Work at the Palaeolithic site at Rookery Farm, Lower Kingswood, 2001–5

PETER HARP

This article outlines the results of fieldwork undertaken between 2001 and 2005 at the Palaeolithic site of Rookery Farm, Lower Kingswood by the Plateau Archaeology Group under the direction of the author. The work comprised annual fieldwalking with test pitting in summer 2002 followed by excavation in September 2003–February 2004. The work produced nearly 400 flint artefacts of Lower and Middle Palaeolithic date. These artefacts mainly comprise handaxes and waste flakes (débitage), and it is suggested that although the majority of the artefacts resemble material recovered from earlier investigations of the site which have been compared with Farnham Terrace B material, artefacts are also present which are distinctive in both technology and post-depositional weathering and are comparable to Farnham Terrace A and Terrace C material. Excavation demonstrated that those artefacts not within the plough-soil exist within a loessy clay layer under the plough-soil and resting on Clay-with-flints, and it is concluded that there is evidence for multi-period deposition on the site during the Palaeolithic. There is also a brief summary of recently recovered Palaeolithic finds from the general area, and some comments on previous work at the site.

Introduction

This article presents the initial conclusions from an ongoing programme of intensive fieldwalking and test-pit excavation at the Palaeolithic site at Lower Kingswood, Surrey which began in autumn 2001 under the aegis of the Plateau Archaeology Group of the Surrey Archaeological Society. So far, nearly 400 Palaeolithic struck flints have been recorded. The site covers 400,000m² on geology mapped as Clay-with-flints, and contains four previously identified sub-sites: Carpenter’s floor, and Walls’ Sites A, B and C (see below). The respective heights of Sites A, B and C are 172, 185 and 192m OD. The rationale for re-examining this site was to record accurately the surface spread of Palaeolithic material, to investigate any stratigraphy in relation to the geological deposits, and to reassess previous work. The site has been widely referred to in national and regional studies (eg Wymer 1968, 272; 1999, 88; Sumbler et al 1996, 130–2; Scott-Jackson 2000, 47–50; Winton 2004, 4). The particular significance of sites such as this on the Clay-with-flints is that they are regarded as being essentially in situ within the landscape as opposed to artefacts recovered from sites in derived deposits such as those on the Farnham terraces. The artefacts are usually in a sharp condition, but have been subjected to severe thermal and chemical weathering resulting in cracking, fragmentation and recortication (patination). The integrity of these sites is currently under debate (Ashton 2001 and pers comm), and the following is presented as a contribution to this discussion. The term ‘handaxe’ rather than ‘biface’ has been used below as not all the handaxes are bifacially worked but their form suggests similarity of function; under current practice they would be grouped as ‘cutting tools’.

Background

Much of the background to this site has already been published (Walls & Cotton 1980; Cotton 1985) but new research has led to a number of points of additional information which should be considered with the above publications.

PALAEOLITHS FROM THE NORTH DOWNS PLATEAU

The North Downs plateau around Kingswood, Walton on the Hill and Banstead (fig 1B) has been identified as one of the main concentrations of Palaeolithic artefacts in Surrey (Wymer
1987, 24–5) and a summary of finds from the area was given by Walls & Cotton (1980, 32–5). To these can be added a handaxe collected from Banstead by William Wright around 1900 which is now in the British Museum (Harp 1999a, 35); possibly from the Canons Farm area, where several Palaeolithic artefacts (which are now in Bourne Hall Museum, Ewell) were recovered in the 1970s by Tom Walls and more recently by the author (Harp 2000; 2002). Walls & Cotton (1980, 33) also refer to some Palaeolithic implements found on Banstead Heath Gallops by a Mrs Easton. Her collection of struck flints has been recovered but contained no Palaeolithic material, comprising post-glacial artefacts apparently rejected by L W Carpenter. It has also come to light that Carpenter carried out an excavation around a small pond in a probable doline (solution hollow) feature – where the acidic Clay-with-flints has led to uneven solution of the underlying chalk (eg Darwin 1904, 128–9) – on Banstead Heath Gallops (TQ 2345 5437) where he collected Clactonian-type artefacts, although it is unclear whether these were actually Palaeolithic (John Wymer, pers comm, who visited the excavation). These might be comparable with the Clactonian-type artefacts recovered by Tom Walls, which are now in Bourne Hall Museum, Ewell, from the same area (Harp 1999a, 13). Similar material also occurs at the Canons Farm site (along with Acheulian material), and has also been collected by Martin Green on the Clay-with-flints at Cranborne Chase in Dorset (Martin Green, pers comm). It is still unclear whether any of the Clactonian-type artefacts from the Clay-with-flints, characterised by hard-hammer percussion and a light ochreous staining, are actually Palaeolithic. More recently, Palaeolithic artefacts have been recorded from Tangier Wood and Tattenham Way allotments at Burgh Heath (Harp 1999b; 1999c; Cotton 2004, 21, fig 2.2).

