

Palaeoliths from the North Downs at Lower Kingswood

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SUMMARY

A number of Palaeolithic flint implements from high level sites in the south-eastern corner of Banstead Heath at Lower Kingswood are considered, and found to have conventional Late Middle Acheulian affinities. Although surface finds discovered following deep ploughing, their sharp, unrolled condition — together with the presence of anciently-broken and unfinished implements and waste-material — makes it unlikely that they have travelled far from the position in which they were manufactured and dropped.

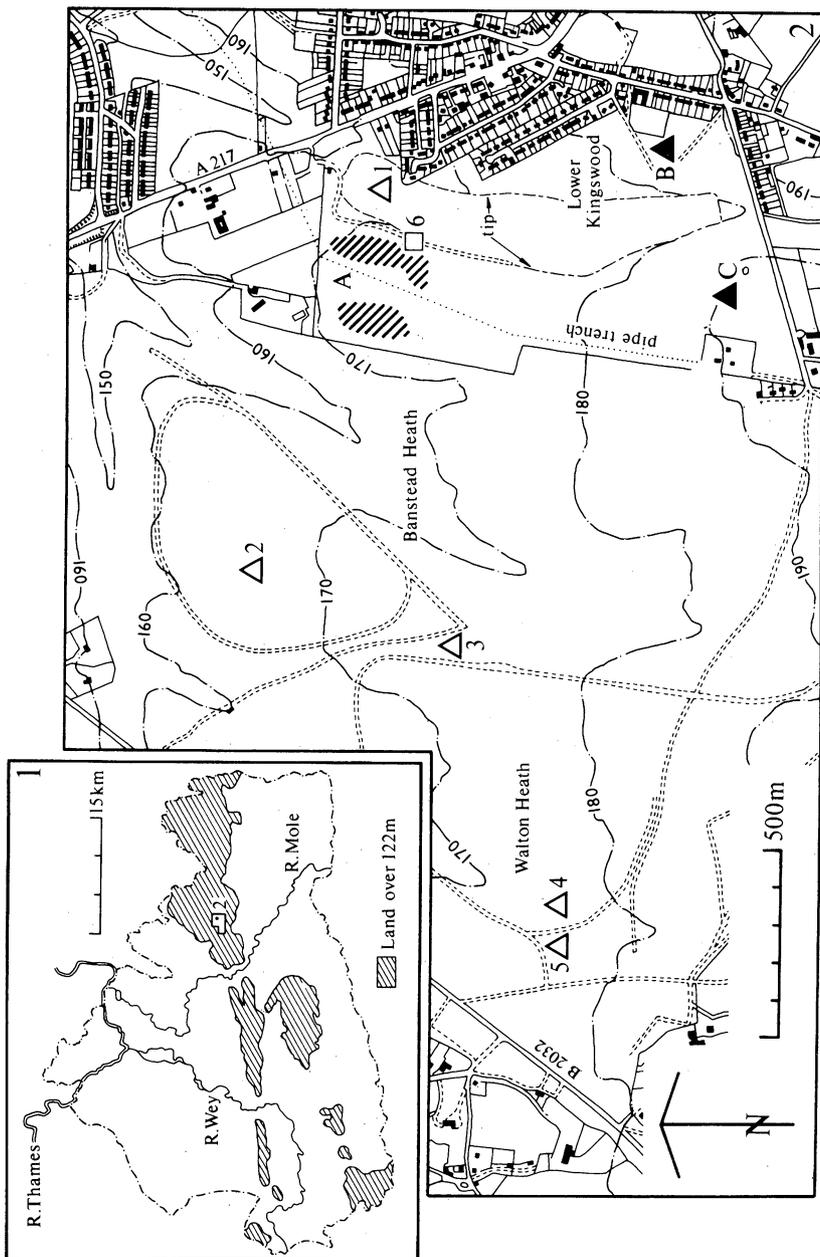
The material is currently retained by the first writer.

INTRODUCTION

The presence of Palaeolithic material high up on the North Downs in the area of Walton Heath and Banstead Heath was first firmly established by L.W. Carpenter in the mid nineteen-fifties, with his publication of a broken hand-axe from Banstead Heath, Walton-on-the-Hill (Carpenter 1955, 136–7). Intensive field-walking throughout the rest of that decade produced a series of Palaeolithic finds from a number of other sites in the vicinity (eg Carpenter 1956), and culminated in 1959 with the discovery of a 'working floor' at Rookery Farm, Lower Kingswood (no 1 on fig 2), during the preparation of a small dry chalk valley or coombe for the dumping of rubbish (Carpenter 1960).

As a result of this fieldwork and its subsequent publication, several earlier collections of Palaeolithic material came to light, most notably those belonging to two local residents, Mrs Richardson and Mrs Easton (Carpenter 1956, 9, 10), while two implements dug up in the garden of 'Knowlehawe', Tadworth 'prior to 1939', and another, dug up in front of the Blue Anchor Inn, Banstead Newton in 1925, were re-located and published (Carpenter 1957; 1963). More recent research has shown that two other stray implements from 'Banstead' or 'Banstead Downs' ('age not definitely stated as Palaeolithic' (Roe 1968a, 281)) and 'Tadworth-Gatton' had found their way into the Sturge and Lawrence Collections respectively, probably during the early years of this century (Roe 1968a, 281; Wymer 1968, 271, 273), while the Ordnance Survey Archaeological Index (O S Records) notes the finding of another, possibly later Palaeolithic, implement on allotments at Burgh Heath in 1961.

The purpose of the present paper is to place on record a further series of Palaeolithic finds made in the area by the first writer since 1966. These include a collection of artefacts recovered from a surface site close to Carpenter's 1959 working floor (A on fig 2), as well as several other individual implements from



Figs 1 and 2 Location maps showing the main area of palaeolithic finds on Banstead and Walton Heaths (see text for details). The new finds are marked A-C. All contours are in metres.

separate locations within the same parish (B and C on fig 2). The paper is divided into two main sections. The first includes a catalogue and brief discussion of the new finds, together with illustrations of selected implements, while the second — contained in the Appendix — lists the earlier finds with their principal references.

THE NEW FINDS

Following double-ploughing during 1969, the cultivated ground overlooking the western slope of the dry chalk valley used for the disposal of rubbish by the Banstead Urban District Council (now Borough of Reigate and Banstead), and known as Rookery Farm Rubbish Tip, Lower Kingswood, offered exceptional opportunity for the retrieval of flint artefacts (A on fig 2). A succession of visits to the site by the first writer from 1969 onwards resulted in the collection of a number of implements of Lower Palaeolithic type, together with a quantity of waste-flakes and several hammerstones of arguably similar date (nos 1–42, figs 3–8). Other flints, with traces of fire-crackling and the remains of surface-patination similar to that of the Palaeolithic artefacts, were also noticed, and some examples retained. Finds of Neolithic date, not considered here, included a fine flint adze, fragments of polished flint axes and part of a possible axe-polishing stone or saddle-quern. Despite further deep ploughing, recent visits to this site have failed to produce any other Palaeolithic finds, and it would appear that all the surface material has now been picked up.

Following these initial discoveries, field-walking was extended onto the arable land to the south, which then surrounded Rookery Cottages (now demolished). Only one fragment of an ovate-shaped hand-axe, together with a fine side-scraper (no 43, fig 9, no 23) were recovered from the vicinity of Kingswood County First School (TQ 246534, B on fig 2), although a single sub-cordate hand-axe (no 44, fig 9, no 24) had already been found near the small pond at the Mogador Rd end of the ploughed area in 1966 (TQ 242532, C on fig 2).

