A MESOLITHIC 'PERSISTENT PLACE' AT NORTH PARK FARM, BLETCHINGLEY, SURREY

by

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5 FLINT REPORT

Nicholas Marples

5.1 INTRODUCTION

This report concerns flintwork recovered in the course of excavations at North Park Farm in 2002 and 2005. Two earlier flintwork reports summarised the results of the 2002 evaluation work and provided an assessment for further work on the flintwork recovered in 2002 and 2005 (Marples 2003; Marples 2006)

In line with recommendations made in the 2005 assessment report (Marples 2006), all of the outstanding bulk sample residues from 2002 have been processed, and all of the original classificatory listings have been amended to form an updated series of Excel spreadsheets sharing the same format as those compiled for the 2005 work.

Part 10.4 of this report integrates the findings from the detailed study presented below in a general overview of flintwork from the site, and locates the discoveries in relation to the Surrey Mesolithic, as well as further afield. Sampling problems likely to have influenced the results of archaeological fieldwork at North Park Farm are also discussed, and there is some reference to more recent discoveries in the Bletchingley area.

5.2 GENERAL OVERVIEW

Although the earliest archaeological interventions at North Park Farm took place in 1994, it is possible that all, or part, of the area subsequently investigated, had been previously fieldwalked (cf Poulton 1998, 3). There is specific reference to the recovery of Mesolithic flintwork, both within excavation trenches, and as a ploughsoil scatter across the field, from an area approximately 500 metres east of the 2005 excavation area (ibid*,* 15).

An extensive archaeological evaluation conducted in 1994 included five trenches (TTs 14, 15, 24, 25, and 30) located wholly, and one trench (TT 23) situated partially, within the 2005 excavation area. Small numbers of lithic artefacts, ranging from 1 to 12, were recovered from most of these interventions, usually as machining finds or residual items from post-Mesolithic features, although one linear feature, context 220 in TT 30, located just north of Area 10 of the 2005 work, produced sixteen worked flints, including six cores. Only two of the latter could be classified as bladelet types likely to be of Mesolithic date. No other chronologically diagnostic lithic material was identified, and the entire evaluation, comprising 62 trenches covering an area of approximately 120,000 square metres (*c*12 ha), produced only 87 struck flints.

Subsequent machine stripping of the area mostly to the north and east of the 2005 excavations, resulted in the identification of a large number of features of varying dates, including several pits containing quantities of Mesolithic flintwork. Excavation work produced just under 10,000 lithic items, including 147 microliths and 147 microburins. A sample trench dug through the sand infill of a natural valley located at the southern end of the site (towards the eastern end of the 2005 excavations) yielded 96 worked flints, including a 'Horsham' point microlith.

Identification of this feature led to a subsequent evaluation consisting of eight trenches and 40 metre square test pits, all of which produced lithic finds (see Marples in Hayman et al 2004 for full details). 16037 worked flints (8837 of which were chips) were

collected, including 196 microliths and 69 microburins (table 5.1 and fig 5.35), with artefact densities diminishing considerably towards the edges of the valley infill (fig 5.1).

Follow-up excavations carried out in 2005, forming the basis of this report, produced 49062 lithic artefacts, 13016 of which are chips (tables 5.1-4; figs 5.1-2 and 5.35). All of the area investigations generated material of Mesolithic date, including 829 microliths (fig 5.3) and 358 microburins (fig 5.4). Finds were recovered principally from buried soils and bioturbated sands across the valley (table 5.3 and fig 5.36), but also from a number of hearths, three of which have been radiocarbon dated to the Mesolithic period, and hearth related deposits. Features of Bronze Age, later prehistoric, medieval and post-medieval date, also produced Mesolithic flintwork.

Within an area encompassing *c*11500 square metres (approximately 130 x 90 metres in extent), only eight of 453 metre square test pits failed to produce any lithic artefacts. Flint densities varied from 1 to 604 per square, excluding chips (fig 5.1), and from 1 to 2805 including chips, but most of the areas investigated were only selectively sampled with regard to their lithic content. It should be noted that no single metre square has ever been excavated through the entire sequence of deposits in any of the archaeological investigations undertaken at North Park Farm, nor have any of the excavated spits been sampled with a view to recovering all of the flintwork present.

Individual 5cm spit totals ranged from 0 to 253 flints (0 to 1185 including chips). The overall spit totals for each excavation area are presented in table 5.4, and fig 5.37.

Within the 2005 excavation area, Early Mesolithic material (*c*10,000-8000 BC) was recovered from a knapping cluster in Area 1 and from test pits at the western end of trial trench A sampled in 2002 along the valley floor, possibly extending further south as far as Area 3.

'Middle Mesolithic' activity (here defined as spanning the period *c*8000-7000 BC) is represented by a group of Horsham points and isosceles triangle microliths in the north-eastern corner of Area 10 along the northern flank of the valley, as well as by a hearth radiocarbon dated 7580-7050 BC with associated flintwork in Area 6 along the valley floor, possibly extending into the earlier part of the Later Mesolithic. This 'Pioneering' phase of the Late Mesolithic period (*c*7000-6000 BC, as suggested by Roger Ellaby; Ellaby 1987, 63) may also be represented by finds of straight-backed bladelet microliths from Area 2 close to the north-western edge of the 'hollow', two microlith clusters in Area 10, and another seemingly discrete flint knapping cluster located in Area 4 towards the southern edge of the valley infill, with a microlith inventory consisting almost solely of straight-backed bladelets.

Flintwork recovered from the immediate vicinity of a hearth dated *c*6430-6240 BC in Area 9 continues this Late Mesolithic Pioneering Phase activity with microliths comprising mainly straight-backed bladelets and scalene triangles.

Less certainly, flintwork recovered from Area 11 located towards the eastern end of the valley at its greatest depth, including very narrow straight-backed forms and 4-sided microliths, may extend into the 'Geometric' phase of the Later Mesolithic (*c*6000-4000 BC), although the date ranges obtained from samples taken from a multi-phase fire pit which was located here, extend from the Middle Mesolithic (*c*7460-7170 BC) into the earlier phase of the Late Mesolithic (*c*6430-6240 BC).

If Roger Ellaby's proposed dating for geometric microliths in Surrey is correct, then another group of 4-sided microliths located towards the central southern edge of

Area 10 may well be representative of the later geometric phase of the Late Mesolithic dating *c*6000-4000 BC.

Probably belonging to the latest phase of the Late Mesolithic, perhaps dating around *c*4500 BC, is a group of tanged point microliths recovered from the north-eastern part of Area 10.

Although most of the flintwork recovered is likely to be Mesolithic, a few diagnostic items suggest that some debitage of later date is also present within the collection. Diagnostic pieces include: one transverse and two barbed-and-tanged arrowheads; three fragments from ground implements; and four knives including plano-convex examples. Three tortoise cores and a number of other flake cores from the site are also likely to be of Neolithic date.

Aside from the overt evidence for flint knapping represented by concentrations of cores and debitage in Areas 1, 4, 6 and 10, the high proportions of chips represented in most sampled areas, and re-fitting or near re-fitting lithics in Area 1 and parts of Areas 6 and 10, evidence for other task-specific activities is indicated by finds of associated artefacts including scrapers, burins, adzes, notches, denticulates and serrates, and the findings of limited lithic microwear analysis, together with the recovery of tool manufacturing and maintenance products including burin, scraper, notch and adze sharpening spalls, and microlith manufacturing waste in the form of microburins, Krukowski microburins (cf Barton 1992, 234) and unfinished microliths.

Various stages of adze manufacture are indicated by the recovery of two adze roughout/preforms and adze preparation and thinning flakes in several areas, including three re-fitting groups from Area 6.

Recycling of lithic material is evidenced by the re-working of two adzes as bladelet cores, and the subsequent use of another as a hammerstone.

Hunting, woodworking, and plant and animal processing are all activities for which direct or indirect evidence is attested by the flintwork recovered.

5.3 METHODOLOGY

All lithic finds from NPF 02 and NPF 05 were initially classified by context (with excavation Area, 100 metre square and metre square grid references, context, spit and bulk sample numbers), and broad artefact category (core; flake, etc., with fragments designating probable flake fragments), covering all of the initial evaluation trenches, the 12 identified excavation areas, and all other contexts lying outside these areas where archaeological sampling took place. This data is summarised in tables 5.1 - 5.14.

Overall flintwork totals (excluding chips) are presented by area, principal context type, and spit, in tables 5.1, 5.3 and 5.4.

Chips (tables 5.1 and 5.2), here defined as any flake, flake fragment or indeterminate piece of worked flint with a maximum diameter less than or equal to 10mm, have been quantified on a selective basis, as noted in table 5.2.

Cores (table 5.5) have been classified according to the number and orientation of identified platforms (one, two, or multi-platform, ie three or more; opposed, orthogonal, divergent), and principal type of removal (flake or blade), with additional entries for core shape (pyramidal, cylindrical, prismatic, cube-shaped), and other variables. For a selection of the main core types identified, see figs 5.32-5.34.

Core dressing identification (table 5.6 and fig 5.29)) has been by type (viz: bilaterally crested blade, unilaterally crested blade, core tablet, partial platform renewal, core face renewal, plunging piece and unclassified), following Reynier's (2004) definitions.

Microliths (tables 5.7 and 5.8), here defined as backed blades with their bulbs of percussion removed, together with pieces of similar form and dimensions with intact bulbs, have been classified following a simplified version of Jacobi's (1978) typological scheme, encompassing 14 principal types, with the addition of a 'tanged point' microlith type with the addition of a 'tanged point' microlith, corresponding to Clark's Group G 'shouldered or tanged points, flaked from below' (Clark & Rankine 1937-8, 64), more specifically the example from Farnham illustrated in Clark & Rankine 1937-8, fig 7 no 105. Although in other respects similar to Ellaby's 'shouldered points' identified at Charlwood, where they are regarded as characteristic of the final Surrey Mesolithic, with steeply blunted thicker right lateral margins (as conventionally viewed, with the bulbar end at the top) and bases, whilst the leading edge exhibits very fine 'flatter' retouch, none of the North Park Farm examples display the inverse retouch characteristic of the Charlwood microliths (Ellaby 2004, 18 and fig 2.6). A 'curved point' form with 'Horsham culture' affinities, illustrated and discussed by Rankine (1946, 6-8), has not been separately listed, as the type is not a generally recognised microlith form, and only two examples were recovered, both from Area 6. The principal microlith types as classified in this report are illustrated in fig 5.31. More detailed classifications incorporating all relevant Jacobi & Clark (1934) sub-types, following Cotton (2002, 76), are available in archival format.

Microburins (table 5.9) have been catalogued by type or location of notch (proximal end of blade, distal, double notch or unclassified), lateralisation of notch (right notched, left notched) as conventionally viewed with the dorsal face uppermost, bulb at the bottom, and by fracture type ('mishit' if not conventionally oblique, also sometimes classed as 'notch and snap' forms). Related forms, including Krukowski microburins, unfinished microliths and snapped bulbar fragments, have been listed in the archive. A selection of the principal types described in this report is illustrated in fig 5.30.

Other tool and tool debitage (tables 5.10-11) comprises 'standard' and 'non-standard' tool forms (following Reynier's definitions; Reynier 2005, 131, 133), as well as tool debitage (or 'spalls'; cf Reynier 2005, 133), but excluding microburins and related forms. Twenty-two different tool and tool waste categories have been identified (see table 5.10 for full listings and figs 5.24-26 for representations of the main types). The terms 'axe' and 'adze' (which refer primarily to their method of hafting) are here used interchangeably for any core tool lacking a pick-like point. Items classed as 'modified' include miscellaneous edge modified pieces, some of which may be of accidental or natural origin.

A detailed catalogue of illustrated flintwork from the site is given in part 5.5.

Table 5.12 lists all burnt flintwork by area and principal artefact category. Table 5.13 provides an outline chronological summary for all of the Mesolithic finds from North Park Farm in relation to other Surrey sites, as well as some other important sites outside the county. Diagnostic post-Mesolithic flints are listed in table 5.14.

These tables and the various archival datasets have together provided the basis for a series of Area summaries, appraising the recovered flintwork under the following headings:

(a) Summary
Offering a summary overview of the key aspects of the flintwork from each area.

(b) Sampling
Providing information relating to the extent of horizontal and vertical sampling, both gross manual and bulk environmental sampling.

(c) Contexts
Describing the full range of sampled contexts for each area.

(d) Quantification
Comprising a simple enumeration of the total number of lithic artefacts recovered (including and excluding chips), with overall percentages.

(e) Gross horizontal and vertical lithic distribution
Summarizing information relating to gross horizontal and vertical lithic densities (per metre square or layer/spit).

(f) Raw material and condition
This section addresses the physical appearance and condition of the flintwork, with regard to patination, re-cortication, breakage, burning and macroscopically visible surface modification.

(g) Primary technology
Summarises the tabulated data with regard to core and core rejuvenation typology, and debitage (including chips).