**Earlier work at Rookery Farm**

**Leslie W Carpenter**

Carpenter began the surface collection of palaeoliths from Banstead and Walton Heaths in the 1950s, culminating with his recording of a ‘Palaeolithic floor’ with 94 pieces of struck flint (containing six handaxes, two cores, a chopper, a scraper, a retouched flake and 83 unretouched flakes) at Rookery Farm in 1959 when plough-soil was being stripped from a dry valley as part of an encroaching landfill (Carpenter 1956; 1957; 1960; 1963). Although these artefacts are currently lost, it is now possible to add some clarification: the location of this deposit which was published somewhat vaguely as ‘in the S.W. corner of the cleared area and just above the 550ft contour line’ (Carpenter 1960, 99) and subsequently suggested as being in the vicinity of TQ 245 543 (Walls & Cotton 1980, fig 2) was later identified by an operative at the landfill as being by a grubbed-out hedge corner, placing it at TQ 2444 5401. For the artefacts to have survived at this location on a steep slope, they were probably contained within a doline, possibly deliberately used to provide either water or hunting cover – the presence of Palaeolithic artefacts in dolines or small ponds on Clay-with-flints sites has been discussed by Smith (1894, 164–5; 1916, 63, 68), Catt et al (1978, 139–43), White (1997, 927–30) and recently Cotton (2004, 21), although it is also possible that the doline post-dates the Palaeolithic occupation and has merely preserved earlier material. Carpenter identified his Palaeolithic artefacts both by typology and condition, suggesting that extensive white recortication (patination) on artefacts from Clay-with-flints was a near requisite for the acceptance of artefacts as being pre-glacial in date, arguing that the white or cream recortication was due to exposure to glacial or periglacial cold. However, Smith, working on similar geology on the Chilterns, had argued more accurately that it was due to ‘the decomposition of the surface of the flint brought about by water and the matrix in which the

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Fig 1 (opposite) Rookery Farm, Lower Kingswood. Location of site and other Palaeolithic sites on the North Downs plateau. Fig 1C is based on a detail from Walls & Cotton (1980, fig 2) with minor alterations. © Crown copyright and/or database right. All rights reserved. Licence number 100014196)
Fig 2  Rookery Farm, Lower Kingswood. Map of Site A, showing recent finds from south-eastern part of Palaeolithic scatter originally discovered by Walls. Note that the previous work by Carpenter and Pemberton is now plotted more accurately, and that the alignment of the gas pipeline shown by Walls & Cotton (1980) has been corrected. Banstead Heath has been enlarged, and now covers much of Site A. (© Crown copyright and/or database right. All rights reserved. Licence number 100014198)
tools happen to have been embedded’ (Smith 1894, 109–10). It has now been suggested that this coloration, which is common to Palaeolithic artefacts recovered from Clay-with-flints in southern Britain except for the ochreous material discussed below, is caused by the desilicification of the flint surface related to temporary alkalinity resulting from periglacial loess deposition during the Devensian or earlier, and that the recortication has limited effect on later artefacts as the loess had largely decalcified by the Mesolithic (Harp 2004, 16–25; 2005). On these grounds, the less heavily recorticated condition of the two cores and the flake chopper found by Carpenter (1960, 101, ‘6’, ‘7’ and ‘9’) may suggest a Mesolithic rather than Palaeolithic date. These pieces are also atypical of the other Palaeolithic artefacts recorded from the site.