As a result of these finds, a small-scale excavation was conducted by F. Pemberton from September 1969 until March 1970 (TQ 244541, fig 2, no 6), in an attempt 'to trace a knapping-floor and also to determine the ecological sequence' (Pemberton 1971). Unfortunately, 'the results ... proved rather negligible, with only a few primary flakes occurring in section', although, 'a fossil layer containing erratics and patinated frost-shattered flints ... was revealed above the natural Clay-with-flints'.

In addition to this field-walking and excavation, a close watch was kept on the course of a North Sea Gas pipe-trench dug diagonally NE/SW across the area in 1968 (see fig 2), and on the topsoil-stripping process which was, and still is, taking place along the sides and floor of the chalk valley preparatory to the dumping of further rubbish. Both operations revealed the layer of Clay-with-flints which overlies the Chalk in this area (see below), and in which Carpenter's 1959 finds were embedded (Carpenter 1960, 99–100), although systematic examination of this surface has so far proved fruitless.

Locale

The locality is much as Carpenter described it (1956, 6–7), with the triangular area of Walton and Banstead Heaths dominated by higher ground to the north, west and south, and bounded on the east by the A217 Brighton Road, on the west by B2032 Dorking Road, and on the south by the North Downs escarpment between Pebblecombe and Reigate Hill. However, more land has been claimed for rubbish-tipping since his day, so that the dry valley on the south-eastern side of Banstead Heath, on whose western slope the working floor was discovered in 1959 (Carpenter 1960), has been all but filled with dumped rubbish (see fig 2). A small section of its original profile remains unaltered and unused at the southern, Mogador Rd, end, while the rest of the newly-levelled area has been returned to agriculture following the re-spreading of topsoil over the dumped layer. Site A overlooked the western slope of this former valley, but was not disturbed during the dumping process.

The finds at A resolve into two main concentrations centred on TQ 243542 (fig 2). The site is located in the parish of Kingswood, and lies 2 km to the north of the North Downs scarp at Colley Hill, 1 km to the north-east of Walton Heath Golf Course and 300 m to the west of Lower Kingswood village. Situated on and above the 170 m contour, it overlooked the western slope of one of a number of small dry feeder valleys which cut into the chalk dip-slope and drained roughly northwards into Hogden Bottom, a larger strike-valley running east and then north to join Chipstead Valley 4 km to the north-east. The Upper Chalk is overlain by a thin capping of stiff, red-brown Clay-with-flints at this point, and by localised patches of sands and gravels (the so-called 'Netley Heath Deposits') in other areas of the heath (Carpenter 1956, 7).

The dry valleys of the downs were probably formed by normal erosion processes at a time when the water-table was higher (Dines and Edmunds 1933, 26) or 'during glacial periods when the frozen soil prevented rainwater soaking into the ground' (Wymer 1968, 279). The present drainage pattern and system of dry valleys may 'perpetuate Pleistocene topography' (Wymer 1968, 279).

The Clay-with-flints deposit, which is a regular feature of the chalk plateaux of the Chilterns, the Berkshire Downs, parts of the Hampshire uplands, and the North and South Downs of Kent, Surrey and Sussex, is analogous to the 'chalky boulder clay' of more northern areas. Its origin is problematical, but the deposit is generally thought to represent the insoluble residue accumulated through the dissolution of overlying Tertiary material, or drift, or a combination of the two, by the free percolation of rainwater (Tansley 1939, 23; Curtis et al 1976, 195). However, the lithology of the beds around Burgh Heath and Walton Heath is so complex, that Dines and Edmunds considered the deposits to be 'material disturbed and resorted by a local ice-cap or snow-field' (1933, 152). Such deposits are non-calcareous, and usually produce Brown Earth soils. In their natural state they support oakwood and sometimes beechwood (Tansley 1939, 107).

The unwooded areas of Banstead and Walton Heaths not required as golf course, rubbish tip or horse-gallops are classed as Grade 3 agricultural land, and are used for arable farming, although the diminishing acreage of cultivated land undisturbed by rubbish-tipping makes it unlikely that many new finds will be recovered in the near future. However, it is probable that further implements

remain to be found in the currently inaccessible areas of the heaths (Carpenter 1956, 8).

Description of the implements

The condition of the new implements is similar to that of those published by Carpenter. They have sharp flake-ridges and cutting edges, and a creamy-white patina which is generally frost-glazed, with purplish blotching which turns quite black when wet. Nearly all have some iron moulding and some have orange or reddish stain-marks, possibly attributable to the underlying Clay-with-flints. One is definitely ochreous and a second lightly so. The majority show signs of exposure to periods of intense cold, evinced by hair-cracks and pot-lid fractures. Fragmentation has been speeded in some cases by frost penetrating fossiliferous inclusions in the flint. Although there are many damaged implements, nearly all retain the characteristically sharp edges. The finds to date (summer 1979) may be summarised as follows:

Site A (centred on TQ 243542)

- 36 complete, or nearly complete, hand-axes. (This figure includes six implements made on flakes, and five others whose size and form suggest that they were used as hand-axes.)
- 1 segmental chopping tool.
- 1 end-scraper.
- 4 hammerstones.
- 19 fragmented hand-axes.
- 27 waste flakes.
- 3 'tools of the moment'.
- 7 indeterminate fragments of patinated waste material.
- 3 fire-crackled flints.

Site B (TQ 246534)

- 1 side-scraper.
- 1 fragmented hand-axe.

Site C (TQ 242532)

- 1 hand-axe.

Although the implements from Site A were found in two main concentrations, it is not now possible to identify which implements came from which concentration. Consequently, the finds are presented here as a single group. This is followed by the implements from Sites B and C.

Wymer's hand-axe classification (1968, 48-60) has been used throughout, and the typological notation for each implement is contained in the brackets which precede its description.

Catalogue*Site A*

- 1 (E b/ii) Small, well-made, heavy-butted, pointed hand-axe with sharp cutting edges and small portions of cortex remaining on both faces. L 9.2 cm. Creamy-white patina with purple blotching.
- 2 (E b/ii) Small, pointed, chunky hand-axe. L 7.9 cm. Creamy-white patina with purple blotching and slight iron moulding.
- 3 (E b/ii) Small hand-axe similar to nos 1 and 2 although not so chunky. L 7.2 cm. Creamy-white patina with slight orange staining and some iron moulding. (Fig 3, no 1)
- 4 (E b/ii) Hand-axe made from a small nodule of flint, with cortex remaining on one face and side, L 6.9 cm. Creamy-white patina with purple blotching and slight iron moulding.
- 5 (E b/ii) Small, chunky hand-axe with somewhat rolled appearance and badly abraded dorsal ridge. L 8.5 cm. Dull bluish-grey patina, with a little brown staining.
- 6 (E b/ii) Small sharp hand-axe finely flaked all over, including the butt. L 8.3 cm. Lustrous bluish-grey patina with some iron moulding and several hair-cracks. (Fig 3, no 2)
- 7 (E b/ii) As No 6 but smaller. Toy-like in appearance with sharp edges. L 6.9 cm. Dull purple-grey patina. (Fig 3, no 3)
- 8 (E b/ii) A fine miniature hand-axe of chunky plano-convex section with sharp cutting edges. L 6.5 cm. Gives the appearance of being only the point of a larger implement, but is in fact complete except for a thermal fracture on the convex face. Dull grey-white patina with a few hair-cracks.
- 9 (E c/?) Chunky hand-axe with sharp edges. L c9 cm. Bar-hammer technique used around the butt. One face has a large nodule left in the centre. The point is missing. Dull bluish-grey patina on one face, with lustrous yellowish-grey on the other. Much iron moulding on one face and some hair-cracks.
- 10 (E) Small slug-shaped hand-axe, worked mainly on the dorsal surface. L 8 cm. Creamy-white patina with purple blotching, extensive iron moulding and a patch of orange staining. (Fig 3, no 4)
- 11 (E d/i) Small sharp hand-axe with slightly oblique flat butt which allows it to stand upright. L 7.6 cm. Perhaps the point of a larger implement. Creamy-white patina with purple blotching.
- 12 (E d/ii) Small chunky hand-axe, similar to Nos 1 and 2, with a small flat butt which allows it to stand upright. L 8.2 cm. Creamy-white patina with purple blotching and extensive iron moulding. (Fig 3, no 5)
- 13 (E) Small oval implement with a portion of cortex forming an apparent butt. L 6 cm. Creamy-white patina with purple blotching and slight iron moulding.
- 14 (E) Roughly triangular implement with sharp edges. L 6 cm at its greatest. Creamy-white patina with much purple blotching and slight iron moulding. (Fig 3, no 6)
- 15 (E c/vi) Roughly-made pointed hand-axe with trimmed butt, chamfered corners and basal point. L 10.2 cm. A portion of the butt has fractured off leaving a blue-grey surface, and a large flake has burst off from one side, due to a fossil inclusion. Creamy-white patina with very slight purple blotching and slight hair-cracking.
- 16 (E) A strange little toy-like implement with sharp edges, elliptic in shape, possibly a small knife. L 6 cm. Finely flaked over one face, although the other has an unfortunate pot-lid fracture. Dull cream patina with some orange staining.
- 17, 18 & 19 (E) Three hand-axes made on flakes. L 8.6 cm, 8.4 cm and 6.5 cm. respectively. No 17 is stained a creamy-orange all over, while nos 18 and 19 have a dull grey-white patina with iron moulding. No 18 is illustrated (Fig 4, no 7).
- 20 & 21 (No typology) Two flakes with secondary working on their dorsal faces, resembling small hand-axes. L 5.7 cm and 5.5 cm respectively (see Wymer 1968,