(h) Secondary technology
Summarises the tabulated data with regard to microlith and other tool typology, and spall (tool waste) classification.

(i) Compositional and distributional variability
Discusses compositional and distributional variability in relation to differing artefact categories, with regard to both the horizontal and vertical distribution of artefacts.

(j) Re-fits
Notes the number of re-fitting items, or near re-fits, identified in the course of classification, and as a result of the re-fitting programmes undertaken on material from Areas 1 and 6, associated with blade and core tool production respectively.

(k) Discussion

Presents a general overview of the flintwork in each area, covering the nature of identified scatters, dating, confidence rating, distribution of artefacts, and other matters.

5.4 RESULTS

5.4.1 Area 1 and test pit A27 (tables 5.1-5.12, fig 5.18-19)

(a) Summary

Area 1 comprised a concentration of flintwork with some re-fitting lithics and high chip proportions, indicative of an *in situ* knapping cluster. Although there are one or two unclassified microliths and two later forms (both extremely diminutive fragments which are likely to be intrusive), the scatter is probably of Early Mesolithic date. Microburins recovered here are all proximal types. The distribution of finds around the main cluster suggests an element of spatial patterning. Higher proportions of burnt lithics coincident with the centre of the cluster (fig 5.18A) perhaps indicate the former presence of a hearth, although most of this material is chip sized. The vertical distribution of artefacts is typical of sandy substrate sites, with gradually diminishing overall counts, but correspondingly higher proportions of chips and smaller artefacts, throughout the soil profile. In contrast, there is a tendency for larger pieces, such as cores, irregular waste, large flakes and core dressings, to be located at higher levels. Although most of the flintwork is fresh, material within the woodland soil (which includes re-fitting lithics) has clearly been subject to a degree of post-depositional modification. The extent of the cluster (*c*2-3m) suggests limited horizontal displacement, although it may have formed part of a larger concentration extending into trial trench A (square A27). Three microliths with broken tips, and the number of microburins recovered, suggest that re-hafting of broken hunting equipment took place here. Use-wear on one of two scrapers recovered demonstrates that hide-working was also carried out. Other tools may suggest the processing of plant or woody material. Overall lithic totals may have been depleted as a result of the loss of some woodland soil finds, or their gradual incorporation into overlying deposits.

(b) Sampling

All 15 metre squares were bulk sampled, producing 79 individual residues. These were fully re-sorted because initial quantification indicated a serious under-representation of the microdebitage component within the hand sorted sample, despite use of a 2mm. sieve, in order to provide a basis for comparison with other areas, and a more accurate reflection of total lithic numbers when compared to other modern excavated assemblages (which usually incorporate the finer sieved component).

Gross sampling usually commenced with the woodland soil 52, but it is unclear how much Mesolithic material may have been removed as a result of prior machining in this area, since the highest totals recovered from all metre squares can invariably be attributed to this deposit, and it appears unlikely that the overlying levels were completely devoid of flintwork. Some woodland soil is likely to have been lost inadvertently as a result of machine stripping. Due to microtopographical variations, this deposit was of varible thickness across the area, in some squares encompassing two spits, whilst in others it has been excavated ‘as a context’ prior to the assigning of spit numbers. The most logical presentation of the results of excavation in Area 1, therefore, seems to be by context type.

(c) Contexts
Three layer contexts, 'woodland soil' 52, 'transitional' layer 34 and 'clean' natural sands 60, as well as three tree-throw hollows, were sampled, in up to five 5cm spits, although for some squares the woodland soil was not assigned any spit number.

(d) Quantification
2581 lithic artefacts were collected, including 2104 chips (81.5% of the total assemblage). This represents 5.3% of the flintwork quantified for this report, but only 1.3% of the total excluding chips.

(e) Gross horizontal and vertical lithic distribution
Flintwork was concentrated in and around square C5-87 (fig 5.18B). Lithic densities per metre square varied from 91 to 349 including chips and, excluding chips, from 7 to 86. Approximately half of the recovered flints derived from layer 52, including most larger pieces such as cores, core dressings, irregular waste, complete blades and large primary or secondary flakes, with diminishing quantities thereafter.

(f) Raw material and condition
Mean debitage weight is around 1-2g, greater than in Areas 9 and 11, and perhaps attributable in part to the loss of woodland soil in those areas (but cf A11 flintwork sizing from higher levels).

The flintwork is generally honey-coloured to dark brown or dark olive green/brown (cf figs 5.28 and 5.27), although there are also a few black pieces. Surfaces and edges are generally fresh, although some material within the woodland soil has undergone a slight degree of post-depositional modification rendering surfaces slightly glossy. Surviving cortex is of variable thickness, but generally coarse and off-white. The predominant hue is comparable to material from Redhill of broadly similar date, which has been examined by Roger Ellaby (pers comm). Some pieces have a small amount of iron staining on the cortex.

Breakage rates, at 49.9% of all unmodified flakes and blades, are the lowest recorded for any of the excavated collections, and may be a further indication of the lesser degree of post-depositional disturbance in this area implied by higher chip proportions and a greater number of re-fits.

Only 2.9% of all worked flints (including chips) are burnt. This figure is the lowest recorded for any of the North Park Farm 2005 areas.

(g) Primary technology
There are high proportions of blades (60 or 12.6% of the total) and blade fragments (132 or 27.7%) amongst the debitage totals, especially in comparison to other areas. Most blades retain some evidence of soft-hammer removal, ie diffuse bulbs and lipped butts, whilst the larger, cortical flakes, produced at an earlier stage in the reduction sequence, retain features characteristic of direct hard hammer percussion, ie pronounced bulbs, percussion rings, fissures and bulbar scars. Chip proportions are high at 81.5% of all lithics, although proportionately fewer were present within the woodland soil, probably as a result of worm action.

Two cores are comparable in form to Deepcar types as illustrated in Reynier 2005, 36, (see figs 5.32 nos 1 and 3, and catalogue for further details). Core dressings include crested blades (fig 5.28 no 47) and rejuvenation flakes (fig 5.27 no 4).

(h) Secondary technology

Few formally retouched pieces were recovered, and it is possible that some at least of the pieces classified as 'edge modified' may be the product of post-depositional factors such as soil creep and trampling. Nevertheless, one scraper (fig 5.26 no 1) has provided evidence of dry hide working, and one notched and two modified blades (fig 5.28 no 48 and fig 5.26 nos 22-23) have been associated with plant processing and hide working (see Donahue in this report). The blade end of a core tool with lenticular cross-section and transverse sharpening flake scars (probably an axe; fig 5.24 no 4), was recovered several metres to the east of Area 1 within square A25 of the 2002 evaluation.

Microliths from Area 1 include three oblique points, two of characteristic Deepcar-type form, one isosceles triangle, another possible isosceles triangle fragment, and two distal fragments which may have been trapezoidal or rhomboidal forms, although both could also be classified as oblique truncations. Three points have broken tips, which are likely to be the product of impact damage, and use-wear analysis has confirmed that one was used as an armature. A bladelet of lanceolate outline with fine retouch along both edges may have been used for butchery (see part 6).

Indicative of microlith production are ten microburins (fig 5.28 nos 43-5; fig 5.27 no 25). These are all proximal types of similar proportions, with abraded platform edge remnants indicating careful blank production, and they include only two mishit examples. Some (eg fig 5.28 no 44) are characterised by the presence of long and narrow oblique snap fractures, paralleling the two broken microliths.

One possible Krukowski microburin was recovered from square C5-88. This piece is similar to an example from Hengistbury Head (Barton 1992, 235) produced in the course of obliquely blunted point manufacture, and the illustrated broken oblique point (fig 5.28 no 46) may be of similar origin.

(g) Compositional and distributional variability

Most of the recovered cores, microburins, microliths and modified pieces were located around the main lithic concentration (fig 5.19C-E), suggesting that these items may have been dropped or tossed around a central knapping zone. .

Chips show a slight horizontal displacement around the main concentration, especially with increased depth. This could be due to increased worm activity away from the larger, originally interlocking or superimposed, lithic components at the centre of the flint cluster, and/or to a greater degree of initial 'spray' away from the centre of knapping activity.

Most of the re-fitting material spans three of the 15 metre squares sampled.

(j) Re-fits (fig 5.19F-J, fig 5.27 nos 1-6; fig 5.28 nos 1-8)

Apart from a few outliers, the bulk of the flintwork consisted of two readily distinguishable groups of lithics, here designated as the 'light nodule' and 'dark nodule' groups. Fifty-one struck flints from test pit A27 located immediately to the north of Area 1 were also examined, and most of these were adjudged to derive from the former, or

from another very similar nodule, but probably represent the products of a separate knapping event. Most were in a very fresh condition, although a handful of items, including one large secondary flake, displayed slight surface gloss.

The lighter nodule group includes mostly dark greenish-brown to pale yellow or honey-coloured mottled flints, with the former deriving from the original surface of the nodule. Paler ovoid cherty inclusions are occasionally present. The cortex is off-white to buff, smooth, and quite thick. Although of good knapping quality, the flint may derive from a secondary source, possibly a local 'Head' deposit. There are a total of 36 re-fitting items, comprising nine groups of two to three flints each (eg fig 5.28 nos 1, 2, 4 and 6-8), and a major block of 16 flints (fig 5.28 nos 3 and 5). A burin (fig 5.28 no 49) and a scraper (fig 5.28 no 50) may re-fit onto the latter, but their attribution as re-fits is uncertain owing to ambiguities in the inferred conjoins.

Only four flints were individually plotted. Dorso-ventral or flake/blade on core, and two break re-fits were identified, forming one main cluster, with the exception of an isolated pair of break re-fits located on the periphery of the scatter. Twenty-eight re-fitting flints (77% of all re-fits identified) were recovered from woodland soil 52, six, or 17% of all re-fits, from transitional layer 34, and two (6%) from 'clean' natural sand 60. Where attributable, these spanned spits 1 (five flints) and spit 2 (two flints).

Nine metre squares contained one or more re-fitting pieces, but most (20) were present within squares C5-77 and C5-87.

In addition to these re-fitting items, another 105 flints (excluding chips) were identified as probably deriving from the same parent nodule (eg fig 5.28 nos 9-14 and 25-50). Sixty-seven of these (or 64%) were found within the woodland soil, and 38 flints (36%) were recovered from the transitional layer 34 and clean natural sand 60, largely mirroring the proportions for the re-fitting flints. Their distribution is illustrated in fig 5.19H.

Large numbers of spatially co-incident chips of similar colour (fig 5.28 nos 15-24), which are likely to derive from knapping this material, were present throughout Area 1. Together with the re-fitting flintwork, they clearly indicate a largely *in situ* knapping cluster with minimal horizontal displacement. Elements of the entire reduction sequence were present, including large secondary flakes, much bladelet debitage, and abandoned blade cores. The latter are basically of opposed platform type, and resemble two illustrated forms from Deepcar published by Reynier in 2004 (fig 5.3.3). Several microburins, and one broken obliquely blunted point microlith, produced on flint of similar appearance to the core elements of the light nodule, were found on the periphery of the main knapping cluster, and these are likely to represent the intended end products of this reduction sequence.

An unsuccessfully worked core on a cortical nodule trimming flake (fig 5.29 no 2) and nine other re-fitting elements were excavated within Test pit A27 of the 2002 evaluation (fig 5.19J). Including a re-fitting core tablet and small single platform bladelet core (fig 5.29 no 4), these were produced on brownish flint identical in appearance to the lighter nodule identified within Area 1 immediately to the south-west. One dorso-ventral, and four flake on core re-fits, were recognised, including one retouched flake and one burnt flake (fig 5.29 nos 2b and 2c). At least one utilised piece and several bladelets from the same square can also be attributed to the same parent nodule. All of the re-fitting pieces were recovered from spit 1, which is equivalent to the woodland soil and

transitional layer identified in Area 1. One pair of dorso-ventrally re-fitting bladelets span square C5-66 of the 2005 excavations and test pit A27 of the evaluation. Large numbers of chips (271 from the same spit) again indicate *in situ* knapping activity, which clearly relates to the reduction of an identical raw material source, if not the same partially re-fitted nodule from Area 1.

Flints from the dark nodule group (fig 5.27) were identifiable by a characteristic very dark grey/green speckling, as well as by their overall dark olive green/grey, colouration, and rough, usually very thin, white cortex.

Fifteen re-fitting items have been identified (fig 5.27 nos 1-3), comprising one pair of dorso-ventrally re-fitting blades and a group of ten flakes and blades re-fitting onto a bi-platformed bladelet core. No break re-fits appear to be present. The material is centred on squares C5-76, C5-77 and C5-78, but spans eight test pits in all. Ten re-fitting flints (66% of all re-fits) were recovered from soil 52, three (or 20%) from layer 34, and one each from hollow 56 (7%) and clean sand 60 (7%). These figures are comparable to those for the lighter nodule re-fits summarised above. Most of the assignable flints were located within spit 1 (5 pieces), with two from spit 2.