TOM WALLS

Although Walls fieldwalked the site for about twenty years from the 1960s to 80s and recovered approximately 107 Palaeolithic struck flints, mostly from Site A including 59 handaxe or handaxe fragments, recent re-analysis has shown that the majority of the dated artefacts (handaxes were usually dated but not the débitage) were found in 1969 during the first season after the initial deep ploughing of Site A (Harp 2002, 5). The statistical analysis of the recovery rate demonstrates that the artefacts were essentially absent from the plough-soil prior to the deep ploughing of 1969, and Pemberton has confirmed (pers comm) that the artefacts were only visible in the field in those areas where the Clay-with-flints subsoil had been inverted onto the surface. With a gap of ten years between the bulk of the collection and its publication, this raises some questions over the accuracy of the distribution map (fig 1C), although Walls is credited as stating that the map was only an approximation since accurate records had not been kept at the time (Jon Cotton, pers comm). Walls identified three sites at Rookery Farm (A, B and C), although nearly all his 107 artefacts were from Site A, the field on the plateau adjacent and west of Carpenter’s floor. Site A was shown as forming two parallel scatters (fig 1C) but which artefacts came from which scatter was not recorded. The artefacts were generally white, recorticated and the handaxes pointed, except for a very small number of abraded cordate, sub-cordate and ovate handaxes stained either ochreous or pink. By the 1980s Walls believed he had recovered all the Palaeolithic material in the plough-soil from the site (Jon Cotton, pers comm).

FRANK PEMBERTON

Pemberton directed an excavation for the Nonsuch Antiquarian Society at the site from 1969 to 1970 (Pemberton 1971), excavating three parallel trenches (at TQ 2437 5404) just inside the ploughed field recently walked by Walls (fig 1C), positioned adjacent to the shed housing the landfill equipment and mid-way between Carpenter’s ‘floor’ and the suggested densest concentration of Walls’ finds at Site A (Frank Pemberton and local residents, pers comm). The trenches were each 2 yards by 1 yard in size while three further 1 yard square sondages were also excavated to the south in the dry valley prior to the extension of the landfill (Frank Pemberton, pers comm). The trenches were not, apparently, excavated very deeply – ‘none of them achieved a depth of more than a few inches’ – and on occasion just one excavator worked on the site, sometimes assisted by pupils from Epsom College (Vivien Ettlinger, pers comm), although Pemberton states (pers comm) that the trenches went down to the ‘natural Clay-with-flints’. Environmental samples were analysed but proved uninformative (Frank Pemberton, pers comm) and regrettably the paper archive has been lost although Pemberton, in his short note, recorded that there were Palaeolithic ‘primary flakes occurring in section’. The only Palaeolithic artefacts in the archive, now at Bourne Hall Museum, Ewell, are a handaxe collected on the surface by Bob Webber during fieldwalking in July 1969 prior to the excavation in the area where the trenches were later placed (Vivien Ettlinger, pers comm) and a large secondary flake. The flake is labelled ‘Field N/W of coombe’. The
artefacts, mainly Mesolithic and Bronze Age worked flint, are a mixture of surface-collected and excavated material, and it is not possible to state whether the only Palaeolithic flake came from an excavated context. The primary flakes referred to by Pemberton were seen only when the north sections of the trenches were being cleaned for drawing and were left in place when the trenches were backfilled (Frank Pemberton, pers comm). The fact that, at most, only one Palaeolithic flake was recovered from the trenches, and that the primary flakes were only identified as such while remaining in section, suggests that the primary flakes, which were not removed from the sections and so cannot now be studied, should be treated with caution. Also, there is much thermally shattered flint on the site which could be easily mistaken for worked flint. It appears that Pemberton unintentionally placed his trenches in a filled tributary gully to the valley used as a landfill, containing soliflucted ochreous deposits, which might explain the lack of white recorticated palaeoliths which had either been eroded or were beneath the depth of the excavation. If, as postulated above, Carpenter’s floor was situated in a doline feature on a steep slope, it explains the inability to locate any further extent of the ‘floor’ in Pemberton’s sondages as any surviving deposits would have been highly localised.