- 65, fig 30 and 348, fig 103, no 270). No 20 has a creamy-white patina, while no 21 has a bluish-grey patina. (Fig 4, nos 8 & 9)
- 22 (No typology) A flake worked on its dorsal face, resembling a small hand-axe. L 8 cm. It is directly comparable to a similar implement from Swanscombe (Wymer 1968, 65, fig 30, no 59). Creamy-white patina with purple blotching. (Fig 4, no 10)
- 23 (No typology) Most unusual in this group. A difficult implement to type as it is fractured down one side, although three-quarters of it survives and is completely covered with shallow flaking. L 8.5 cm. In mint sharp condition. The fracture is comparatively recent, and a dull blue-grey in colour, otherwise the implement has a lustrous brown patina with mottled grey staining and small creamy flecks.
- 24 (FM b/ii) Well-made ficron type hand-axe with fully trimmed heavy butt. L 9.6 cm. Creamy-white patina with purple blotching on one face, also orange and red staining, with iron moulding at the point. (Fig 4, no 11)
- 25 (FM b/iii) Fine ficron hand-axe. L 11.9 cm. A complete implement made by definite bold flaking. Very heavy at the butt end, which has been half trimmed. Lustrous creamy-white patina with some large grey blotches and a few hair-cracks. (Fig 5, no 12)
- 26 (DF d/i) Rough, pointed hand-axe with flat diagonal butt. L 10.4 cm. One face is cracked, probably due to fire, while the other is 'rough' and suggestive of flint decay. The whole implement shows surface wear and abrasion, although its edges remain sharp. Dull greyish-white patina.
- 27 (DF b/iii) Heavy-butted hand-axe with coarse flaking, probably still in rough-out form. L 11.7 cm (see no 38 below and Carpenter 1956, 10, no 15). The point is either missing or was never completed due to a large fossil inclusion. The implement may have been abandoned in the making. A large hollow on one face, of more recent date, is light grey in colour, otherwise the patina is greyish-white in colour with extensive hair-cracking.
- 28 (DF b/i) Large, very heavy butted, pointed hand-axe of cherty porous flint. L 13.9 cm. It has a large number of pot-lid fractures, giving it the appearance of a 'ruin', but it is quite recognisable as an artefact, and was no doubt an imposing implement at one time. Yellowish-pink patina with some iron moulding and brown staining. (Carpenter suggested to Wymer in conversation that 'some of the flattish triangular or discoidal bleached and pitted stones on the heath' were the remains of hand-axes which had suffered 'the worst effects of frost during the last and possibly earlier glacial periods' (Wymer 1968, 272). No 28 falls into this category, and seems to support Carpenter's theory).
- 29 (F a/ii) Fine pointed hand-axe of triangular shape with bold flaking and very sharp edges, the largest implement found. L 15.1 cm. Part of the point is missing. Lustrous creamy-white patina, with the cortex at the butt stained yellowish-brown. (Fig 5, no 13)
- 30 (F b/i) A fine pointed hand-axe with shallow flaking and delicately-finished, and very sharp, cutting edges probably made using the bar-hammer technique. L 11.4 cm. Recent fractures at the point and on one edge, otherwise a perfect implement. Lustrous creamy-white patina with some orange staining. (Fig 6, no 14)
- 31 (F b/i) Pointed hand-axe with sharp edges similar to no 30. L 11.2 cm. Well-made but with abraded flake-ridges, which are characteristic of flint decay and of implements which have been subjected to prolonged contact with other stones. There is a large pot-lid fracture on one face. Matt creamy-white patina with iron moulding on one face.
- 32 (G b/i) Sub-cordate hand-axe of very competent manufacture, with very sharp edges. L 11.7 cm. A complete implement of plano-convex section, the roach-back face achieved with bold flaking while the opposite, flat, face has been beautifully worked over with shallow flaking. Lustrous creamy-white patina mottled in two shades, with iron moulding on both faces and extensive hair-cracking. (Fig 6, no 15)