An additional 46 lithic items could be attributed with some degree of confidence to the same nodule (fig 5.27 nos 6-25). Twenty-eight of these, or 61% of the total, were retrieved from soil 52, 10 (or 22%) from layer 34, and eight pieces (17%) from other contexts. Their distribution is more restricted than that for the lighter nodule, being lozenge shaped in plan (fig 5.19F), and only one possible blade fragment was identified in test pit A27.

Two cores were present (one illustrated from the main re-fitting group, fig 5.33 no 2), and both are characterised by very narrow bladelet removals. They differ in overall form from the lighter nodule cores, being slightly smaller and more irregular in outline. A rejuvenation flake (fig 5.27 no 4) and one crested blade were also recovered. Larger primary or secondary flakes are absent, and very few chips could be identified as deriving from the same reduction sequence, possiby due to wind deflation. These variations in spatial distribution, core and blade morphology suggest different knapping episodes, and possibly even different periods within the Mesolithic. One proximal microburin (fig 5.27 no 25), an unclassified microlith and a possible combination tool, which might have been produced from the same nodule, were located on the fringes of the scatter in squares C5-97, C5-98 and C6-8.

(k) Discussion

The flintwork from Area 1 probably represents the residues of two separate knapping episodes undertaken for the replenishment of broken composite armatures, possibly centred on a hearth, with some evidence of other tool production and resource processing activity (dry hide preparation, and plant processing) close by. It is likely that this area was one of many such clusters located at the western end of the valley, as other excavated test pits located here (primarily A25 to A27 of the 2002 evaluation), also produced obliquely blunted point microliths of Deepcar type (fig 5.31 nos 1-4, and 6-7), to the near total exclusion of later types, as well as comparable debitage and core forms, including one group of three re-fitting flakes (FS 1). Lithic totals were generally much lower than in other sampled areas, suggesting short-term visits. Although the full extent of neither scatter was established, and only a small proportion of the flints were plotted, the

southern limits of both groups was indicated by greatly reduced numbers of artefacts, and the presence of microburins, discarded microliths, and other tool forms located around the areas of both clusters. Two scrapers (one with evidence of dry hide working) and a few other retouched pieces were recovered from square C5-78 and adjoining test pit A27 in the north-eastern corner. Evidence of plant and hide use was identified on three blades from squares C5-66 and C5-97.

Core reduction, which clearly relates to the working of one or more larger nodules of good quality raw material ultimately deriving from chalk flint deposits, is represented by five bladelet cores, four of which re-fit to other elements, and a number of dorso-ventrally re-fitting blades and flakes. The reduction strategy involved primary flake de-cortication employing a hard hammerstone, cresting (although this has only been inferred from the identification of crested pieces), core tablet removals, and careful platform edge abrasion. Two large cortical flakes were used as cores, and two much smaller flakes with remnant cortex were converted by retouch into tools. This area produced the highest proportion of complete blades from any of the excavated samples. Bladelet production, which probably took place with the use of a soft hammer, was clearly a principal aim of the knapping undertaken here, in order to furnish blanks for microlith manufacture. Nine microburins, two Krukowski pieces, and one unfinished form, attest to their production on site.

Microburin morphology and attributes suggest that most of these pieces could well have been produced at the same time, and as a group they can clearly be differentiated from the microlith production waste recovered in Areas 4 and 6. Microlith forms include narrow obliquely blunted pieces, one lanceolate with microwear evidence of use in butchery, and a possible trapeze.

Flake tool manufacture is indicated in test pit A27 by one re-fitting retouched flake, and another retouched piece almost certainly deriving from the same core.

Overall, the material bears some affinities to 'Deepcar type' assemblages, such as those at Waun Fignen Felen in Wales (Barton et al 1995), Bermondsey in south-eastern England (Sidell et al 2002), and a number of low density Surrey sites (cf Ellaby 1987, 60), both with regard to flint technology and the limited spatial extent of the lithic scatters. These sites are currently dated around 8500-7700 BC, and would seem to represent the residues of very short term, episodic visits, geared to the replenishment of hunting equipment, but with some evidence of other processing activities taking place, usually on the periphery of the principal knapping scatters.

The horizontal distribution of artefacts conforms to a pattern often encountered on sandy soils, extending through 30cm or more of worm-sorted deposits, with larger lithic items concentrated in the upper 5cm of most excavated samples, represented here by the woodland soil.

5.4.2 Area 2 **(tables 5.1-12; figs 5.1-5.18 and fig 5.38)**

(a) Summary

Area 2 may constitute part of one or two small, seemingly discrete knapping clusters, both of which could have been located around hearths represented by burnt flint scatters. Limited horizontal excavation associated with a 'checkerboard' sampling exercise, and the absence of any fine sieving leading to a near total absence of chips, however, precludes certainty in this regard. This interpretation is also heavily dependant on

interpolated lithic totals for the missing squares. Late Mesolithic activity is implied by the recovery of straight-backed bladelet microlith fragments. The general Mesolithic character of the flintwork is suggested by high proportions of blade and bladelet fragments, typical core dressings and two microburins recovered from one metre square.

(b) Sampling

Lithic material was collected from 16 of 19 metre squares, some of which were only partially sampled by the excavation of single 5cm spits. Square E3-31, the most productive, with 42 struck flints from its second spit, was not excavated further, and only one square was excavated down to a third spit. Checkerboard sampling of the excavated material from Area 4 produced only two microburins from an eventual total of 25 test pits?, so any resulting distributions in Area 2 must be treated with the utmost caution.

The extent of any vertical truncation of the flint scatter is unclear since the woodland soil did not apparently extend beyond the southern half of Area 2, but the presence of only one core and the generally small size of the debitage recovered suggests an element of bias in its recovery which may be due, at least in part, to a variety of post-depositional factors including slope processes.

No bulk samples were taken in Area 2, so the almost total absence of chips here is clearly an artefact of the excavation and sieving methods employed.

(c) Contexts

Although no context numbers were assigned to the flintwork from Area 2, the preliminary site report states that spit 1 comprised mainly off-white sand, and spit 2 consisted of 'natural' orange-yellow sands. Two burnt flint concentrations were identified which may indicate the former presence of hearths.

(d) Quantification

371 worked flints were collected, including 10 chips (2.7% of the total assemhlage), constituting only 0.8% of the North Park Farm 2005 lithic total.

(e) Distribution

A heavily interpolated contoured distribution of the total flint count suggests the presence of a possibly discrete knapping cluster at the northern end of Area 2, centred on one of two burnt flint concentrations. Metre square lithic densities range from 0 to a maximum of 92 in square E3-31, with most flints being recovered from spit 1.

The only core present, most irregular waste, and all core dressings were collected from the first spit sampled. No significant concentration of flintwork is evident around the southernmost possible hearth.

(f) Raw material

Approximately 25% of the lithic material is patinated white/pale blue to varying degrees. Most of the remainder is mid-grey or burnt white/grey. It is noteworthy that the lateral edges on two re-fitting flakes are of completely different hues. There is no apparent contextual bias in the distribution of patinated or unpatinated pieces, either between squares or spits. A few pieces are lightly iron stained.

Ninety-eight pieces (25.8% of the total) are burnt.

Flake and blade fragmentation, at 57.4% of the worked flint total, is comparable to figures for the other excavated areas. Otherwise, the material collected is notably fresh, indeed consistently so (to a greater extent than in some of the other areas sampled).

Where cortex survives, this is usually thick and fresh, and may derive from primary chalk deposits. In addition there are two pieces of black Bullhead flint, including one core tablet. This raw material was widely exploited in the Neolithic period, but there is as yet no convincing evidence for its use in the Mesolithic.

(g) Primary technology

Area 2 contained the second highest proportion (at 40.7% of all flintwork) of blades and blade fragments from the site. Most are of bladelet proportions (with breadths less than or equal to 12mm), and likely to have been generated with a view to microlith production. Few large flakes were present and mean debitage weight for the sample is 2.93g. Although only one core was collected, the relatively high proportion of core dressings present in Area 2 (eight examples, or 2.5% of the lithic total) indicates careful core management. A variety of rejuvenators, 37.5% of which retain evidence of platform edge abrasion, have been identified, including two core tablets (one illustrated, fig 5.29 no 12), two core face renewals and a plunging piece.

(h) Secondary technology

Very little retouched material was recovered (only 0.8% of all lithics, which represents the smallest proportion for North Park Farm 2005).

Seven microliths (all broken) have been identified, including three straight-backed bladelet forms, one with its bulb intact, and a possible scalene triangle.
Tool debitage includes two microburins, both proximal types notched on the right (as customarily viewed in illustrations, with the bulbar end at the bottom).

(i) Gross compositional and distributional variability

There is no obvious indication of a secondary lithic cluster in the vicinity of the postulated southern hearth, but it may be significant that most microliths were located around the burnt flint concentrations, and both microburins were recovered from the same metre square adjacent to the northern hearth. Six of nine core dressings were also distributed around the same feature. There is some correlation in the higher density of burnt worked flints in and around the northern postulated hearth, but the higher concentrations and proportions evident in squares D3-70 and D3-79 are not reflected in the presence of any corresponding burnt flint cluster.

It is noteworthy that the interpolated contoured distributions for total flint counts indicate a concentration of lithic artefacts in the northern half of Area 2, corresponding to the area devoid of woodland soil, a fact which might suggest an element of artificiality in its generation.

It is unclear how far gross compositional variations such as the paucity of cores and retouched forms in Area 2 can be attributed to post-depositional factors such as variable sampling or soil formation and movement, rather than to different activities or intensity of site use, but higher incidences of irregular waste and core dressings, and the concentration of lithic finds in and around square E3-31 does suggest a knapping focus here.

(j) Re-fitting
One pair of large dorso-ventrally re-fitting flakes was recovered from square E3-31, which adjoined one of the postulated hearths and which contained the highest density of lithic artefacts in Area 2. Much of the flintwork recovered appears visually to be very similar and is likely to derive from a single of knapping episode.

(k) Discussion
Interpretation of Area 2 is clearly hindered by the limited sampling undertaken here, as well as by uncertainty with regard to the likely extent of any horizontal truncation of flint-bearing deposits.

However, the evidence of clustering around the northernmost of two possible hearths, including broken microliths, microburins, core dressings and two re-fitting artefacts, does indicate an element of hearth-based activity which may have related to short-term knapping and re-tooling events.

The high incidence of patinated flints here suggests some localised geological anomaly or incursion of chalk-derived material, as patinated pieces are extremely rare in any of the other sampled areas.

The fresh, unabraded character of the flintwork recovered, its markedly bladelet bias, together with the evidence for microlith discard and manufacture, and the presence of straight-backed bladelet microliths, suggests a date in the Late Mesolithic period after 7000 BC, perhaps equating to Roger Ellaby's proposed 'Early Pioneering' phase for the Mesolithic period in Surrey.

5.4.3 Area 3 **(tables 5.1-12; figs 5.1-5.18)**
(a) Summary
Area 3 comprises a rather loose grouping of test pits located on the lower southern valley side at its western end, just south of Area 1, which may relate to once discrete clusters. Long obliquely backed points, in the absence of any manifestly later microlith types, and general debitage and core characteristics, suggest activity in the Early Mesolithic period.

(b) Sampling
Flintwork was recovered from nine metre squares, including three groups of two squares, spanning up to two 5cm spits. The extent of any vertical truncation of the flintwork scatters is again unclear, but most finds were collected from spit 1. No bulk sampling was undertaken, so chip proportions, at 13.5% of all lithics, are clearly not representative.

(c) Contexts
No context numbers were assigned to any of the sampled squares, but the woodland soil was reportedly confined to the extreme north-eastern corner of the area, so most finds were presumably derived from grey sands or variants thereof.

(d) Quantification
193 lithic items were recovered, including 26 chips, comprising just 0.4% of the total North Park Farm 2005 assemblages.

(e) Distribution
Two slight concentrations of flintwork are apparent in squares D7-21/31 and D7-16/26. Excavated metre square totals vary from 3 to 50 per square, with most finds recovered from spit 1. The only cores to be retrieved were collected as surface finds.

(f) Raw material and condition
The flints from Area 3 are variable in colour, but include mottled greenish types, a few almost black pieces, some pale buff or slightly orange-brown types, and a few translucent items. Very few are iron stained, in marked contrast to the flintwork from Area 4 located only 10m to the east. The material is invariably fresh, almost in mint condition. Surviving cortex is generally buff in colour and coarse textured, and one of the cores has been fashioned on a small nodule.

Flake and blade fragments make up 66.5% of the assemblage. 30.3% of the material from Area 3 is burnt, a figure only exceeded in Area 8 and probably attributable to the large number of burnt flint clusters identified here.

