are many indications that clearings were used at least opportunistically and that, repeated use of these in some cases may suggest that they were maintained by humans, assisted by fauna (eg around Abingdon, Ascott-under-Wychwood). There has been some suggestion that deposits within tree-throw holes in some places could be the result of deliberate and formal acts (eg Goring).

### ***Hunting and gathering strategies***

The distribution of flint and its character is the only evidence available in Oxfordshire for hunting and gathering strategies. There has been no microwear analysis. As already indicated, hunting and gathering strategies seem to have been based on river resources, clearings around the river and less densely-wooded upland areas. The Corallian Ridge may have been seen as an advantageous site from which to observe animals, but also exploit wide range of environmental niches from the sandy ridge to the valley bottom of the Thames.

In his 1980s research of the area, Robin Holgate believed that later Mesolithic sites were preferentially sited in Upland areas, indicating the increased importance of the hunting of ungulates as part of food-gathering strategies. More recent work in river valleys, especially associated with development, suggests that late sites are found in these areas too. It is, however, the case, as he argued, that microliths are more numerous in upland assemblages (with few or no tranchet adzes or axe-sharpening flakes) perhaps indicating that hunting larger animals was a more important activity in these areas, and that these sites represent seasonally occupied hunting camps (Holgate 1988, 74-6). This may reflect the increasingly dense woodland in the river valleys and the more restricted (and upland) areas in which animals could aggregate. [Alison, do you think that this is true?]. It seems likely that people had a mixed strategy of use of the river and river-bank resources (fish, fowl and a range of plant foods) and clearings on higher ground (ungulates and a different range of birds and grasses).

Holgate has argued that the restricted range of implements present on higher sites and the high proportion of microliths indicate.

### ***Raw-material acquisition***

Although there is some use of larger flint nodules from the river gravels, the use of good-quality flint occurs probably on all Mesolithic sites. The majority of this material has been brought from the Chalk, even on sites in the very north of the county such as Rollright. Thus people moved over long distances to acquire important resources, or they exchanged materials with neighbouring groups, with all the social complexities that this implies. It also begs the question of what would be exchanged. There is no evidence for flint mines and the material could all have been recovered from surface deposits.

## Society

### *Social organisation and settlement*

#### *Structures*

There is no evidence of Mesolithic structures in the county. One posthole/stakehole at Ascott-under-Wychwood was claimed to be Mesolithic, but seems most likely to be Neolithic in date but containing redeposited Mesolithic charcoal.

#### *Activities on settlement sites*

There is a range of activities indicated by assemblages that would conventionally be described as representing base camps (Mellars' 'balanced assemblages'). At these sites tools include those for cutting and for plant and animal food preparation and processing (eg Tubney, where the high proportion of microdenticulates on this site was suggested to be linked to plant-food processing), working bone, antler or wood (Windmill Hill, Nettlebed), processing skins and hides (Nettlebed and Tubney) and making and rejuvenating the tools needed to undertake these tasks. Tranchet axes from Goring may suggest deliberate tree clearance.

However, a number of sites have yielded evidence of multiple activities with what are probably palimpsest assemblages showing small task groups engaged in variety of subsistence activities repeatedly occupying the same location, as suggested for Windmill Hill, Nettlebed (Boismier 1995, 18). At this site these activities included, core preparation and reduction, tool manufacture, use and rejuvenation of a variety of tools used in working bone, antler or wood, and processing skins (*ibid.*). At Tubney, successive episodes of activity also seemed to be present and seem to represent hide preparation, food preparation and microlith manufacture. This may be a more accurate way of describing sites that had previously been considered to be base or short-stay camps, such as that suggested for Gravelly Guy, where cutting, scraping and engraving tools were being used, microliths produced and axes sharpened. The early settlement activity at Ascott-under-Wychwood was suggested to be of some duration and included microlith manufacture and tool use; the late assemblage probably represents short visits rather than prolonged stays.

Possible charred fibres have been found in Mesolithic peats at Culham Reach (Wessex Archaeology), which may indicate clothing or other textiles. Evidence for the preparation of mastic has been found at Thatcham (Roberts *et al.* 1998), but there is none so far in Oxfordshire.

There are too few sites at present to assess any change in activities through time.

#### *Activities elsewhere in the landscape*

At Gatehampton Farm, Goring there seem to have been repeated visits throughout the early and late Mesolithic, presumably to gain access to a good flint source (Allen 1995, 117-8). This site was thought to be a non-residential location at which to work

nodules of high-quality flint acquired from the nearby Downs. The picks may have been used to extract the nodules. Cores and trimming flakes were left behind, but usable flakes and blades were removed for use elsewhere (Brown 1995, 83). Knapping sites have been suggested for Mingies Ditch and Kidlington Lock Crescent, and microlith manufacture at early Ascott-under-Wychwood.

Hunting sites have also been identified, for example at Rollright, a site visited for short periods by one or more individuals carrying flint-working toolkit (Holgate 1988, 90), and also sites in the area around South Stoke and Goring in the Goring Gap. Individual microliths found in the landscape may represent tools lost during hunting expeditions.

### *Mesolithic groups*

It is my impression that there are few very large and intensively-used sites in Oxfordshire. This fact, and the evidence on site use above, suggests relatively small groups of people moving through the landscape, with repeated visits to individual sites, though not always for the same purpose. These groups may have been quite variable in size. The question of whether they also became smaller through time in response to changing environment is difficult to address from this data, although I would suggest that this is indicated from evidence elsewhere in the Thames Valley.

As already mentioned, some materials were brought over considerable distances or were acquired through exchange. In Oxfordshire this is evidenced by flint from the chalk.

### *Food*

There is very little direct information on Mesolithic food from Oxfordshire. As far as I know, no charred plant foods and the only dated animals are the roe deer from Ascott-under-Wychwood and the aurochs from Goring (7425 - 6770 cal BC; OxA-3919, 8145 +/- 90), and neither need have been killed for food.

### *Ritual and funerary activity*

It is possible that the picks and axes dredged from the river near to Goring could be the result of deliberate deposition. It was also claimed that some finds in tree-throw pits on the Gatehampton site were formally placed there (I want to go back and check this statement).

There are no dated Mesolithic human remains, and no burials suspected to be of this period.

Holgate, R. (1986) Mesolithic, Neolithic and Earlier Bronze Age Settlement Patterns Southwest of Oxford (Aerial Survey and Fieldwork). *Oxoniensia* 51 pp1-14  
Hardaker T, 2007 Long Hanborough SSSI on Church Road  
<http://www.wospweb.com/site/Hanborough-Online/Geology-Part-2.htm>

? Hardaker, T.,2004. Present-day Lower Palaeolithic Land Surfaces in Britain: Two examples from the Upper Thames Lithics 25, 22-38.  
Day, S.P. (1993). Woodland origin and 'ancient woodland indicators': a case study from Sidlings Copse, Oxfordshire, UK. *The Holocene*, 3, 45-53.