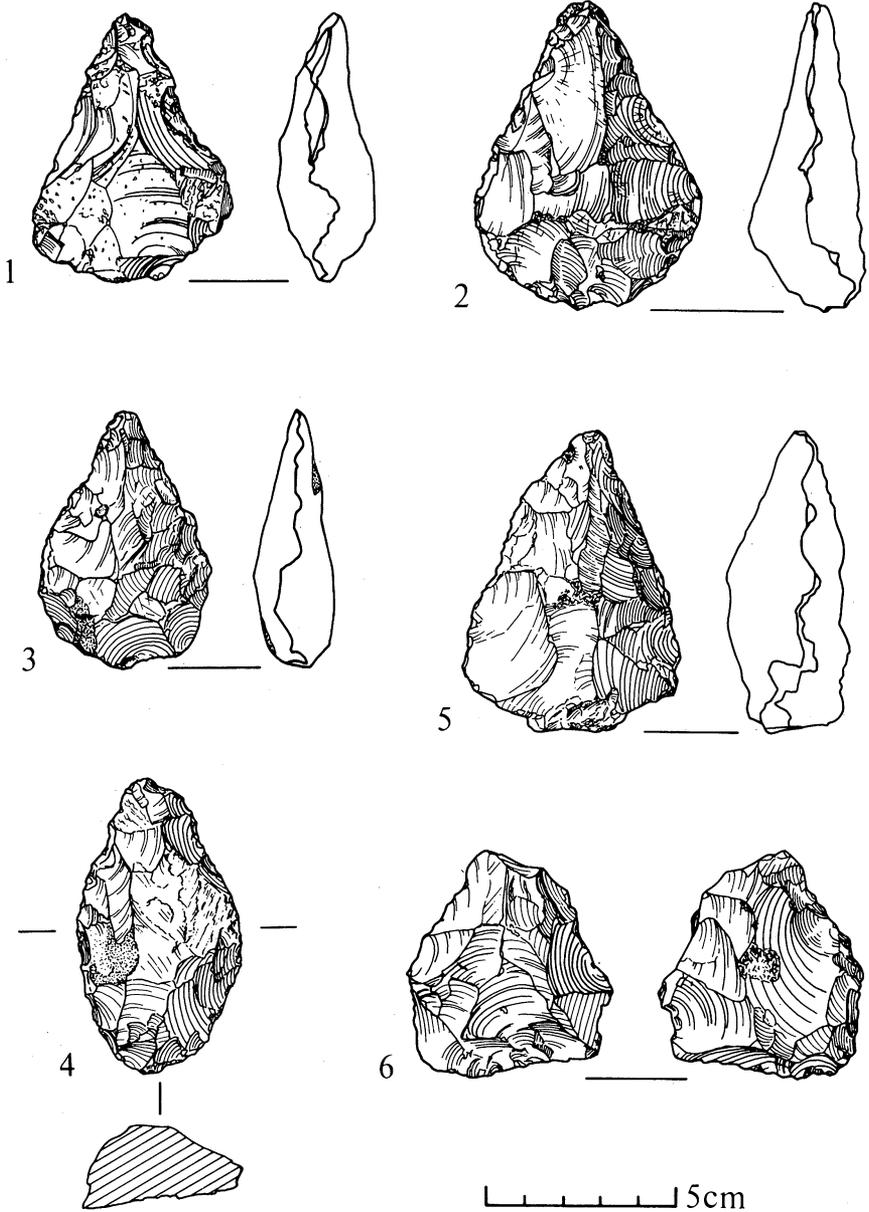


Fig 3 Implements from Site A. Scale 1/2

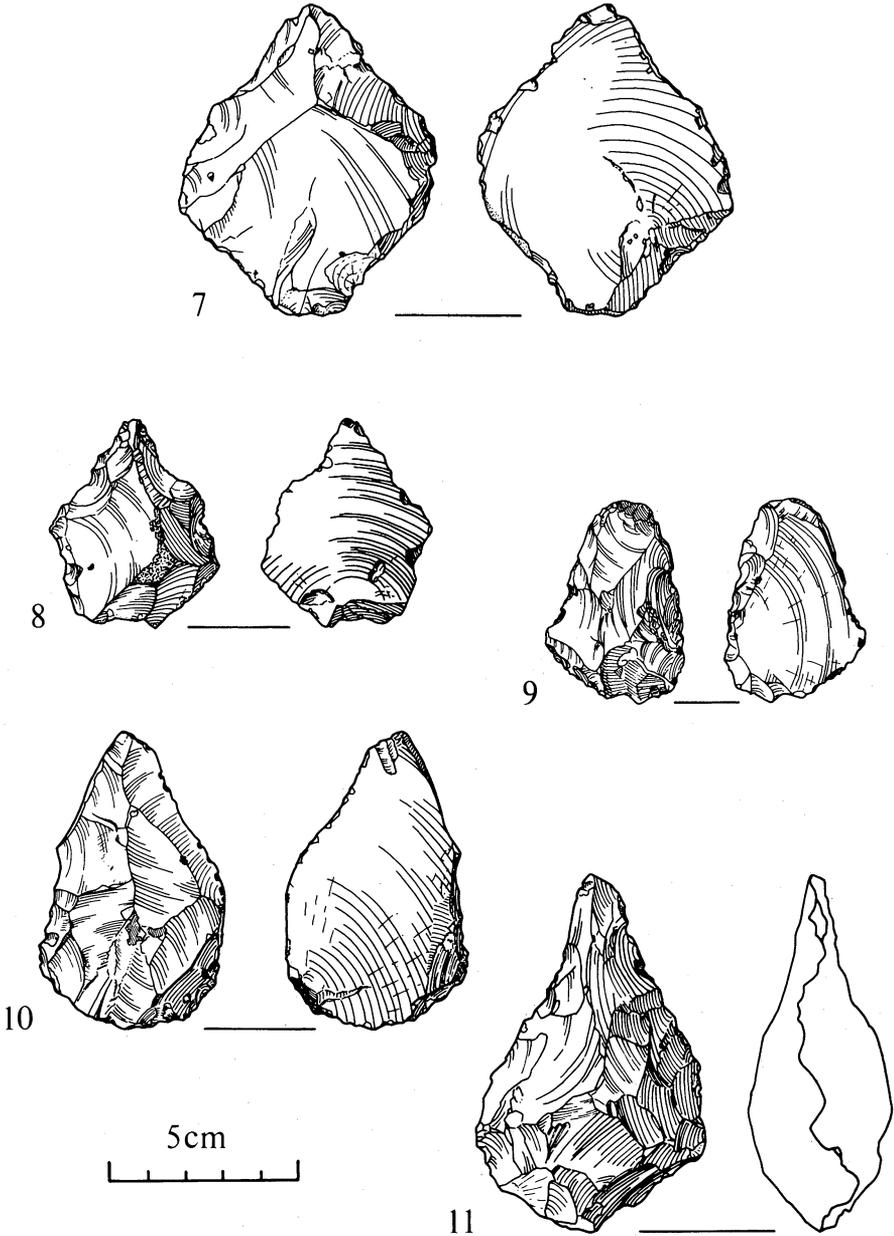
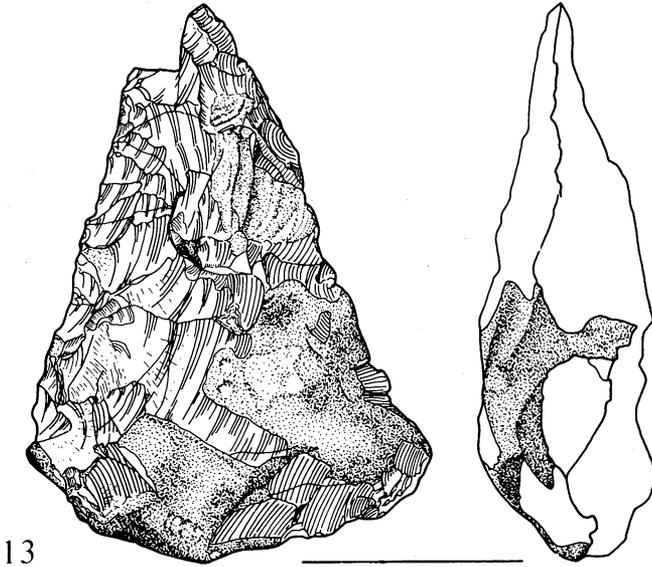
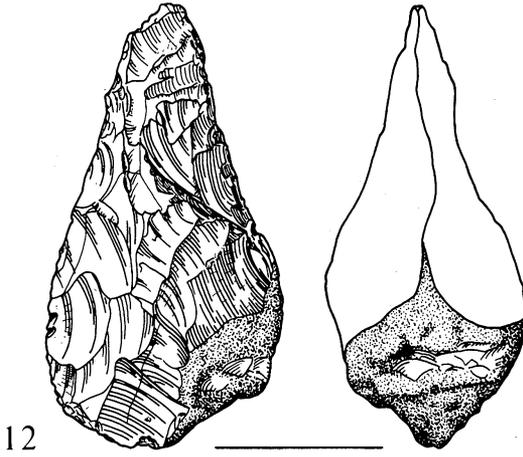