(g) Primary technology
In Area 3 blade and blade fragments, mostly soft hammer removals, constitute 55.7% of the total lithic assemblage. Two similarly sized blade cores were recovered as surface finds outside the sampled squares. Only one core dressing is present and, at 0.6% of all flintwork, this is the lowest such proportion of rejuvenators recorded in any of the sampled areas, although one large core tablet was found in trench D of the 2002 evaluation, located adjacent to two of the Area 3 squares.

The mean debitage weight in Area 3 is 3.04g, which is only marginally higher than in Area 2. An absence of very large flakes and the paucity of primary flakes again suggest post-depositional losses, or else that the initial stages of core reduction were carried out elsewhere, but there were a few large blades.

(h) Secondary technology
Ten modified pieces (6% of the total flint count) were recovered, including a polished piece, one fabricator and one serrate. Six microliths (3.6% of all flintwork, representing the highest proportion on site) include three very narrow obliquely blunted points, as well as two unclassified pieces (probably both trapeziform or rhomboidal types) of similar dimensions and outlines. No other microlith types were identified.

No tool debitage or microburins (a feature replicated in only two other areas) were present.

(i) Compositional and distributional variability
The limited extent of excavations in this area and the small quantity of flintwork collected precludes any comprehensive intra-site comparison, but the high proportions of burnt flintwork noted above are likely to result from intensive use of the area for burning activities.

Area 3 contained the highest proportion of blades and blade fragments from any of the 2005 sampled areas, indicating that although some later artefacts are present (including a fragment from a polished implement), most, if not all, of the remainder are likely to be of Mesolithic date. As with Area 2, proportions of complete blades (10.2% of

the collection) suggest little post-depositional disturbance, but the very low percentage of complete flakes present (12%, or approximately one half of the mean value for Areas 1 to 12) is clearly at variance with this figure.

(j) Re-fitting
Although no re-fits have been identified, several blades appear to derive from the same core or cores.

(k) Discussion
Despite the limited nature of archaeological investigations here, the presence of narrow obliquely blunted point or trapezoidal microliths of very similar form, to the apparent exclusion of later types, coupled with high proportions of blade debitage, together indicate that Area 3 may represent a continuation of the Early Mesolithic activity reported in Area 1 and towards the western end of trial trench A. Despite its proximity to Area 4, the flintwork recovered in Area 3 exhibits significantly less iron staining.

5.4.4 Area 4 **(tables 5.1-12; figs 5.1-5.18 and 5.38)**

(a) Summary
Another seemingly discrete flint-knapping cluster was sampled in Area 4, and there is some evidence here for a distinct microlith manufacturing tradition producing straight-backed bladelets and rods. A largely single period scatter dating to Roger Ellaby's Late Mesolithic 'Pioneering' phase (*c*7000-6000 BC) may be represented, although a much later date towards the very end of the Mesolithic period (within the so-called 'terminal Mesolithic') cannot be excluded. Relatively high proportions of modified flakes and blades and tool debitage suggest a range of processing or maintenance activities, although large numbers of edge modified pieces may also indicate some degree of post-depositional disturbance. Although no hearth was located, comparatively high proportions of burnt lithics centring on the main concentration may point towards the former presence of one here.

(b) Sampling
37 metre squares were excavated *en bloc* and four further outliers were also sampled. Up to four spits were removed, although 21 squares from the main block consisted of three or less, and four contained only one or two spits. In light of the fact that the first spit removed was almost invariably the most productive, it seems certain that an unquantified element of the scatter is missing.

Only two metre squares were bulk sampled, but both of these have been fully sorted. Overall chip proportions are therefore not representative, except for squares F8-45 (all spits fully processed) and F7-94 (two out of three spits sampled and fully sorted).

(c) Contexts
Four principal layers were sampled (contexts 151-154) as well as five layer combinations (151/2; 151/3; 152/3; 152/4; and 153/4). Layer 151 is equivalent to 36 and 52, the 'woodland soil' sampled in Areas 1 and 6. Context 152 consisted of a thin layer of mid grey/brown sand. Layer 153 is described as grey, mottled white sand, and 154 as a 'more orange-yellow sand' equated to *in situ* Folkestone Beds sands.

153 was largely, but not wholly, confined to the northern half of the area, whilst 154 was only present in the southern half, corresponding to the highest concentration of lithic artefacts.

Up to four spits of these contexts were sampled, but some were clearly not of uniform thickness (especially for the remnant woodland soil 151), and the relative compositions of the mixed layer contexts is also problematical Only part of one metre square contained material identified in the context records as trial trench C backfill, so there appears to have been only minimal impact on the total flint numbers recovered, despite the fact that part of 151 is clearly shown as having been removed in the earlier work. Only half of the examined squares were assigned context numbers, so all missing contexts have been extrapolated by analogy with their adjacent squares.

An indeterminate feature in square F8-45 was numbered 155.

(d) Quantification

6775 flint artefacts were collected altogether from Area 4, including 2501 chips, representing 13.8% of the North Park Farm 2005 lithic total.

(e) Distribution

There is a clear concentration of lithic artefacts towards the southern end of Area 4 measuring approximately 2 x 2m in extent, although its relative density may be exaggerated to some extent due to bulk sampling in square F8-45, resulting in higher proportions of small flakes and blades with maximum diameters just above 10mm. (the upper limit for chip sized debitage). Individual contoured distribution plans of spits 1-3 show a slight contraction in the extent of the concentration with increasing depth.

Metre square densities (excluding chips) vary from 8 to 606 artefacts, although the latter figure has almost certainly been inflated to some extent as a result of the bulk sample processing for square F8-45.

Spit 1, generally equating to layer 151 (the 'woodland soil'), with 46.1% of the total excavated excluding chips, was the most productive of those sampled. Diminishing quantities were recovered in all three succeeding spits 2-4 thereafter, with only 4.8% of the spit totals attributable to spit 4.

'Intermediate' layer 152, which was 'quite thin', contained only 3% of the flint total, although 'interface' contexts 151/2, 152/3 and 152/4 constitute a further 10.6%. Context 153 and contexts 151/3, 152/3 and 153/4 together comprise 17.2% of the layers total. Layer 154, the 'natural' Folkestone Beds sand, perhaps surprisingly, comprised 24% of the excavated layer total.

Proportionately more cores (63.6%), core/burins (62.5%), irregular waste (52.8%) and hammerstones (100%) were present within spit 1 or woodland soil samples than in any of the underlying layers, a factor which is probably of taphonomic origin and attributable to a greater level of worm sorting of smaller artefacts through the soil profile. Conversely, smaller artefacts such as chips, microliths, microburins and blade fragments, are more strongly represented in spits 2-4.

(f) Raw material

The flintwork retrieved is predominantly of a brownish hue, but with some greenish (olive green), cream/buff, and black material present. Much of the flint is iron stained

(especially on cortical surfaces), to a greater extent than in any other area. Condition is generally good to fresh, albeit rather less so away from the main cluster, and sometimes within spit 1. Cortex is of variable thickness, but invariably off-white and coarse textured indicating an ultimate source in chalk deposits, although these may have been procured more immediately from secondary sources.

12.2% of all flintwork is burnt. Edge modified pieces account for almost half (49.5%) of the Area 4 modified and spall total, slightly less than the site average.

(g) Primary technology

Subjectively at least, Area 4 was characterised by a higher proportion of cortical flakes and a greater incidence of larger flakes than in any other sampled area. The whole range of debitage is represented, with chips making up 78% of all flintwork in the fully sorted samples from squares F7-94 and F8-45, suggesting *in situ* knapping activity.

Flake and blade fragments together constitute 52.5% of the Area 4 assemblage. The mean debitage weight is 2.1g.

32.3% of the Area 4 collection comprises blades and blade fragments, whilst 62.5% of all cores have been classified as blade types (although 68.8% of all cores feature one or more bladelet scars). Single platform blade cores predominate, but pyramidal forms constitute only 2.1% of the core assemblage from Area 4. A significant component of the core total is the proportion of blade on flake (14.6%) and flake on flake cores (8.3%; one example illustrated in fig 5.34, no 1). A distinctive core reduction strategy may be implied by these proportions, as well as by the range of core dressings identified; mean core weight is the lowest, at 57.8g, of the five largest excavated core assemblages. Variables such as platform edge abrasion, incidence of hinge and step termination scars, and the presence of cortex on cores, are all broadly comparable to the other excavated samples, but core face renewals (21.1% of all core dressings; fig 5.29 no 15) and partial platform renewals (39.4%) are proportionately more frequent, whilst crested blades (both bidirectional and unidirectional) and plunging pieces (only two examples) are correspondingly underrepresented. Blade blanks comprise only 32.1% of all core dressings. Taken together, these characteristics indicate rather more emphasis on flake removals in the reduction process, a factor which might be chronologically or functionally related (inasmuch as the initial stages of core preparation and production are more evident). Three hammerstones were recovered (one illustrated, fig 5.26 no 26), providing additional evidence of preliminary core reduction.

(h) Secondary technology

Amongst the 6.9% of all lithic artefacts classified as modified pieces or spalls, a range of tool types are represented in Area 4, albeit in generally low proportions for each identified class. One exception to this is the number of burins and core/burins present, although some of these could probably be classed as ‘pseudo burins’, and some may in fact be true cores.

Woodworking, or potential woodworking, tools are present in the form of one small adze (fig 5.24 no 2), 23 notches (one illustrated; fig 5.26 no 18), and four denticulates. Only five scrapers, many poorly characterised, and one core/scraper were identified, but twelve piercers suggest that some hide-working activity took place here. Serrated pieces, often associated with plant processing, are represented by six examples

(one flake illustrated; fig 5.26 no15). Truncations, a form commonly identified on Mesolithic sites, although of uncertain function, constitute 2.1% of the modified flint and spall total. A blade with transverse chamfer facet and associated retouch (fig 5.26 no 17) was also recovered here.

Microliths, which form the largest class of retouched pieces at 1.8% of the lithic total from Area 4 (78 examples in all), show a clear bias towards parallel-sided pieces (Clark's Type B microliths) with 54 straight-backed bladelet forms (78% of the microlith assemblage) and 6 rods (8%). A very high proportion of these pieces are broken (only two are complete). There are single examples of scalene triangle and tanged point microliths, although the former is clearly rod-like in form, and a similar piece recovered from Woodbridge Road in Guildford (Bishop 2008, fig 9.5), has indeed been classified as a rod. Most of the five obliquely blunted point forms are of similar dimensions, and three exhibit the oblique snap fractures identified by Rankine 1946, 12) as indicative of unfinished forms, although they have not been classified as such at Hengistbury Head (Barton 1992, 223).

Tool production or maintenance is evidenced in the form of three burin spalls, as well as possible scraper (one), adze (eight), and pick (one; fig 5.25 no 6), sharpening flakes.

Twenty-three microburins indicate on-site microlith manufacture. Twenty proximal and three distal types have been identified, of which sixteen (two illustrated; fig 5.30 nos 3 and 8) display straight, as opposed to the oblique, snap fracture facets associated with conventional microburins. Although characteristic of so-called microburin mishits, they have alternatively been classed as 'notch and snap' types (Mithen 2000a, 69). Given their very high proportions in Area 4 (totalling 69% of all microburins), these pieces may well represent a deliberate, as opposed to accidental, method of microlith manufacture. This supposition is strengthened in relation to the presence in Area 4 of two so-called 'spatulate' forms (fig 5.30 no 10; cf Rankine 1949, 21) and of an unfinished microlith from trench C of the 2002 evaluation. All three pieces display the straight snap facets that are characteristic of 'spatulates', and this is a feature shared by the related *lamelle a cran* form (one example; fig 5.30 no 12).

In addition to the microburins are two Krukowski pieces, and one other from trench C. One of these is of scalene form, whilst the trench C example has been retouched inversely along one lateral edge.

(i) Distributional variability

Cores and core dressings are concentrated in the area of the main cluster, as are most microliths, with the notable exception of a group of five obliquely blunted points located at the northern end of Area 4, which may be of earlier date. Microburins are distributed rather more diffusely, but still concentrated in the southern half of the area, perhaps indicating that re-tooling took place around the principal knapping spot. Adze and adze sharpening flakes also display a slight tendency to be located on the periphery of the main knapping zone, in keeping with the other North Park Farm excavated areas.

Burnt material seems to be distributed rather evenly throughout all four sampled spits, but with a clear concentration in squares F8-45 and F7-94, both of which were bulk sampled, and subsequently re-sorted for microdebitage.

(j) Re-fitting

Considered together, trench C and Area 4 have thus far only yielded two pairs of re-fitting flakes, although it is likely that other re-fits are present. Uncertainty with regard to the precise extent of vertical truncation of the flintwork in Area 4, and also whether the southern edge of the main cluster is an artefact of post-depositional processes and/or sampling imbalances, may undermine the rationale for a concentrated re-fitting programme.

(k) Discussion

Area 4 would appear to represent a largely single-period knapping cluster focussed on the southern edge of the area, although five oblique points at the northern end may be of earlier date. The closest Surrey analogue to the microlith assemblage found here is provided by Ellaby's 'Pioneering' Late Mesolithic type-site of Kettlebury 59, although the inversely based forms and scalene triangles typical of the latter are absent in Area 4.