Fieldwalking 2001–2004/5

In order to assess Walls’ claim that he had recovered all the surface Palaeolithic material, and with the aim of more accurate recording of any finds and particular emphasis on recovering débitage, which was under-represented in Walls’ collection, the Plateau Group has been carrying out intensive fieldwalking of the area surrounding the landfill. Cultivation restrictions have resulted in only part of Site A being accessible for fieldwalking as the western scatter identified by Walls and some of the eastern scatter is now under permanent pasture as part of Banstead Heath. Site B is also not currently cultivated although some Palaeolithic material has been recovered slightly to the north in the adjacent field. The surface of the restored landfill has also been checked for Palaeolithic material replaced on it, but only a Neolithic ground axe fragment was found in this area.

Fieldwalking has been carried out so far after four ploughings, and the intensity of the fieldwalking is such that a team of six people can walk an area of about 50 x 100m in a day. The cultivated part of Site A comprises around 60,000m² (representing 25% of Walls’ Site A), the total area fieldwalked comprises around 400,000m². Those areas between the known sites have been walked less intensively than the known sites, which are covered several times during each season to allow for artefacts to be recovered after weathering of the tilth and in different light conditions. The artefacts recovered during the first season were recorded by hand-held global positioning system (GPS), but the accuracy was found to be only about 11m, therefore all subsequent surface finds have been located by both GPS and tape-measure triangulation, theoretically to an accuracy of 0.1m.

So far, from the field containing part of Walls’ Site A, 44 handaxes or handaxe fragments, three scrapers, one utilised piece, two ‘bashed lumps’, two blades (fig 3, no 5), three Levallois flake cores (fig 3, no 3) and 147 flakes have been recorded (fig 2). This includes a small number of abraded, soft-hammer ochreous flakes and a partial soft-hammer abraded ochreous ovate handaxe (fig 3, no 4). The majority of the material is, however, sharp, heavily recorticated white or cream with frequent indigo manganese staining and cold-thermal fracturing, and of the same Middle Acheulian Tradition (MAT) small pointed-industry described by Walls & Cotton (1980, fig 3.2). The post-glacial flint has generally been unrecorded and left in situ, although several Mesolithic axes, two ground Neolithic axe fragments and two Neolithic/Bronze Age arrowheads have been recorded.

The distribution suggests that this is the southern half of the Walls & Cotton eastern scatter at Site A, approximately 100m south of where previously published (accepting that the earlier publication was only an approximation of the position of the scatter), and that the plough-soil scatter comprises dense localised concentrations. The concentrations, although indicative
of levels of artefacts and suggestive of small knapping or butchery areas, are also a reflection of the depth of the interface between the implementiferous deposits and the overlying soil, and show where ploughing has cut into the undulating Palaeolithic deposit, a similar situation to that at the site at West Cliffe, Kent (Keith Parfitt, pers comm). It appears that although most of the material is technologically uniform, with some handaxes being so similar as to suggest they are possibly the work of the same cultural group or even the same individual, there are elements that point to multi-period deposition in the Palaeolithic. This is apparent from the ochreous abraded material which represents a soft-hammer, primarily ovate, industry (fig 3, no 4) and has probably been soliflucted onto the site from higher up the dip-slope with the ochreous flint deposit which covers part of the site and into which Pemberton carried out his excavations. Of particular interest are the small number of pieces from the extreme northern end of Site A which represent a crude, triangular handaxe assemblage in cherty flint (fig 3, no 1) and have parallels with Farnham Terrace A material (Oakley 1939,