Fig 4 Implements from Site A. Scale $\frac{1}{2}$



5cm

Fig 5 Implements from Site A. Scale $\frac{1}{2}$

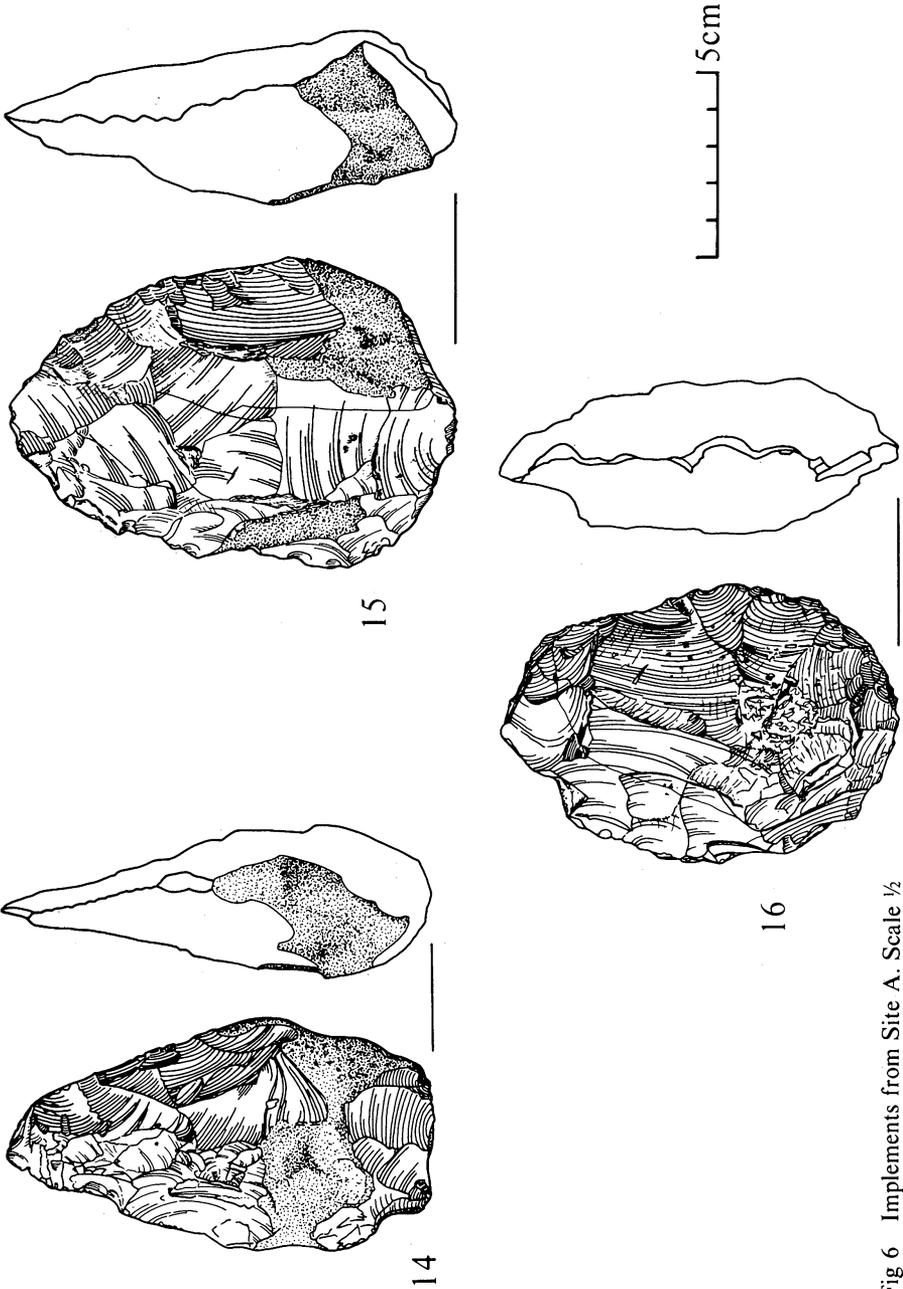


Fig 6 Implements from Site A. Scale 1/2

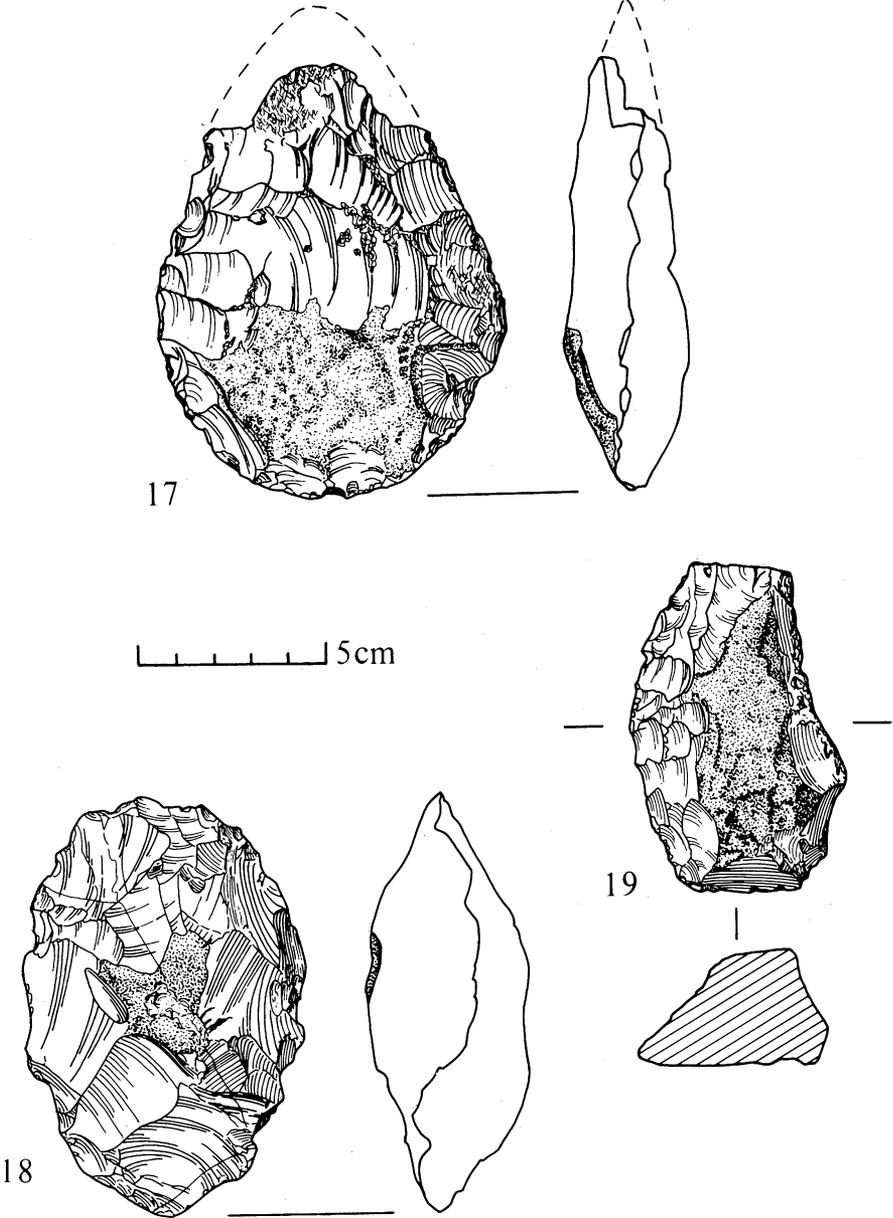


Fig 7 Implements from Site A. Scale 1/2

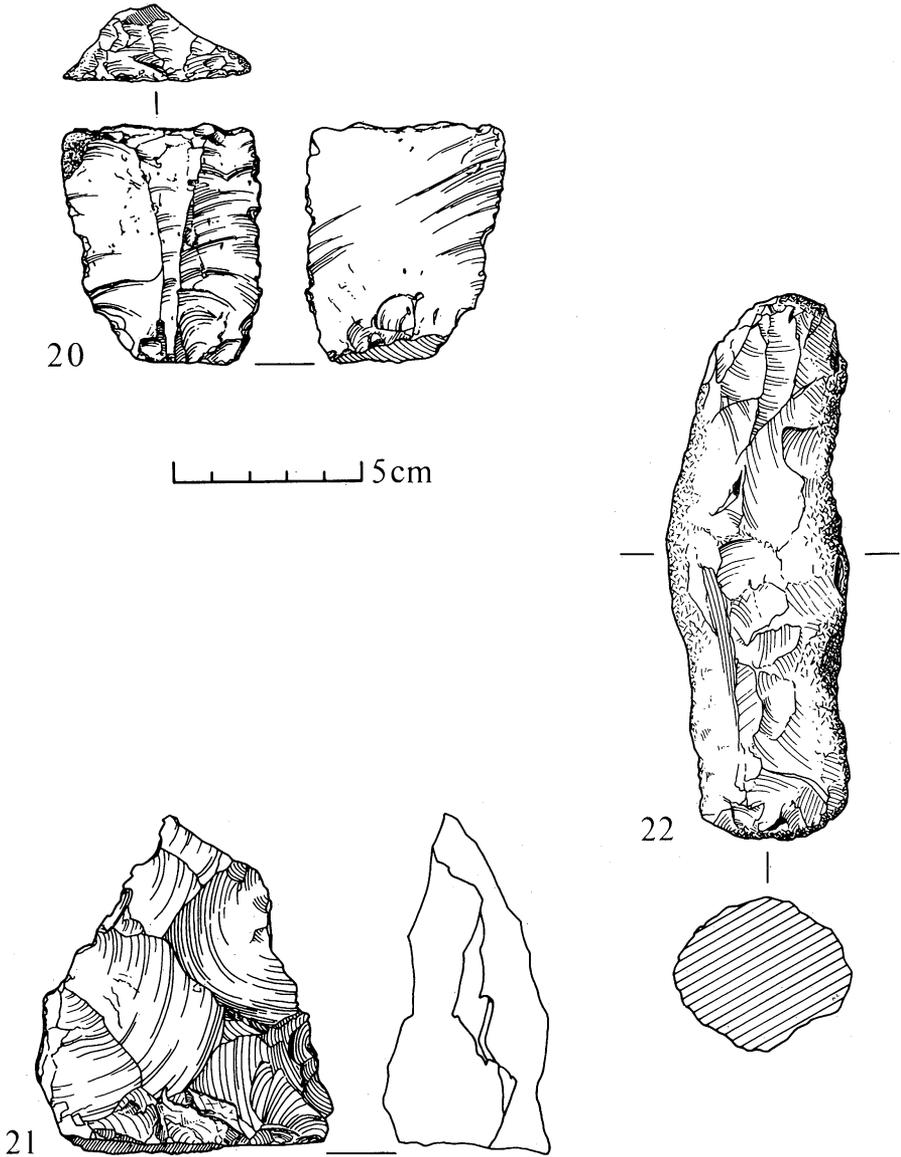


Fig 8 Implements from Site A. Scale ½

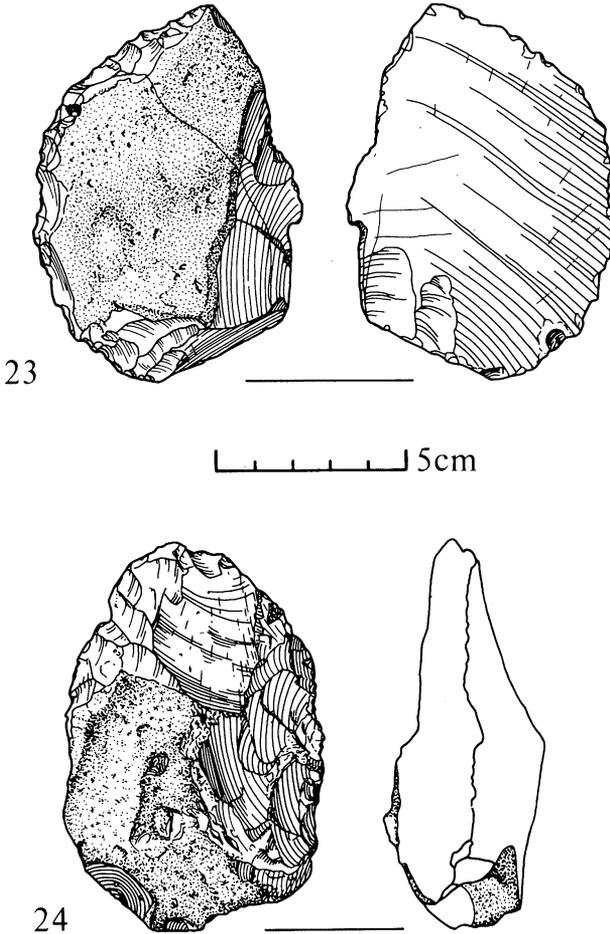


Fig 9 Implements from Sites B and C. Scale $\frac{1}{2}$

- 33 (GJ be/i) Sub-cordate hand-axe, exceptional in the group. L 10.5 cm. It is of mottled dark ochreous patina, and unlike any other (but see no 44 below and Carpenter 1956, 10). Made by bold, alternate flaking, trimmed all round. A hollow near the point, caused by a fossil inclusion, gives the appearance of having burst away, but in our opinion the fossil was chipped away and the implement is complete. Ochreous patina with abraded edges and flake-ridges. (Fig 6, no 16)
- 34 (J e/?) The only true cordate found. L 11.7 cm. Unfortunately the point is missing and one face is badly damaged, but not by a typical pot-lid fracture. The flint is

somewhat cherty and porous. The undamaged face is finished with shallow bar-hammer type flaking. Undoubtedly a fine implement originally, although now somewhat abraded. Unusual pinky-cream patina with light purple blotching, some iron moulding and one hair-crack. (Fig 7, no 17)

- 35 (K f/vi) Ovate hand-axe with very sharp edges. L 11.3 cm. The only true ovate found. A fine complete and very sharp implement with bold flaking. Twisted reverse S on one edge and slightly forward S on the other. Lustrous pinky-cream patina with purple blotching and some hair-cracks. (Fig 7, no 18)