The microlith assemblage shows some affinity to so-called 'rod only' microlith collections of Pennine type (Radley et al 1974, 5; Chatterton 2007, 72-3), and also to the finds from a small group of features at Two Mile Bottom in Norfolk (Robins 1998). Narrow straight-backed bladelets from such sites show similarly high breakage rates to the North Park Farm Area 4 examples, which include only two complete specimens. The site at Two Mile Bottom has been compared to Oakhanger 3 in Hampshire, which is noteworthy for its concentration on the exclusive production of rod-like microliths (50 were found) and which, in common with Two Mile Bottom, includes a number of 'club-shaped' forms akin to one example from square F8-55 (Robins 1998, 209). Similar straight-backed pieces, albeit rather more lanceolate-like in outline, have been recovered at Seamer Carr in Yorkshire in a group of sixteen, probably originally forming part of a composite tool, found with degraded fragments of wood that was radiocarbon dated to 7540-6670 BC. Even earlier dating is implied for 'backed blades' and a single 'rod' sharing the same characteristics as 'straight-backed bladelets', recovered from the 'Middle Mesolithic' hut site at Howick first occupied 7970-7760 BC and abandoned 7740-7560 BC (Bayliss et al 2007, 71). However, much later radiocarbon dates of around 4200 and 4100 BC have been obtained for similar rod-like forms recovered at Lydstep Haven in Wales (Jacobi 1980, 175), South Haw and March Hill Top in northern England (Chatterton 2007, 73). Rod-like forms were almost entirely absent from a similarly-dated microlith assemblage at Charlwood in Surrey which yielded a number of tanged forms akin to the single specimen from the southernmost end of Area 4. Whilst it is therefore clear that the predominant microlith form present in Area 4 is of late Mesolithic date, any more precise dating is not yet possible. As noted by Warren (2007, 142), there is a growing body of evidence to suggest that, at least in some areas, 'later Mesolithic' microliths may have continued in use for around 4000 years.

A similar ambiguity relates to the longevity of obliquely blunted point microliths; although the form is unambiguously present in most 'Middle Mesolithic' assemblages, it is unclear for how long the form persists into the Late Mesolithic. The oblique points from the northern part of Area 4, therefore, may or may not be chronologically associated with the straight-backed microlith types centred on the knapping cluster towards its southern end.

Area 4 would, nevertheless, seem to represent the greater part of a seemingly discrete flint knapping cluster, probably of limited duration, dating to the Late Mesolithic period, focussing on the production of straight-backed bladelet and rod-type microliths. Other activities are implied by the recovery of an adze and adze sharpening flakes, burins, burin spalls, piercers, scrapers, serrates, and other retouched forms.

5.4.5 Area 5 **(tables 5.1-12; figs 5.1-5.18)**

(a) Summary

Flintwork from two metre square test pits located between Areas 4 and 6 along the southern flank of the valley head depression comprised mainly debitage of Mesolithic type, but included two microliths of straight-backed form, demonstrating yet again the extent of Mesolthic activity downslope towards the valley floor, and extending the known range of Late Mesolithic microliths at North Park Farm.

(b) Sampling

Neither square was bulk sampled, so that the figure of one chip recovered here is clearly an unreliable indication of microdebitage quantities present.

(c) Contexts

A vestige of woodland soil layer 36 was sampled in spit 1 of square F6-89. The 'transitional' layer 18 was sampled through single spits in both metre squares. 'Clean sand' layer 106 was excavated in 5 spits in square F6-98 and two spits in square F6-89. Parts of a tree-throw hollow (148) were sampled in both metre squares.

(d) Quantification

183 worked flints were collected altogether, including only one chip, constituting 0.5% of the North Park Farm 2005 total by number.

(e) Distribution

Square F6-98 contained nearly twice as many lithic artefacts (118) as F6-89 (65). The highest totals were recovered from either the third or fourth spits. Most finds (144 in all, or 79%) were retrieved from layer 106 and a further 23 (13% in all) from tree-throw hollow 146. Only eight and seven artefacts respectively (8% of the total) were collected from the woodland soil remnant 36 and transitional layer 18.

(f) Raw material and condition

The flintwork is predominantly pale to mid grey, occasionally off-white, sometimes with a light tan shade. Cortex, where present, is rough in texture and off-white, with very rare iron staining confined to sub-surface cortex. The differences in surface appearance between the lithic finds recovered here and in Area 4 may well be due to localised soil and slope processes, especially in view of the similarities between the flintwork from test pit B8 and Area 4, both of which were located on the fringes of the woodland soil.

The finds are generally in a fresh to mint condition, although one of the cores displays some surface modification, almost certainly the product of post-depositional processes.

Broken flakes and blades together make up 54.4% of the assemblage, and there were three edge modified pieces which may be of accidental or natural origin.

Burnt worked flint proportions were one of the lowest recorded for North Park Farm, at 7.3%.

(g) Primary technology

Mean debitage weight (excluding chips) is 1.52g, implying a paucity of large flakes, blades and chunks.

Blades and blade fragments constitute 34% of the flint collection, indicating its likely early prehistoric date. Both cores retain bladelet scars, although only one of these has been classified as a blade core; both are small, with a mean weight of 30g.

Six dressings, which include three crested pieces, attest to some degree of core preparation and maintenance.

(h) Secondary technology

The ten modified pieces and spalls found in Area 5 include two typical Mesolithic truncations, as well as one adze sharpening flake. There is also one possible scraper sharpening flake.

Single probable straight-backed bladelet microlith fragments were recovered from each squarem, but no microburins were identified (Area 5 is one of only three sampled areas not to produce any).

(i) Compositional and distributional variability

No significant compositional or distributional variations were apparent between the two sampled squares, apart from their overall lithic counts as noted above.

No burnt material was recovered from layers 18 or 36.

(j) Re-fitting

No re-fits were identified, although many pieces have the appearance of deriving from the same, or a very limited number, of cores.

(k) Discussion

The flintwork from these two squares, with the possible exception of some finds from tree-throw hollow 148, is likely to be of Late Mesolithic date although, given current uncertainty regarding the date of introduction of straight-backed bladelet forms (see Area 4 discussion above), a later Middle Mesolithic origin cannot be ruled out.

The visual appearance and generally smaller size of the cores and debitage recovered in Area 5 set them apart from the lithics in Area 4.

5.4.6 Area 6 **(tables 5.1-12; figs 5.1-18 and 5.20)**

(a) Summary

Area 6 included two hearths at its northern end, one of which (161) has been radiocarbon dated to 7580-7050 BC. A distinct lithic concentration is evident around the northern edge of the smaller undated hearth (156). A lesser concentration of flintwork is apparent among the south-eastern metre square samples, although high lithic totals characterise the area as a whole.

High densities of microliths and microburins suggest an area of intensive activity, including distinctive modes of microlith manufacture indicated by the atypical lateralisation of microburins. Earlier and later stages of adze manufacture are indicated by concentrations of thinning flakes at the northern end of Area 6, and by small numbers of thinning flakes across the site. A wide range of tool forms and modified pieces imply the processing or task-specific activities characterisitic of a home base or relatively fixed facilities associated by Michael Reynier (2005) with climatic, floral and faunal changes induced in the course of the 'Middle Mesolithic' period (*c*8000-7000 BC).

In addition to large numbers of thinning and sharpening flakes, possibly associated clusters of denticulates and notches indicate woodworking. Antler/bone processing is implied by the presence of burins and burin spalls, whilst hide processing may be reflected in small numbers of scrapers, piercers and (possibly) truncations.

Microlith forms, including three 'Horsham' points and two inverse basally retouched points, suggest that some of the flintwork is contemporary with the northernmost hearth, and may represent a 'transitional' Middle Mesolithic industry. Typical of the earlier part at least of the Late Mesolithic (dating from *c*7000 BC) are large numbers of straight-backed bladelets. The microlith assemblage has some affinities with those from Rock Common in Sussex (Harding 2000, 36) and others of 'Honey Hill' type (Reynier 2005, 28).

(b) Sampling

60 metre squares were sampled here as part of the North Park Farm 2005 excavations. Two squares, A20 and A21, sampled in 2002, fell wholly or partially within the same area, as did part of trial trench A from the same evaluation. A third metre square, A31, lying within the same trench, was located just under a metre west of the 2005 excavation area.

Thirty-five metre squares were bulk sampled, in addition to the three squares from the 2002 evaluation. From a total of 206 bulk samples taken, 26 (or 13%) have been fully re-sorted for the lithic component. Only square F5-59 has been fully processed.
Up to ten 5cm flint-bearing spits were excavated, encompassing a variety of contexts.

(c) Contexts

Contexts found to contain a lithic element, which were sampled, include three layers, some combined layer/feature contexts, four 'grey cones', four tree-throw hollows, a hearth (156), one flint concentration (158), and a small number of miscellaneous features. Excavated layers included a remnant of woodland soil 36, largely confined to the southern end of the area, 'transitional' layer 18, clean sand 106/119, and combinations thereof (36/18 and 18/106), together encompassing up to 10 five-centimetre spits spanning six context types.

(d) Quantification

10636 lithic artefacts and 4945 chips have been quantified to date. Chip proportions (31.8% of the total collection) are under-represented as a result of incomplete processing, with only 13% of the environmental samples fully sorted to microdebitage level. For the fully processed samples, chip proportions are consistently high (averaging 70% of all lithics).

(e) Distribution

Metre square lithic totals (excluding chips, but including the 2002 evaluation finds) range from 54 to 455. The contoured distribution plot (fig 5.20A) indicates a concentration around the northern edge of hearth 156, with a separate, less distinct cluster in the south-eastern corner. Flint totals for the four metre squares encompassing dated hearth 161 are slightly higher than those in the immediately surrounding squares, whilst squares in the area of the southern tree-throw hollows are generally lower than the norm.

Most of the excavated assemblage (4344 items representing 52.1% of the lithic total) was retrieved from 'transitional' layer 18. Just over a third of the total (2992 pieces, or 35.9%) was collected from the natural grey sand 106. Although woodland soil 36 accounted for only 471 worked flints (5.6% of the total), it should be borne in mind that most of this material was collected only as machining remnants from the southern half of the area. In square A20, where three five centimetre spits of the woodland soil were excavated, 102 flint artefacts (excluding chips) were recovered, and this total (representing 18% of all lithics found here, excluding chips) may well be under-representative owing to the presence of part of tree-throw hollow 150.

(f) Raw material and condition

Although a wide spectrum of colours is apparent in the worked flint from Area 6, the predominant hue is olive green, usually mottled. Other surface hues present include pale to mid grey, off-white, pale tan and orange-red. Some flints are semi-translucent, but there does not appear to be any patterning in their distribution.

Much of the material is opaque and cherty, most noticeably with regard to the adze thinning and sharpening flakes from square A20, although it is not clear whether this derives from pure chert or cherty flint sources. Surviving cortex is generally coarse and off-white, but of variable thickness. In addition to chalk-derived material, there is a very small Bullhead flint component probably of later (Neolithic) date.

Condition is extremely variable; although mint condition flintwork is present in many areas, some flints have undergone varying degrees of post-depositional modification. Such changes include a very slight degree of rolling or surface smoothing, often accompanied by surface speckling and/or pitting, and the flint is often opaque. These characteristics are common on many of the flints deriving from woodland soil 36, as well as those retrieved from tree-throw hollows.

Flake and blade fragments make up 57% of the total flint assemblage (excluding chips), a figure that is broadly comparable to the proportions in Areas 2, 4, 5 and 10, and which does not signify any greater degree of post-depositional damage. 7.9% of all worked flint (including chips) is burnt, although proportions vary by layer and context type (see (i) below).

(g) Primary technology

Mean debitage weight is 1.7g for a transect sample. There are a few large cortical flakes present that are likely to relate to the preliminary stages of nodule reduction and core preparation or testing.

Typical of the North Park Farm lithic assemblages, and indicative of Mesolithic activity, are the proportions of blade and blade fragments present in Area 6, with a

combined figure of 32.5% of the total flint count. Many of these blades are of bladelet proportions (with widths less than or equal to 12mm) This tendency is reflected in the number of cores (61 or 75.3% of all cores) with one or more bladelet scars, and the high proportion of blade cores identified (totalling 58, or 69.9% of the core total). Characteristic 'pyramidal' and 'cylindrical' forms are present (fig 5.32 nos 2 and 4), with ten (12%) and three (3.6%) examples of each, and there are higher proportions of double platform types (18% opposed, 9.6% orthogonal).

Although the mean weight of 70.9g indicates a tendency for discards in Area 6 to be slightly larger than the North Park Farm average of 65.6g, edge abrasion is evident on 43.4% of all cores, and the high incidence of core dressings here also indicates careful resource management. Bilaterally and unilaterally (fig 5.29 no 8) crested pieces are present, with seven examples (3.6%) and 65 examples (33% of all dressings) respectively. Plunging blades and flakes (fig 5.29 no 9) are also well represented with 21 pieces, or 10.7% of all dressings, and there are 16 core tablets (8%; fig 5.29 no 11).