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**Fig 3** Rookery Farm, Lower Kingswood. Palaeolithic artefacts: 1 – crude, cherty handaxe, Site A; 2 – typical Middle Acheulian Tradition pointed handaxe, Site A; 3 – crude Levallois-type flake core, Site A; 4 – ochreous handaxe fragment, Site A; 5 – blade, Site A (black dot indicates location and presence of bulb of percussion); 6 – plano-convex handaxe, Site C.
29), unlike the majority of finds from Site A which are technologically parallel with Farnham Terrace B artefacts (Wymer 1987, 24). It is debatable whether the cherty nature of the flint itself has necessitated the crude knapping, but Oakley comments that the Farnham Terrace A material is not only crudely knapped but is in a similarly yellow, cherty flint (Oakley 1939, 29).

Walls’ Site B is currently under permanent pasture, although a single flake was recovered from the adjacent field. Site C is the location of Walls’ first surface find from the area, an ochreous sub-cordate handaxe found in 1966 (Walls & Cotton 1980, 17) and a Levallois flake core was found nearby, but in the bottom of the dry valley, in the 1970s by Ken Lansdowne at TQ 2440 5425 (Cotton 2004, fig 2.3, 2). Two seasons of fieldwalking at Site C have recently been carried out, and one plano-convex slightly ochreous pointed handaxe (fig 3, no 6), two handaxe fragments, seven flakes and three prepared-platform (Levallois) flakes have been recovered, as well as a crude pointed handaxe from the adjacent field. The plano-convex handaxe and the Levallois flakes date from the Middle Palaeolithic, although probably not directly contemporary (Nick Ashton, pers comm) and of similar date to Farnham Terrace C artefacts. No prepared-platform flakes have yet been recorded from either Site A or B. There is a very large doline feature in the field (which attracted Mesolithic activity), as well as a circular pond – possibly in another doline. The only other archaeology apparent from fieldwalking, apart from post-glacial struck flint, is a dense spread of iron slag and fragments of furnace structure at TQ 2426 5333, dating to medieval or earlier periods (Jeremy Hodgkinson, pers comm).

**Excavation**

**TEST PITS 2002**

From 14 to 22 September 2002, under the direction of the author, five test pits were excavated at Site A (fig 2). Test Pit 4 (T4) was dug by a team from the PADMAC (Palaeolithic Artefacts and Deposits Mapped as Clay-with-flints) Unit of the University of Oxford, led by Julie Scott-Jackson. The location of the test pits was based on fieldwalking collection from the winter of 2001–2, although the location of T4 was also governed by the evidence for a filled doline feature derived from a 64-point resistivity survey carried out in August 2002. This Tigre 64-probe array gives information to a depth of 16m.

The five test pits were set out on an approximately north–south grid, at a spacing of 20m. Following the methodology of Scott-Jackson (2000), the plough-soil was opened in each trench to a size of 3 x 4m, which resulted in the ability to create a 1m-wide clean working area around each test pit of 2 x 1m. All the plough-soil from T1, T2 and T4 was hand-sieved through 10mm sieves and any artefacts collected. This took twenty people three days, and in order to accelerate the process, it was agreed that for the ensuing test pits, T3 and T5, only the central 2 x 1m of plough-soil would be sieved as a sample, and that the 1m buffer zone would be removed and replaced upon reinstatement. Although the size of the test pits in T1 and T4 were started at 1 x 2m, again in order to expedite the excavation, it was decided to limit these pits, and the later pits, to 1m². After removal of plough-soil, the test pits were excavated by planum spits, each 50mm in thickness after an initial levelling spit. Each square metre was denoted as either ‘a’ or ‘b’. Only in T4 was natural deemed to have been reached, and this only by the use of a sondage. In the other trenches, only between 50 and 250mm of subsoil was excavated.

Twenty-two pieces of Palaeolithic struck flint were recovered from the test pits (table 1), mainly from plough-soil, while four further artefacts were picked up as casual surface finds during the course of the excavation. Of the pieces recorded from the excavation itself, a small number are likely to be eliminated from being Palaeolithic on final analysis. At the time of excavation no Palaeolithic finds were recorded from Trench 4 (the PADMAC test pit placed over a doline).
Surface finds (outside excavation area): three débitage and one crude pick-like handaxe. A quantity of post-glacial struck flint was recorded, but is not detailed here.