- 36 (L) Segmental chopping tool. L 8.9 cm. An uncommon type which fits Wymer's description of such implements in almost every respect (1968, 57–58, fig 24, no 36). It has a naturally-fractured flattish butt and will stand upon it, giving the impression of a 'tea-cosy'. It is worked on one face only, with small shallow flakes, and the working edge forms a segment of an ellipse. Creamy-white patina with some purple blotching, iron moulding and one hair-crack. (Fig 7, no 19)
- 37 (No typology) Flake-tool. L 6.5 cm. Comparable to examples from Swanscombe (Wymer 1968, 64, fig 29, nos 48 and 50. 'Flakes with secondary working ... best described as 'tools of the moment') A very practical square-shaped end-scraper. Lustrous white patina with slight orange staining. (Fig 8, no 20)
- 38 (D d/ii) An implement crudely made with alternate flaking, which has ragged sharp edges and a very sharp point. L 9.2 cm. Although it fits Wymer's description of such implements exactly (1968, 48–9), the possibility exists that it is a rough-out (see No 27 above). Lustrous white patina with much grey and purple blotching and some hair-cracks. (Fig 8, no 21)
- 39 (No typology) An interesting and unusual cylindrical hammerstone, weighing 314 gm. L 14.7 cm. Dense, cherty flint worked into shape with at least 15 discernible flake-scars, and with heavy battering down both of the more acute sides and at both ends. Buff patina with much iron moulding. (Fig 8, no 22)
- 40 & 41 (No typology) Two ovoidal pebble hammerstones. no 40 of dark grey flint, weighing 456 gm, L 8.8 cm; no 41 of light brown flint (possibly quartzite), weighing 371 gm, L 8.3 cm. These are heavily battered at both ends.
- 42 (No typology) A large flattened fossil sea-urchin or *echinoid* (Hamilton et al 1974, 288–91), weighing 485 gm and c8 cm in diameter, with definite battering on its crown, which must at some time have served as a hammerstone. This fossil *genera* is associated with the deposition of the Upper Chalk (Dines and Edmunds 1933, 95, 126–8).