Chip proportions, at 70% of all lithic artefacts amongst the fully processed samples, are consistent with *in situ* knapping activity.

(h) Secondary technology

As is the case with most of the excavated areas, miscellaneous modified pieces constitute the largest proportion of possible tools, with 257 examples or 52% of all modified and spall forms. A range of formal tool types are also represented, including burins (24 or 4.9% of the modified and spall total; fig 5.26 nos 10 and11)), denticulates (17 examples or 3.4%; fig 5.26 nos 12 and13)), notches (32 or 6.5%), piercers (eight or 1.6%; fig 5.26 no 7)), scrapers (19 or 3.8%; fig 5.26 nos 2 and 3), serrates (13 or 2.6%), and truncations (11 examples constituting 2.2% of the 'tool' and tool waste total; fig 5.26 nos 4 and 5). These totals and proportions are not dissimilar to figures from the other excavated areas, with the exception of denticulates, the strong representation of which may relate to an area of woodworking in the southern half of Area 6.

Microlith totals and percentages are indicated in table 5.7. The two commonest microlithic forms are obliquely blunted points (31 pieces or 13% of all microliths) and straight-backed bladelet forms (104 examples, or 46%). Of chronological significance are three hollow-based or 'Horsham' points and 12 inversely retouched microliths. The latter include three inverse basally retouched points which could be contemporary with hollow-based types, possibly dating to the latter half of the 8th Millennium cal BC (Reynier 2005, 27). Two other microlithic forms, one recovered from test pit A31 of the 2002 evaluation (fig 5.31 no 29), and which are likely to be of similar date, have been classed by Rankine (Rankine 1946, 6) as 'curved points' and they have usually been recovered as surface finds from sites also producing Horsham period microliths.

Almost entirely absent from the microlith assemblage are scalene triangles (only four specimens, three of which were found close to the southern edge of Area 6).

74% of all identified microliths are broken. This figure compares well with the 77% of all microliths at Kettlebury 103 (Reynier 2002, 217) where the breakage rate has been described as "higher than expected" (possibly as a result of deliberate discard), especially given the high incidence of fracture amongst straight-backed bladelets at North Park Farm and other sites (eg Two Mile Bottom; Robins 1998).

11% of all microliths are burnt. Although this is the lowest such proportion of burnt microliths from any of the North Park Farm sampled areas, the figure is still almost double that for burnt microburins in Area 6, and these generally higher incidences of burnt artefacts are probably of cultural origin, deriving from the deliberate discard of 'spent' microliths into hearths, or they may relate to the cooking of carcasses with still-embedded armatures (cf Sidell et al 2002, 15).

Only 13 microliths retained their bulbs of percussion, but square A31, which probably represents part of a straight-backed bladelet production area where the microburin technique was not generally employed, produced a further five examples. Area 6 also produced significant numbers of right lateralised microliths, with 54 examples representing 33% of all classified microliths.

In addition to eight Krukowski pieces implying microlith manufacture in Area 6, there are 120 microburins and six unfinished microliths, together constituting 1.3% of the total lithic assemblage from Area 6, whilst microburins *sensu strictu* account for 33.5% of the North Park Farm total. These include 98 proximal types (fig 5.30 no 2), representing 81.6% of all microburins, 17 distal (14.2%; fig 5.30 no 6) and two possible double forms (1.6%; fig 5.30 no 9). Of particular significance is the high proportion of atypically notched microburins from Area 6 (eg fig 5.30 nos 2 and 5), with 22.5% of the total, matching the highest proportion of right lateralised microliths from any area sampled. A distinct trend in microlith production is indicated, involving large and small, proximal and distal, as well as some inversely retouched microburin types. The large dimensions of some examples (typically up to 16mm wide, reflecting microlith production from blades as opposed to bladelets) are comparable to pieces recovered at Goldhoard, a site associated with 'Horsham' points (Rankine 1952, 8).

Unfinished microliths or 'intermediate forms' include one notched piece with additional lateral retouch (fig 5.30 no 13), similar to examples from Star Carr and Kettlebury (Clark 1971, fig 36 no 67; Rankine 1946, fig 2 no 8), representing incomplete isosceles triangles. There is also one piece with partial lateral retouch and an incomplete inverse notch which may be related to hollow-based point production.

Other tool debitage includes three burin spalls (one of which is clearly a re-sharpening spall), nine possible scraper sharpening flakes, and 32 adze sharpening flakes (fig 5.25 nos 1-4), although some of these are not typical sharpening pieces.

Axe thinning flakes are also well represented in Area 6.

(i) Compositional and distributional variability

One significant factor affecting total flint and lithic artefact category distributional variability is the presence of the two tree-throw hollows 72/76 and 57 in the southern half of the excavated area. Overall totals, as well as specific artefact distributions, are clearly much lower in the area of the hollows, such that the concentration at the northern end of the site may be exaggerated to some extent, although the principal cluster of artefacts around hearth 156 is still likely to reflect an original concentration there.

Microlith densities vary between 0 and 16, and their distribution mirrors the gross lithic distributional pattern, with a low-level scatter of oblique points across most of Area 6. Straight-backed bladelets appear to concentrate to a greater extent in and around the two hearths, although one particularly high density cluster of 14 pieces is evident in square A31. Inversely retouched microliths, both curved points, and the three 'Horsham'

points (which may all be coeval) appear to form two loosely defined clusters at the northern and southern ends of Area 6.

Microburin distribution is also centred to some extent on the area of greatest lithic concentration, but sub-types (whether proximal or distal, typically or atypically notched) are spread across the entire area. The distribution of atypical microburins suggests the existence of discrete groupings, whilst closer inspection of these types with regard to size, shape, appearance, and other variables including the presence of cortex and platform edge abrasion, indicates three or four related clusters of microburins encompassing right and left notched pieces which may be the product of discrete knapping events sharing the same mode of microlith manufacture.

Also of potential significance is the coincident distribution of adze sharpening flakes, denticulates and notches in the south-eastern corner of the site and between hearths 156 and 161.

Most flake cores are present within the southern half of Area 6, and three pyramidal types are located close to its southern edge.

Also worthy of note is the high incidence within square A31 of straight-backed bladelet microliths (including five bulbar examples), coupled with high frequencies of bladelets and bladelet fragments, including chip-sized pieces, suggesting microlith production without employing the microburin technique (only one microburin, a distal example, was recovered here).

Proportions of burnt lithics vary by layer and context type; unsurprisingly, higher proportions of burnt flintwork are present within hearth 156 and the closely associated 'grey cones' (where 17.2% of all lithics are burnt).

Fig 5.20 presents, in the form of contour plots, the spatial distribution data relating to the identified core tool groups detailed below. Similar plots relating to complete blades, burnt worked flint, microliths, microburins, blade cores, and core dressings were prepared to archive standard which, considered together, indicate an area of burnt lithics immediately east of hearth 156, with an area of blade production represented by complete blades, blade cores and rejuvenation flakes between hearths 156 and 161. Discrete microburin and microlith clusters are evident immediately to the north and south of these concentrations, with the main foci of adze manufacturing waste located still further north. Adze sharpening flakes are present throughout Area 6 (fig 5.20E), although three small clusters of artefacts are evident in squares F5-59, F5-97 and -98, and F6-14 and -24.

(j) Re-fitting

Only two pairs of re-fitting artefacts were identified in the course of classification, although many near re-fits were also noted. The two re-fits comprise a retouched crested blade and single platform core produced on a thinning type flake from square F5-99 (fig 5.29 no 1), and a pair of dorso-ventrally re-fitting flakes from tree-throw hollow 72.

Three groups of re-fitting adze manufacturing flakes were subsequently identified within the northern half of Area 6. All of the flints from Area 6, including finds recovered from the relevant areas of the 2002 evaluation (square A20, Flint Scatter FS1 and trench A machining), however, were inspected in order to identify possible conjoins and pieces of similar appearance which were likely to relate to the same manufacturing sequences. Group A was produced from an opaque yellowish cherty flint, Group B from a distinctive

speckled grey-brown flint with off-white interior, and Group C consisted of brown mottled flint.

Group A (figs 5.22 and 5.23 nos 1-8)
The flints of Group A were usually yellow, occasionally slightly paler off-white or pale grey (possibly relating to their burial environment), often with cherty patches. The very small number of pieces with remnant cortex, however (eg fig 5.23 no 6), were reddish-brown immediately beneath the cortex, and the latter was smooth and off-white.

Group A consisted of 32 re-fitting pieces deriving from a single episode of adze manufacture comprising 10 pairs of break re-fits and four groups of dorso-ventral re-fits (14 pieces altogether, excluding breaks). The latter comprises one group of three re-fits including an adze sharpening flake (fig 5.22 no 1), another group (fig 5.22 no 2) consisting of seven dorso-ventral re-fits (with three pairs of break re-fits already noted), and two pairs of re-fitting eraillure flakes and parent flakes (fig 5.22 nos 10 and 11).

Interpretation of the horizontal distribution of this material is hampered by a lack of precise plotting (most relevant finds were recovered from within a slight hollow numbered as context 158). Relevant information was mainly pieced together from the 2002 evaluation plots and photographs. These indicate that (for the 2002 material at least) re-fits extended up to 50cm horizontally (fig 5.20F). All of the identified re-fits were located within square F5-59 (14 pieces), square F5-69 (one piece), and test pit A20 of the 2002 evaluation which spanned the same two squares, although re-fits did not extend into the western edge of A20.

Break re-fits spanned four spits (three in the 2002 evaluation), three metre square test pits (although most lay within F5-59 and were up to 50cm apart), and three layer contexts. The latter included context 36/18 (although this piece was exposed in 2002 after the removal of woodland soil 36), 'transitional' layer 18, 'clean' sand 106 and flint concentration 158, which occupied a similar stratigraphic horizon. Aside from concentration 158, six break re-fits were found in transitional layer 18, and only one in clean sand 106, which re-fitted onto another fragment from layer 18. Interestingly, the latter fragment was slightly paler than its re-fitting counterpart in layer 18, indicating that the slight discolouration evident on this, and many other pieces retrieved from the 'transitional' layer and overlying woodland soil, is of post-depositional origin (probably relating to the slight humic content of these deposits). Dorso-ventrally re-fitting pieces spanned two spits, four from spit 1 and two from spit 2, of squares F5-59 and F5-69, four pieces from spit 8 of test pit A20 from the 2002 excavation corresponding with F5-59 and F5-69, as well as six others collected as flint concentration 158. Most were located within square F5-59, and all of the dorso-ventral re-fits identified were confined to layer 18, although four from spit 8 of test pit A20 *may* have extended into the clean sand 106. Clearly, the re-fitting material formed a compact group, extending slightly beyond the mapped extent of the slight hollow containing concentration 158.

The two eraillure flake re-fits spanned spit 8 of test pit A20, on the fringes of concentration 158, and spits 1 and 2 of square F5-59, which may have been located just north of the same concentration.

All of the re-fitting material relating to the later stages of an adze manufacturing episode utilizing a distinctive opaque yellowish flint with cherty inclusions, was clustered within, or just beyond the slight hollow identified as 158, and most pieces were similarly

clustered horizontally within two 5cm spits, although it is possible that the relevant artefact bearing horizon was only just over 5cm thick.

Only eight chips from square F5-59, and one from square F5-67, which can be identified as deriving from the same raw material that was employed in this episode of adze manufacture, were recovered from the many bulk samples collected here. Only a few trace elements of remnant cortex were present, so the initial, preparation, flakes are missing. Clearly only a very small element of the production sequence was present. Most, if not all, of the breakages identified can be attributed to incidental fractures relating to the method and mode of knapping (probably using a soft stone hammer, as languette and siret breaks are both present, and there are a number of flakes with missing bulbs), as well as to the sometimes brittle character of the raw material used. There are a number of other attributes of the re-fitting flakes which characterise them as products of adze manufacture, viz their overall shape, curvature, presence of multi directional dorsal flake scars, butt, bulb and termination types, and the presence of sometimes pronounced eraillure scars. In addition to the documented re-fitting eraillure flakes, there are three similar flakes from F5-59 which could not be re-fitted.

The limited spatial extent of this re-fitting group would seem to suggest that it might represent a dumping episode of redundant flakes outside, or towards the periphery, of an occupation area (tent or hut structure), or else within a pre-existing hollow or slight depression. The presence of a re-fitting sharpening flake, however, implies that the acts of manufacture and maintenance occurred in the same location.