TRENCHES 2003–4

Between September 2003 and February 2004 two trenches, each 4 x 4m, and 11m apart, were excavated under the direction of the author over the densest plough-soil concentrations of Palaeolithic artefacts. There were insufficient resources to excavate Trench 2 beyond about 40% of the plough-soil, and approximately 24 pieces of Palaeolithic débitage were recovered from hand-sieving through 10mm sieves. Trench 1, however, was excavated to a depth of 0.8m, with a number of sondages within the trench taking the final excavated depth to 1.6m (fig 4). Methodology largely followed that set out in Scott-Jackson (2000, 79–84), involving sieving the plough-soil, followed by reducing the surface to a uniform flat datum by removal of a levelling spit and then by removal of 50mm-thick spits. Geological deposits were mapped and sampled at each spit, and all artefacts below plough-soil recorded as special finds, with the orientation of the larger artefacts also recorded to illustrate any soil movement. Great care was taken not to dislodge the artefacts beneath the plough-soil until they could be recorded in situ.

Approximately fourteen pieces of Palaeolithic débitage and one handaxe tip were recovered from the plough-soil, with approximately another 122 pieces of débitage (all flakes or fragmentary material with one large-blade core) and four possible scrapers recovered from beneath the plough-soil. The numbers given are approximate as some of the flakes may be natural thermally fractured material, and also a small quantity of the material, including the four possible scrapers, are recorticated a brighter white colour than the bulk of the material and may represent Upper Palaeolithic or Mesolithic artefacts. The densest concentration of artefacts was found to be around 0.5m beneath the surface, and most of those artefacts not in the plough-soil were located within a loessy clay layer beneath areas of loess (of Devensian or earlier date) and overlying the Clay-with-flints. Post-glacial flint artefacts were also recorded within the plough-soil, and a shallow circular pit filled with a charcoal deposit was recorded in the south-east corner of the trench, probably associated with late prehistoric activity. Results of the analysis of the Palaeolithic artefacts are currently awaited from Vicky Winton of the PADMAC Unit, who are also analysing the soil samples on behalf of the Society.

Conclusions

The work to date by the Plateau Group has recovered 206 Palaeolithic artefacts from surface collection at Site A, one from near Site B, and fourteen from Site C. In addition, approximately 187 pieces of Palaeolithic struck flint have come from excavated contexts at Site A. Among these 393 artefacts, 58 (20%) are tool or tool fragments (nearly all handaxes). To put the site into context within the county, around 500–600 Palaeolithic artefacts are recorded each from Farnham and Limpsfield (Roe 1968, 283–90, Field et al 1999, 12–13),

<table>
<thead>
<tr>
<th>Test Pit 1</th>
<th>Test Pit 2</th>
<th>Test Pit 3</th>
<th>Test Pit 4</th>
<th>Test Pit 5</th>
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<tr>
<td>Plough-soil</td>
<td>8 débitage; 1 possible handaxe butt</td>
<td>3 débitage</td>
<td>–</td>
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</tr>
<tr>
<td>Spit 1</td>
<td>–</td>
<td>–</td>
<td>2 débitage (1 each from ‘a’ &amp; ‘b’)</td>
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<tr>
<td>Spits 2–4</td>
<td>–</td>
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<td>–</td>
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<tr>
<td>Spit 5</td>
<td>2 débitage from ‘a’</td>
<td>1 débitage from ‘a’</td>
<td>–</td>
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</tr>
</tbody>
</table>

Table 1 Palaeolithic worked flint recovered from the 2002 test pits
and the recent finds at Kingswood bring this site up to a similar figure of about 600 artefacts, although the Farnham and Limpsfield groupings represent collection from a large number of individual sites, and allowance must be made for the large number of artefacts recovered from Farnham which are now dispersed without record (eg Wymer 1992–3: 52–7).