(Although hammerstones are found in genuinely stratified Acheulian assemblages, as at Hoxne (Selkirk 1976, 120) and Swanscombe (Wymer 1968, 12), there is no guarantee that these four surface finds from Site A are of Palaeolithic date. Carpenter was similarly circumspect about his two examples from Pintmere (1956, 10), although another from the 'working floor' was seemingly stratified within the layer of Clay-with-flints (Carpenter 1960, 101). However, Wymer notes (1968, 12) that '(Palaeolithic) hammerstones showing the marked battering of repeated use are rare'.

As previously listed, there are 19 fragmented implements, consisting of half an implement or less. These include 10 butts, 4 points and 5 hand-axes split along their vertical axes. Some are badly hair-cracked, pot-lidded and shattered, and being incomplete are difficult to type, but are interesting and important to the collection. Equally important are the 27 waste flakes, which comprise 17 primary flakes and 10 finishing flakes. The flakes and fragmented implements all have the usual creamy-white patina with blotching and staining, while 12 of the latter (7 butts, 3 points and 2 vertical fragments) are patinated on their broken surfaces, which perhaps suggests that they are ancient discards (see Carpenter 1955, 137; 1956, 9, no 3; 1963, 202). Other patinated artefacts include 3 pieces of flint with indications of secondary working, loosely described as 'tools of the moment' (see no 37 above), and 7 fragments of indeterminate waste material.

In addition to the artefacts illustrated and described above, there are three fire-crackled, and heavily frost-bleached flints, with the remains of surface-patination similar to that adorning the other palaeoliths. These seem to have been patinated *after* the fire-crackling, and may be compared with several examples found by Carpenter (1956, 10).

Site B

- 43 (No typology) A fine, practical side-scraper, plano-convex in section. L 10 cm. Directly comparable to an example from Grovelands Pit, Reading figured by Wymer (1968, 153, fig 56, no 123; see also Carpenter 1960, 101, nos 8, 9 and 10; 1963, 202). The ventral face has conchoidal ripples, but the point of percussion is missing. The dorsal face has much cortex surviving, and is trimmed along the elliptical edge. Dull grey and white blotched patina with light orange-brown staining and a few hair-cracks. (Fig 9, no 23)

In addition to the side-scraper, one fragment of an ovate-shaped hand-axe was recovered from the same general area.

Site C

- 44 (G a/iv) Sub-cordate hand-axe with heavy cortex butt. L 10.5 cm. It is remarkable for its very sharp S-twist cutting edge and for the removal of a flake from the point, tranchet-style (see Wymer 1961, 6, 24; 1968, 55, Type G and 57, fig 21). Fashioned from dense cherty flint similar to no 39 above, it has a light ochreous patina and staining (see no 33 above), with two small patches of 'silica-' or 'corn-gloss', one on either face. (Fig 9, no 24)

Conclusion

A number of points may be made in conclusion:

- 1 *Affinities* The artefacts presented here are clearly products of the Acheulian tradition of hand-axe manufacture, and John Wymer, who has examined them, considers that they may belong to industries conventionally attributed to the Late Middle stage of this culture. These are generally characterised by the presence of finely-worked cordate and ovate hand-axes, a diversity of small flake-tool types such as side-scrapers, and the survival of Middle Acheulian pointed hand-axes (eg Wymer 1961, 6). Such industries are found throughout the Thames valley, and particularly in the Boyn Hill and Lynch Hill gravels between Reading and Henley, and the brickearths between Dartford and Swanscombe (Wymer 1968, 373). They are usually dated to a period late within the Hoxnian interglacial, or to an interstadial of the succeeding Wolstonian or Gipping glaciation (see Collins 1976, 11–14 for a review). However, recent finds made by Wymer at Hoxne (1974, 400–4, 411–47) suggest that the traditional typological equation, which sees pointed hand-axes as 'early' and conventionally Middle Acheulian, and cordate and ovate hand-axes as 'evolved' and Late Middle Acheulian, is about to be upset (Mellars 1974, 50; Selkirk 1976, 120). From this it may perhaps be concluded that the difference in shape is, as Roe noted (1968b, 75), evidence of functional variation rather than chronological separation. The argument is only likely to be resolved through the discovery of other reliably stratified sequences however, and as surface finds, the Lower Kingswood implements can have little part to play.

2 *Position* The unusual height at which the implements were found links them with a series of Late Middle Acheulian sites on the southern Chilterns (Wymer 1968, 373), and with others on the South Downs (Woodcock 1978, 9), although higher sites have been found on the Marlborough Downs in Wiltshire (Lacaille 1971), and on the North Downs in Hampshire (Willis 1947) and Kent (Smith 1917; Harrison and Wooldridge 1932). Like many of these high level discoveries, the Lower Kingswood implements were recovered as surface finds following deep ploughing, although it seems clear, especially in the light of the 1959 finds (Carpenter 1960), that they were originally derived from the surface of the natural Clay-with-flints deposit, which lies between 45 cm and 90 cm below the present ground surface in this area of the downs. Thus the 'fossil layer' recognised above the Clay-with-flints (Pemberton 1971) may represent nothing more than deep plough-disturbance of the surface of this deposit.

The association of palaeoliths with the Clay-with-flints is a now relatively well-attested phenomenon (eg Smith 1917; Willis 1947), and it has been suggested that these deposits are the remnants of once-extensive Pleistocene land-surfaces otherwise destroyed by peri-glacial erosion processes such as solifluxion, summer melt-water and wind (West 1968, 88; Wymer 1968, 279). If so, a careful and systematic examination of further areas of Clay-with-flints is likely to prove productive (eg Richards 1978, 27).

3 *The flint* The quality of the raw material from which the implements were made is variable, and ranges from a cherty, porous flint containing many fossiliferous inclusions to a clean, hard and easily-worked flint. This suggests that any handy nodules were used, the most likely sources being the Clay-with-flints, and the beds of Netley Heath type gravels. The presence of cortex on many of the implements indicates in turn that the nodules from which they were made were of a small size (eg no 4 above), and that beauty was perhaps subordinate to utility.

4 *Condition* The frost-bleached white patina, hair-cracks and pot-lid fractures present on many of the implements suggest that, lying on the surface of the Clay-with-flints, they were directly exposed to the extremes of temperature associated with the last, and probably earlier, glacial periods (Carpenter 1960, 100). There are, however, several exceptions, notably the brown, mint-sharp implement no 23, and the ochreous implements nos 33 and 44 discussed below.

It could be argued from its unusual brown surface alone, that no 23 is not of Palaeolithic date, but reference to the earlier finds reveals that one of the 'Knowlehawe' hand-axes was only partially patinated, while other implements recovered from positions *within* the Clay-with-flints in 1959 were neither bleached nor deeply patinated (Carpenter 1960, 100). From this it follows that, like the 'Knowlehawe' implement, no 23 was probably derived from the layer of Clay-with-flints itself, which acted as a protective covering to the implements deposited within it, shielding them from the freezing conditions on the surface. Whether the few implements contained in the Clay-with-flints are earlier than those lying on its surface may be doubted, as the deposit has been subjected to a series of peri-glacial erosion processes which have effectively destroyed any stratification (Wymer 1968, 279). The abrasion noted on nos 5, 26 and 31 is suggestive of solifluxion, while fresher

and more recent blemishes on several others (eg no 30) are probably the result of plough damage.