In addition to the identified re-fits, 144 worked flints of identical or similar appearance, certainly or probably deriving from the same knapping episode, were also recovered from the same two metre squares (including test pit A20) as well as from 20 others within the sampled portion of 10 metre grid square F5 (see the contour plot fig 5.20B) which clearly indicates a concentration of this material in squares F5-59 and F5-69). Two flakes were collected in the course of the machine stripping of trial trench A within the same general area, and two more were recovered from Flint Scatter 1 (FS 1) located immediately south of A20. Many of these pieces shared the same attributes identified amongst the re-fitting groups. The material spanned six 5cm spits within test pit A20 (one each from spits 3-5, four from spit 6, four from spit 7 and one from spit 8). For the 2005 excavation, the lithics spanned five 5cm spits. 26 flints (27%) were found in spit 1, 45 (46%) in spit 2, 21 (21%) in spit 3, four (4%) in spit 4 and two (2%) in spit 5. The majority, therefore, were probably located within a *c*10-15cm band of variably dirty to clean grey sands. Intended blade production is not generally represented for this raw material within Area 6, although two pyramidal bladelet cores were recovered from square F6-36 at the southern end and just to the south within square F6-55, and a core fragment (fig 5.23 no 8), which may itself derive from the same adze production waste, was found in square F5-98 on the fringes of its general distribution. Most of these pieces (64, or 43%) were collected from 'transitional' layer 18, with a further 26 (18%) from clean sand 106, seven (5%) from 18/106, three (2%) from woodland soil 36 and four (2.5%) from 36/18. Thirty (20%) were excavated as part of flint concentration 158, thirteen (9%) from tree-throw 150, and one (0.5%) from 'grey cone' 168. The condition of most of this material is generally quite fresh, although some of the machine collected pieces and those deriving from the woodland soil or woodland soil/transitional layer interface are less so. When plotted (see contour plan), this flintwork was clearly

concentrated within and around grid squares F5-59 and F5-69 containing the bulk of the re-fits, indicating its likely identification as similar adze manufacturing waste, but there were also two very small sub-clusters located just to the south and south-west of the principal concentration. It is important to note that none of the re-fitting material or any of the other associated pieces were burnt, even slightly, although it is possible that some heavily burnt artefacts might have escaped identification.

Very few cortical flakes were found amongst either the re-fitting group of flints or the associated pieces of Group A, and they all clearly relate to the later stages of adze manufacture, unlike Group B.

Group B (fig 5.21)

For the 'speckled' adze material of Group B, all of the re-fitting pieces, except for an outlier located *c*5m to the south-west within square F6-14, were contained within four contiguous metre squares: F5-57 (one flint), F5-67 (five) F5-68 (five) and F5-77 (two) (fig 5.20G). They may, however, have been grouped more closely together within an area of only one square metre, but because none of the finds were plotted, this cannot now be confirmed. The re-fits spanned three 5cm spits and three contexts, as follows: spit 1 (five flints), spit 2 (six flints), spit 3 (two flints) and one unassigned; with five items from 'transitional' layer 18, eight from 'clean' sand 106 and one from grey 'cone' 157.

Only dorso-ventral re-fits were identified. These comprised seven pairs of re-fitting flakes, many of them quite large secondary flakes with remnant cortex, five of which re-fitted back together to form one block of seven flakes (fig 5.21 no 1). Although the flint was invariably speckled and usually grey-brown in colour, three pieces from the interior of the parent nodule were more uniformly off-white to pale grey, and the flint contained a small fossil sponge. These latter pieces clearly resembled a complete adze recovered in 2001 *c*100m north-east of the 2005 excavations, and a pair of nearly re-fitting sharpening flakes removed from opposite sides of the same parent implement, which were found in squares F5-68 and F5-59 (fig 5.21 nos 25 and 27).

The characteristic L-shape of many of these flakes in plan, their divergent margins, evidence of hard hammer percussion in the form of incipient cones on their broad plain or dihedral butts, and sometimes curving profiles, together suggest that these are adze manufacturing decortication or preparation flakes (*sensu* Ashton 1988, 316), resulting from the initial stages of adze rough-out manufacture. They also strongly resemble similar products resulting from adze manufacture replication by Karl Lee.

One pair of dorso-ventrally re-fitting flakes and at least one other flake, which are much thinner than the others, and which retain only a trace of cortex, may have been detached using a soft stone hammer after the intitial stages of rough-out manufacture.

In addition to the re-fitting finds, 73 other, generally smaller, flakes were identified as belonging to the same parent nodule, and their distribution is illustrated in the contour plot of fig 5.20C. 26 metre squares contained similar flintwork, most of which was recovered within and around the four squares containing re-fits, forming a nucleated cluster. In addition to two outliers in squares F6-36 and F6-37, there is a small sub-group of five flints within squares F6-14, F6-15 and F6-24, which clearly relate to the isolated flake from F6-14 which re-fits onto two others *c*5m further north within square F5-67. Their horizontal distribution largely mirrors that of the re-fitting pieces, with 23 flints (36%) from spit 1, 22 from spit 2 (35%), eight from spit 3 (13%), three

from spit 4 (5%), and seven (11%) pieces from spit 5, which was confined to grey cone 157. Two pieces (3%) were retrieved from woodland soil 36, one (2%) from context 18/36, 26 (39%) from the transitional deposit 18, 23 (35%) from clean sand 106, eight (15%) from grey cone 157, with one each from flint concentration 158 and tree-throw 33. Most of the relevant finds were therefore clearly present within *c*5-10cm of the transitional layer 18 and the underlying clean grey sand 106. Many of these flints also display characteristic features of adze production flakes, but they are generally smaller and thinner, and probably relate to the later stages of adze manufacture.

Group B therefore comprises adze manufacturing waste from the initial and subsequent rough-out phases of production, mostly concentrated in one location, but with a clear link to a sub-cluster *c*5m to the south-west. As with Group A, the material obviously represents but a small portion of the debitage likely to have been generated in one knapping event, and may represent the dumping of hazardous flakes which would probably have been of no further use. Two sharpening flakes (near re-fits struck from opposing faces of the parent implement) are likely to have been removed from the finished adze. The distribution of Group B is clearly discrete from Group A, and both of these clusters are located on the fringes of an area of complete blade distribution centred on squares F5-77 and F5-68.

Group C (fig 5.23 nos 9-14)

Group C comprises a small number of mottled brown/grey re-fitting preparation and thinning flakes from contiguous metre squares F5-57 and F5-66 (fig 5.20H). Three large cortical dorso-ventral re-fits (fig 5.23 no 9) were found in square F5-57, spanning spits 1 (one flake) and spit 3 (two flakes), equivalent to 'transitional' layer 18 and 'clean' sand 106, respectively. Two of these flakes, with large areas of cortex, could be classed as preparation flakes, whilst the third, which is thinner, of curved profile, with divergent margins, multi-directional flake scars and a butt of complex form bearing the scars of prior removals, could be classed as a finishing flake. Two similar dorso-ventrally re-fitting flakes (fig 5.23 no 10) were recovered from square F5-66. Both were located within spit 1, of 'transitional' layer 18. All of the re-fitting material, therefore, as with Groups A and B, spanned three 5cm spits, but it could have been contained within a band of only several centimetres.

In addition to the re-fits, a few pieces of the same raw material were identified in the same general area (fig 5.20D) within squares F5-57 (two large flakes, one of which is a primary flake), F5-58 (a small thinning type flake), F5-66 (another probable adze production flake) and F5-68 (a possible failed core or burin on a thick primary flake). These artefacts spanned three spits, with two from spit 1, two from spit 2, and one from spits 3, of the 'transitional' layer 18 (three flints) and clean sand 106 (two flints). Most, however, (four of five) were retrieved from spits 1 and 2 and, as with the re-fitting material, they could have lain within a narrower band just over 5cm thick.

Three outlying flakes manufactured from the same raw material, also likely to relate to adze manufacture (they are all of similar form with divergent margins and curved profiles), were identified up to several metres to the south-west, in squares F5-94 (fig 5.23 no 12), F6-24 and F6-7. One was recovered from context 18, and the other two from clean sand 106, spanning spits 1, 4 and 5. Three adze sharpening flake fragments of the same raw material, two of which re-fit (fig 5.23 nos 13 and 14) were retrieved from

square F6-13, within context 18, and from trial trench A located several metres to the north-east. The locations of some of these artefacts (see fig 5.20H), which parallel those of several flakes from Group B (the latter including one piece which re-fits onto two other flakes from the main concentration), clearly suggest a common, possibly cultural rather than taphonomic, origin, perhaps relating to maintenance activities, rather than to *in situ* adze manufacture.

It is noteworthy that all three groups of adze manufacturing flakes are spatially discrete, with only a minimal degree of overlap. Because of the form of the waste flakes engendered (sometimes rendering them unsuitable for further use), or perhaps because of delimiting cultural or social factors, none of them appear to have been retouched or subsequently used in any way, with the exception of a large cortical flake from Group C which has been crested, and from which two bladelets or burin spalls have subsequently been detached. It is, however, possible that these distinct groups of manufacturing waste represent only a residue of adze manufacture, and that the greater bulk of the debitage engendered in any such activity may have been collected for disposal elsewhere. Although the products of adze manufacture and maintenance are not uncommonly reported from many Mesolithic sites, larger groups of re-fitting debitage are scarce, and there is clearly some variation in production routines, as well as in raw material procurement. Each of the three groups of adze manufacturing waste identified in Area 6 can be associated with sharpening flakes recovered from the same area, and three of four of the latter were found in the same, or adjoining, metre squares.

(k) Discussion

Of crucial importance in any discussion of the Area 6 flintwork is the chronology of the microliths represented, and their possible associations or likely contemporaneity with hearth 161, which has been radiocarbon dated to 7580-7050 BC, a chronology coeval with determinations made for the 'pure' 'Horsham period' site at Kettlebury 103 (Reynier 2002, 224). First should be emphasised the very small number of 'Horsham' points recovered from Area 6 (only 1% of the microlith total). Of the three identified examples, two were located close to the southern edge, in relative proximity to one another, whilst the third example was located *c*5m further north. All three pieces were found in the vicinity of other inversely retouched microliths including, for the northernmost example, two inverse basally retouched points which may be coeval with 'Horsham' points (Reynier 2005. 27, adduces the site at Beedings Wood as possible evidence of their contemporaneity). Other pieces which may be of the same date include the two 'curved points' noted above, an unfinished microlith which may be a failed 'Horsham' or inverse basal point, a single isosceles triangle and one possibly related 'intermediate' form. Coincident with the distribution of these pieces, however, are large numbers of straight-backed bladelets, a microlithic form hitherto regarded as characteristic of the early part of the Late Mesolithic period in Surrey, as exemplified by the illustrated assemblage from Kettlebury 59 (Ellaby1984, 64, fig 3.9), albeit there found in association with inversely based points.

Taken as a whole, the microlith assemblage from Area 6 can be seen to have affinities with potentially 'Middle Mesolithic' industries such as those published from Rock Common in Sussex (Harding 2000), Flanchford Mill in Surrey (Ellaby 1985) and 'Honey Hill' type assemblages such as Two Mile Bottom in Suffolk (Reynier 2005, fig

2.12). All three of these sites contain varying proportions of straight-backed bladelets together with oblique points (some of comparable outline and dimensions to the Area 6 examples), scalene triangles and convex-backed pieces usually attributed to the Later Mesolithic. Both the Flanchford Mill surface collected and Rock Common excavated assemblages included very small proportions of 'Horsham' points (six, or 1%, from a total of 631, and two, or 4%, out of 47, respectively, compared to the figure of 1% for Area 6). What we may be seeing here is evidence of chronological continuity or intensive activity spanning a longer timescale than that traditionally envisaged for so-called 'single episode' sites, with elements of both Early and Late microlith assemblage types, including straight-backed forms. Similar collections of microliths characterise several 'Middle Mesolithic' occupation sites including Howick, Broom Hill and Mount Sandel, which have been the subject of a recent comprehensive review (Waddington et al 2007, 203-224).

Evidence for such intensive activity at North Park Farm is provided by the higher overall lithic totals in Area 6 (despite the loss of woodland soil deposits which accounted for almost half of the flintwork recovered in Areas 1 and 4), a wider range and higher incidence of microlith and other tool types and, in particular, greater technological variation in the production of microliths across the whole area investigated. This apparent technological diversification could be regarded as characteristic of the 8th millennium BC and is probably related to climatic change and associated floral and faunal driving forces such as those proposed by Reynier (2005, 123-7).

Rather than being viewed as residual components within an essentially Early Late Mesolithic industry, therefore, the 'Horsham' type assemblage elements found in Area 6 may instead be regarded as further indicators of the complexity of microlith development in the Middle Mesolithic period. The lithic material found here could accordingly be viewed as representative of an overlapping phase between the Early and Late Mesolithic periods, incorporating elements of both periods as suggested by Roger Ellaby (Ellaby 1985, 56; Ellaby 1987, 64).