The only excavation carried out to significant depth has shown the greatest concentration of artefacts at 0.5m, though it might have been expected that since this excavation was placed over one of the densest concentrations of material in the plough-soil the Palaeolithic deposit at this point was relatively shallow. The inference from this is that it is likely that very large quantities of material remain buried on the site, following the undulating remnant Palaeolithic land surface and, in places, deposited at depth within doline features. It may be that those areas with least material in the plough-soil contain the best-preserved, deeper deposits – which has serious implications for any large-scale evaluation of the site. Although the artefacts, where not brought into the plough-soil by deep ploughing, are contained within an implementiferous zone of loessy clay resting on the Clay-with-flints, it would be simplistic to refer to this as a ‘floor’ since it appears to represent artefacts from a wide timespan in the Palaeolithic that has been heavily turbated while remaining generally distinct from late prehistoric struck flint. With the exception of the abraded ochreous material, this movement, whether the result of bioturbation or freeze-thaw processes, is unlikely to have moved artefacts far within the landscape but artefacts cannot be regarded as being truly in situ. Further work on refitting will give an indication of the integrity of the site.

The excavated loessy deposits appear to have decalcified to an extent that no faunal remains have survived; however, thicker loess deposits in some of the dolines may not have totally decalcified. Faunal remains recovered from the neighbouring valley system deposits, including mammoth (*Elephas primigenius*), great hippopotamus (*Rhinoceros leptorhinus*), horse (*Equus caballus*), aurochs (*Bos primigenius*) and reindeer (*Rangifer tarandus*), may indicate fauna originally present on the site (Dines & Edmunds 1933, 166).

Site A appears to contain at least three typologies of Palaeolithic artefacts, and although
the Levallois cores and blades might represent additional Middle and Upper Palaeolithic activity, the crudity of the cores and low numbers of blades do not preclude them from being coincidental with the bulk of the MAT artefacts (Matt Pope, pers comm).

Handaxes are generally small, and size/morphology may be a result of the raw material available (Shaw & White 2003, 311–12; Hopkinson & White 2005, 22–3) although at the site at Red Barns, Hampshire, where the flint was of poor quality, it has been argued that other factors such as sexual selection, cultural repertoire and the immediate intended function of the tool also heavily influence handaxe morphology (Wenban-Smith 2000, 248). The Clay-with-flints at Site A is generally about 13m in depth, and considerably deeper over the dolines and it would not normally be expected to find large flint nodules in the upper part of such a depth of Clay-with-flints. However, the excavation revealed a significant quantity of large flint nodules which suggests that the upper part of the Clay-with-flints on site has been derived from a deposit further up the dip-slope that has sludged down prior to the period of Palaeolithic activity (John Catt, pers comm). (The geology of the site cannot strictly be termed Clay-with-flints and has been identified by John (1980, 110) as Plateau Drift.) The scrapers, like those collected by Carpenter, are generally less recorticated than the handaxes and may be post-Palaeolithic or at least more recent than the handaxes.

It is likely that the ochreous material, containing ovate handaxes, represents more recent artefacts as ovates first appear in Farnham Terrace C material in Surrey, but there is no technological reason why the ochreous artefacts might not be earlier than the white pointed-handaxe industry; clearly this is an area for further work. A variety of artefacts of different technologies and staining or recortication is not unusual on Clay-with-flints sites, such as Smith’s classification of his artefacts at Caddington into ‘ochreous implements’, ‘white, lustrous, sharp-edged implements’ and ‘grey or indigo-variegated sharp-edged implements’ (Smith 1894, 96–119) and as the differences in surface condition must be a reflection of both geology (including both type of flint used and its geological medium) and environmental factors, it is possible that surface condition of the artefacts may help in distinguishing the industries present on the site. It certainly seems relevant that all the ovate or ovate-tending handaxes on the North Downs plateau around Banstead, Walton on the Hill and Kingswood are ochreous, although at Canons Farm, while there is an ochreous ovate present, the pointed-industry handaxes become more ochreous as the scatter moves up-slope, possibly indicative of some overlying deposit only partially covering the site. In Hampshire, similarly, while the Clay-with-flints contains the white recorticated flint typical of Surrey, there are also small patches of ochreous flint deposits containing an ochreous ovate Palaeolithic flint industry (Willis 1947, 254–5).