If the implements cannot be considered to be strictly in situ, then their sharp, unrolled condition, together with the presence of the anciently-broken and unfinished implements (nos 27 and 38) and waste-material, makes it unlikely that they have travelled far from the position in which they were manufactured and dropped. Only the ochreous implements nos 33 and 44 are exceptional here, although neither is genuinely rolled. It is possible that they derive from small and very localised patches of Netley Heath type gravel, and it may be noted that many of the high level finds reported from the Hampshire uplands in the Basingstoke area had a similar red-brown patina (Willis 1947, 254–5).

- 5 *General considerations* Taken together, the present finds, and those recovered by earlier collectors, represent a considerable body of evidence which makes the Banstead area one of the most prolific Palaeolithic sites in the county after Farnham (Oakley et al 1939, 20–58) and Limpsfield (Evans 1897, 609–10), and one of the most prolific high level sites in the Thames Valley as a whole (Wymer 1968, 271). Of particular interest are the five main concentrations of palaeoliths on the heaths, at Carpenter's Pintmere, 'Gallops' and 1959 sites, and at Site A above. The proximity of these sites to one another is scarcely coincidental, and the general similarity of the finds might almost suggest contemporaneity. It is perhaps permissible to speculate that they chart the progress across the heaths of small nomadic hunting bands taking advantage of favourable climatic conditions during the Hoxnian interglacial or an interstadial of the Wolstonian.

Further investigation of the heaths, especially in the currently inaccessible areas, will no doubt reveal other concentrations and single finds, and allow a fuller picture of the locality in the Lower Palaeolithic period to be built up.

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APPENDIX

Most of the implements listed below were recovered during the 1950s by L.W. Carpenter following war-time deep-ploughing and peace-time earth-moving, although others have been found by Mrs Richardson, Mrs Easton, A.T. Marston and H.T. Nash. Two further hand-axes, in the collections of W.A. Sturge and G.F. Lawrence, were probably purchased from local collectors.

With the exception of the 'probably late Acheulian' scraper from Burgh Heath, all the material below has, to use conventional terminology, probably Late Middle Acheulian affinities, and is thus directly comparable with the new finds presented above.

The condition of this material is generally uniform throughout, with creamy-white frost-glazed patina and sharp, unrolled cutting edges and flake-ridges predominant. Consequently, individual descriptions are rendered largely superfluous here. However, attention is drawn to one of the hand-axes from 'Knowle-hawe', Tadworth, and some of the pieces from the layer of Clay-with-flints at Lower Kingswood, found in 1959, which are only partially patinated and practically unbleached, although all have the usual thermal fractures (Carpenter 1960, 100).

The find spots are listed alphabetically by civil parish, which is given in capitals, followed by the location of the site within it in lower case letters, together with a 6-figure National Grid Reference. The finds from each are then summarised and their principal references listed. Unless otherwise stated, all the implements are presumed to be in the possession of L.W. Carpenter.

BANSTEAD Banstead Heath, Walton-on-the-Hill. TQ 234551

A fragmented hand-axe found embedded in the Clay-with-flints at a depth of 2 ft (60 cm) below the ground surface. The broken surface had the same creamy frost-glazed patina as the rest of the implement.

Carpenter 1955, 136-7; Carpenter 1956, 9, no 2; Roe 1968a, 294; Wymer 1968, 271.

BANSTEAD 'The Gallops', Banstead Heath. TQ 235545 (no 2 on fig 2)

Surface finds from a field 'which lies directly to the south of Hogden Bottom and which is completely ringed by horse-gallops'. The field contains a pond of clear water surrounded by dwarf willow.

- 3 hand-axes
- 1 hand-axe rough-out
- 1 flake implement
- 3 worked flakes
- 'numerous' waste flakes

(In addition to Carpenter, Mrs Richardson, a local resident until 1919, found palaeoliths on this site, as did Mrs Easton of Hunters Hall, Tadworth (Carpenter 1956, 9, 10). However, the details and whereabouts of these latter pieces are not known). Carpenter 1956, 6-10, nos 3, 4, 8-10, 13, 15, 18; Roe 1968a, 281; Wymer 1968, 271.

BANSTEAD 'Blue Anchor' Inn, Banstead Newton (near Tadworth). TQ 234554.

A single hand-axe with its tip anciently broken, found by A.T. Marston in 1925 in a 3 ft (91 cm) deep trench dug in front of the 'Blue Anchor' Inn for the laying of a water-main. Presented to Carpenter in 1962.

Carpenter 1963, 202 and fig; Roe 1968a, 294.

BANSTEAD Allotments at Burgh Heath. TQ 234573

A flint scraper of 'probably late Acheulian' type, found in 1961 by H.T. Nash on allotments at Burgh Heath. Now in the possession of H.A. Tilley.
OS Records.

BANSTEAD Chussex Plain, Banstead Heath. TQ 233540 (no 3 on fig 2)

A single cordate hand-axe found on the surface of a ploughed field on Chussex Plain. Carpenter 1956, 8, no 5; Roe 1968a, 294; Wymer 1968, 272.

BANSTEAD 'Knowlehawe', Tadworth. TQ 232559

Two hand-axes, one sub-cordate, the other ovate, dug up in the garden of 'Knowlehawe', Epsom Lane, Tadworth, prior to 1939. In the possession of Mr Easton, Tadworth. Carpenter 1957; Wymer 1968, 272.

KINGSWOOD Banstead Heath, Lower Kingswood. TQ 245542 (no 1 on fig 2)

Following the removal of topsoil from a small chalk valley on the south-east side of Banstead Heath preparatory to the dumping of rubbish in 1959, the surface of the Clay-with-flints was exposed at a depth of between 18 in (45 cm) and 3 ft (91 cm). A number of Palaeolithic artefacts were found either embedded in this surface (as was a partially patinated tranchet axe of Mesolithic date (Carpenter 1961)), or were dug from just beneath it.

- 4 hand-axes
- 2 fragmented hand-axes
- 3 side-scrapers
- 3 chopper cores (one fire-cracked and another used as a hammerstone)
- 1 hammerstone
- 83 waste flakes

Carpenter 1960, 99–101; Roe 1968a, 291; Wymer 1968, 272.

WALTON-ON-THE-HILL Pintmere, Walton Heath. TQ 226537 (no 4 on fig 2)

Surface finds recovered from a field situated to the east of the Dorking Rd, and containing a dry pond known as Pintmere. This field now forms part of Walton Heath Golf Course, and has been grassed over.

- 4 hand-axes
- 1 cleaver
- 4 primary flakes worked as scrapers
- 2 hammerstones
- 'numerous' waste flakes
- 2 fire-crackled flints

(Mrs Easton is known to have found implements at this site (Carpenter 1956, 10), although the details and whereabouts of these finds are unknown.) Carpenter 1956, 6–10, nos 1, 6, 11, 12, 14, 16, 17; Roe 1968a, 294; Wymer 1968, 272.

WALTON-ON-THE-HILL Walton Heath. TQ 225537 (no 5 on fig 2)

A single scraper from the surface of the field close to Pintmere. Carpenter 1963, 202 and fig.

No exact provenance. Banstead Heath or Walton Heath.

A single hand-axe published with those from 'The Gallops' and Pintmere, but not provenanced. Carpenter 1956, 6–10, no 7.

No exact provenance. Banstead and Banstead Downs.

A small group of implements in the collection of W.A. Sturge, obtained prior to 1919, is attributed to Banstead and Banstead Downs. Amongst these pieces are a hand-axe of unspecified age which Roe includes in his Palaeolithic *Gazetteer* (1968a, 281), and a hammerstone. All are in the British Museum, Sturge Collection. Smith 1931, 130; Roe 1968a, 281; Wymer 1968, 271.

No exact provenance. Tadworth-Gatton.

A broken ovate hand-axe in Kingston Museum marked 'Tadworth-Gatton' (Kingston Museum 1232). Purchased from G.F. Lawrence and accessioned January 1st 1936 (information from Marion Smith, to whom thanks).
Wymer 1968, 273.

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