Although it has not been possible to conduct any work on Site B so far, the recovery of a single débitage flake from the adjacent field at least confirms activity in the area. At Site C, the collection of a plano-convex handaxe, several prepared-platform flakes (probably Levalloisian) and the crude ‘proto-Levalloisian’ core (Roe 1981, 191) found by Lansdowne point to the strong possibility of the site being of Middle Palaeolithic date. Although the artefacts are both white and ochreous, none of the ochreous artefacts show the degree of staining or abrasion evident on the ochreous artefacts recovered from Site A.

The work at the site has raised a number of issues that require further research:

1 *The topographic context of the site.* What role do the solution hollows (dolines) play either in the use of the site by hominids (if the hollows existed during the Palaeolithic) such as water supplies, shelter, hunting cover, faunal/floral resources or providing flint for knapping, or as features which have preserved evidence of pre-existing hominin occupation? Is the presence of the site on high ground between two valleys a coincidence of its preservation or was the site specifically used because of its vantage point into the valleys to hunt game? Have the sites further to the edge of the plateau been lost through erosion, and could there be a significant number of sites that are still buried at depth on the plateau which have not been revealed by processes such as soil erosion or deep ploughing?
2 *Intra-site chronology and distribution of activity.* Do the artefacts within the scatter represent an accumulation of occupation debris over a large period of time or a mixture of activities over a short period? Is it possible to draw conclusions from the densities of plough-soil artefacts about the distribution of activity if plough-soil artefact concentrations are heavily dependent on the post-depositional processes which have influenced artefact preservation and visibility? Can the variable condition of the flint artefacts be used to distinguish artefacts from different periods as an indication of post-depositional geological and environmental conditions?

3 *Raw material procurement.* Was the flint used in knapping collected from the Clay-with-flints, from local chalk outcrops or from deposits in the base of the dry valleys? How has the quality of the flint affected artefact production, size, morphology and technology? Is it possible to determine the quality of the flint in use on site in the Palaeolithic considering that the flint now visible has been subjected to subsequent glaciation(s)?

4 *Hominid behaviour on site.* Does the predominance of handaxes suggest that the site was mainly used for butchery, and can the variable density of handaxes and débitage indicate areas of knapping discrete from butchery areas? Is it possible to distinguish tools made by social groups or individuals?

5 *Faunal and floral evidence.* Are there surviving loess deposits contained in the dolines which have not decalcified, so preserving floral/faunal evidence, and is it possible to relate the faunal evidence that has been recovered in the past from the dry valley systems?

6 *Inter-site comparisons.* How do the Kingswood sites relate to the neighbouring sites on the Banstead/Walton on the Hill plateau, and to other sites on Clay-with-flints such as those on the Chilterns, the Dover hinterland or the Argile à Silex deposits in northern France? Can the Clay-with-flints sites be compared with the Palaeolithic sites on Head deposits around Limpfield, and to the terrace deposits, such as those of the Thames, Mole, Wey and Arun? How valid is it to use the artefact typological sequences on the Farnham terraces to date the North Downs high-level sites? Can the soliflucted ochreous Palaeolithic artefacts on the Clay-with-flints be associated with a specific period of geomorphological activity?

7 *Investigation methodology.* How can the investigation of these sites be made more efficient in terms of labour and cost, bearing in mind the difficulty in recognising the artefacts (particularly the débitage when mixed with naturally occurring thermal shattered flint), the variable site visibility and the potential extensive area of each site?

It is hoped that future work on this site, and similar sites, may address some of these questions.

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Test Pit 4, are currently on loan to the PADMAC Unit, and all the artefacts will be stored eventually at the British Museum where Tom Walls’ Palaeolithic finds from the site are housed.

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