An alternative explanation for the apparent dichotomy represented by microlith types once considered to be chronologically exclusive in Area 6, namely that two successive periods are represented, and that the area was occupied by different groups of hunter-gatherers at different times, seems rather less likely given the paucity of 'pure' 'Horsham' type assemblage elements identified here (assuming that the Kettlebury 103 type-site is truly representative of the period, when in fact the material recovered there - which, incidentally, included one micro-scalene microlith of Late Mesolithic form – may simply represent one brief occupational episode utilizing a specialised microlith inventory related to a specific range of tasks or activities).

Whilst some aspects of the Horsham techno-complex typified by Kettlebury 103 can be seen to be present within Area 6, such as the proportions of double platform cores, presence of some large microburins, comparable proportions of plunging pieces and the presence of chert or 'cherty flint' (although the Kettlebury 'flinty chert' is described as almost white; Reynier 2002, 216), others, such as large numbers of chamfered pieces and isosceles triangle microliths, are clearly not.

Nevertheless, it can be argued that there is evidence of technological continuity here in the form of microlith production and core reduction, as well as for specific activities such as woodworking, across the area as a whole, all factors which would seem

to support the notion of a longer-term occupation area which may have extended from some point within the latter half of the 8th millennium BC into the first half of the 7th millennium BC.

Although there was abundant evidence for adze manufacture and maintenance, in the form of large numbers of thinning flakes, with some re-fitting items, as well as many adze sharpening flakes, only partial sequences appear to be represented. Even allowing for possible losses resulting from the incorporation of some finds into subsequent tree-throw hollows, significant quantities of debitage appear to be missing, and the re-fitting of one flake spanning a distance of *c*5m hints at cultural factors influencing its dispersal.

Notable also is the distribution of re-fitting and probably associated adze manufacturing waste products within a few square metres at the northern end of Area 6, and its concentration within a narrow band of sandy sediments, perhaps only several centimetres thick.

5.4.7 Area 7 **(tables 5.1-12; figs 5.1-5.18)**

(a) Summary

Area 7 consisted of two metre squares located *c*10m east of Area 6, just south-west of Area 10 on the northern flank of the valley head depression. Flintwork of probable Mesolithic date, including high proportions of blade debitage, was recovered, together with a single microlith of straight-backed bladelet form.

(b, c) Sampling and contexts

Square H4-92 was sampled through three 5cm spits and square H5-2 through four spits. Spit 1 in both squares consisted of vestiges of woodland soil 36, together with beige/buff 'transitional' layer 159. Spits 2-4 comprised clean pale buff layer 121. No bulk samples were taken in either square.

(d) Quantification

130 flint artefacts were recovered (0.4% of the North Park Farm 2005 total), with 75 from H4-92 and 55 from HF-2. Only two chips were identified, representing 1.5% of the total recovered here.

(e) Distribution

In both squares, spit 1 was the most productive, yielding a combined total of 55 worked flints or 43% of the overall total. The lowest spit excavated was the least productive, although spit 3 produced more material for the two squares combined.

(f) Raw material and condition

The flintwork is not of a uniform hue, with mottled grey, olive, tan/honey coloured and very dark grey/black pieces present in varying numbers. Cortex is off-white and coarse.

The material is nearly all fresh, and the absence of any edge modified pieces suggests little post-depositional damage, although blade and flake fragments are well represented, forming 76.5% of the total lithic assemblage. Because of the loss of most of the woodland soil from the sampled squares, it is not possible to ascribe these high fragmentation rates with any confidence to either cultural or post-depositional processes, but similarly high proportions of broken artefacts are not uncommon on Mesolithic sites,

eg Kettlebury 103, where fragments comprised 88% of the total (Reynier 2002, 225) and Bermondsey, where broken blades accounted for almost 70% of all blades (Cotton 2002, 73).

Eleven burnt worked flints were also recovered, representing 7.9% of the lithic total from Area 7.

(g) Primary technology

Blade and blade fragments, with eight and 52 pieces, constituting 6.2% and 40% of the total lithic assemblage respectively, are a significant component of the assemblage. Bladelet forms are especially prominent, suggesting a Mesolithic industry. Soft hammer removals are indicated by generally diffuse bulbs of percussion and lipped butts. Although no cores were recovered, among the three rejuvenators is a partially crested plunging blade from an opposed platform core which is clearly of Mesolithic date.

(h) Secondary technology

One microlith of straight-backed bladelet type was recovered from square H4-92. This probably dates to the early part of the Late Mesolithic (from the early 7th millennium cal BC).

Only three modified pieces were present: a scraper, a notched piece and a serrated blade.

(i) Compositional and distributional variability

Because of the limited area investigated here, few meaningful remarks can be made with regard to gross compositional and distributional variability in Area 7, although most blades were recovered from square H5-2 and all three core dressings were found in square H4-92.

Burnt worked flints were present in very small numbers throughout all sampled spits and across both sampled squares.

(j) Re-fitting

No re-fits have been identified, although several pieces appear to originate from the same cores.

(k) Discussion

Area 7 demonstrates a continuation of Mesolithic activity across the central portion of the valley depression, and extends the known range of straight-backed bladelet distribution at North Park Farm.

5.4.8 Area 8 **(tables 5.1-13; figs 5.1-5.17)**

(a) Summary

Eleven metre squares were sampled beyond the limit of the woodland soil at the northern end of the valley head depression. A number of diagnostic Mesolithic artefacts were recovered, including three microliths, one microburin and an adze perform, although the area contained the lowest proportion of blades and blade fragments recovered in any of the areas investigated in 2005. Two artefacts dating to the Early Bronze Age period, a

barbed-and-tanged arrowhead and a plano-convex knife, were recovered from Area 8 and the surrounding area.

(b, c) Sampling and contexts
A series of single 5cm spits were excavated through a predominantly mid grey/beige sand variant of 'transitional' layer 18. Some, but not all, of these were numbered as spit 1, but no context numbers were assigned to any of the excavated samples.

No bulk sampling was undertaken, a fact that accounts for the very low number of chips recovered (four, or 1.6% of the flint total).

(d) Quantification
246 lithic artefacts, including four chips, were collected from single 5cm spits excavated across 11 metre squares.

(e) Distribution
Metre square densities varied from 5 to 39. The highest totals were recovered from the north-eastern side of Area 8, including squares J2-100 and J3-10.

(f) Raw material
With the exception of three olive coloured pieces which may be intrusive or originate from within the woodland soil, all of the flintwork was mid to dark grey, with darker or lighter mottling. Cortex was thick, off-white to pale buff, and coarse in texture.
Finds were generally quite fresh, but a significant proportion (117 pieces, or 45.9% of the excavated total) had been burnt, resulting in frequent comminution. Despite the resulting high incidence of heat-induced fragmentation, flake and blade fragments account for only 58.2% of all lithics, a figure by no means untypical of North Park Farm.

(g) Primary technology
Mean debitage weight is 5.12g; despite the likely effect of comminution, this is one of the highest values recorded.

Although flakes and fragments constitute 61.8% and blades/blade fragments only 22% of the total flintwork from Area 8, all four cores found here are blade types, and all four exhibit one or more bladelet scars. Whilst it is, therefore, possible that some of the debitage is of post-Mesolithic date, the low proportions of blades may be due in part to greater fragmentation occasioned by intensive burning here.

The ten core dressings collected in Area 8 include one plunging blade retaining the 'heel' of its parent opposed platform bladelet core, which is almost certainly of Mesolithic date.

(h) Secondary technology
Two of the three microliths recovered are of straight-backed bladelet type, the other being unclassified. Modified pieces include an adze perform (fig 5.24 no 1) which, in the absence of many thinning flakes here, suggests its importation after preliminary working at or close to source. There are also three notches, a burin, one adze sharpening flake, a scraper and one serrate. The last two are not necessarily of Mesolithic date, but the adze

preform, sharpener and burin conform to well-established Mesolithic types. The only other tool debitage recovered consists of a 'typical' proximal right notched microburin.

(i) Compositional and distributional variability
No significant gross lithic distributional variability is apparent from the plotted totals, apart from slightly lower lithic counts at the northern end of Area 8 in squares J2-89, J2-90 and J2-99. Diagnostic Mesolithic finds were recovered from both the northern and southern ends.

(j) Re-fitting
No re-fits were identified, and the large numbers of burnt and comminuted pieces are likely to have compromised any potential re-fitting work. Due to the extent of fire damage, much of the flintwork is similar in appearance.

(k) Discussion
Notwithstanding the presence in Area 8 of post-Mesolithic artefacts (including a plano-convex knife fragment that, apart from a lateral snap fracture, is slightly abraded and has some edge modification which may be post-depositional) and a low proportion of blade debitage, there is no pressing reason not to assume that the majority of the flintwork recovered is of Mesolithic date. The straight-backed bladelets recovered here extend the known distribution of these forms (which are probably predominantly of Middle to Late Mesolithic date) across the valley head depression.

High proportions of burnt lithics within Area 8 are comparable to similar samples recovered from the valley flanks, eg in Areas 2, 3 and test pit A5, in marked contrast to the significantly low proportions evident along the valley floor in Area 1 and at the western end of trial trench A. Likewise, the high mean debitage weight of 5.12g is comparable to the other recorded values for lithics situated away from the valley floor.

5.4.9 Area 9 **(tables 5.1-13; figs 5.1-5.17; fig 5.39)**

(a) Summary
Mesolithic artefacts were recovered from test pits towards the valley floor at its eastern end, immediately north of trial trench A, and also from a block of eight metre squares immediately surrounding a hearth radiocarbon dated to 6430-6240 BC. The microlith inventory comprises mainly straight-backed bladelets and narrow lanceolate forms, with smaller numbers of scalene triangles and two pieces with inverse retouch (including one inverse basally retouched point). Microlith production is implied by the recovery of 18 microburins and Krukowski pieces, seemingly focussed around the hearth. Higher concentrations of lithic material also suggest that the hearth may have served as a focus for knapping activity. A small number of formally retouched and edge modified pieces indicate a range of processing tasks.

(b, c) Sampling and contexts
Forty-three metre squares were sampled in the eastern half of hundred metre square I5. Most comprised single 5cm spits of woodland soil 36 excavated with mattock and shovel without any sieving, but seven were sampled more intensively with up to four more spits of grey sands, although no context numbers were assigned. Eight squares were sampled

with up to ten 5cm spits of cream/buff natural sand 121 and hearth 122 *en bloc* in the south-eastern corner of hundred metre square I5 and the north-eastern corner of hundred metre square I6 (although the preliminary site report states that the first and sometimes the second spits were of 'intermediate' 'dirtier' buff/pale grey sand, the remainder comprising clean buff sand).

Thirty-five metre squares were bulk sampled, with 24 soil samples taken from the western half of Area 9 and 27 more from the south-eastern block, although samples were not taken from every square here. A single sample was taken from tree-throw hollow 89.

All of the south-eastern samples have been fully processed for lithic material (22 out of 51 samples altogether), but none of the western squares.

For the purposes of this report, in addition to a general Area 9 survey, the two western and south-eastern portions have been treated separately and designated Area 9W and Area 9SE respectively. All original context numbering has been retained except insofar as this has had to be inferred for alternate squares within the south-eastern block (Area 9SE).

(d) Quantification

1619 lithic artefacts and 964 chips have been identified from Area 9, constituting 5.3% of the North Park Farm 2005 excavated total. Excluding chips, the flintwork represents 4.5% of the excavated total. 1051 artefacts and 836 chips were recovered from Area 9SE (including hearth 122).

(e) Gross lithic compositional and distributional variability

Most of the western area (Area 9W) metre square hand excavated samples of the woodland soil produced only single figure flint totals. Metre square totals from the more intensively sampled squares (exluding chips) range from 14 in square I5-25 to 99 in square I5-21.

Within the south-eastern block of squares (Area 9SE), metre square totals (excluding chips) ranged from 74 in square I6-19 to 146 in square I5-100.

Contoured distribution of all lithics (fig 5.39) suggests a concentration of material in the immediate vicinity of hearth 122. Just over half of the flintwork collected can be seen to derive from context 121 (mainly 'clean' grey sands, but including some 'transitional' layer material).

In Area 9W, woodland soil 36 formed 41.3% of the collected total, excluding chips.

In Area 9SE, layer 121 constituted 81.6% of all flintwork excluding chips, with the various tree-throw hollows making up a further 10.6%. Throughout this layer, lithic totals did not diminish consistently with depth, exhibiting a slight rise and fall between spits 1 and 4, and this pattern was even more marked within some individual metre squares such as I5-99 amd I5-100, where the spit totals fluctuated for up to eight spits, indicating the disruptive influences of post-depositional processes.

(f) Raw material

The raw material is predominantly grey (often mottled), from pale through to very dark, almost black, although there are some light tan, greenish-grey and semi-translucent pieces. Whilst most of the flintwork is fresh, there is a higher proportion of slightly

abraded or surface modified pieces than in most other excavated areas; some, but by no means all, of this derives from the woodland soil samples collected in the western half.

8.3% of the lithics are burnt, and 59.5% of the total assemblage (excluding chips) is made up of broken flakes and blades. Neither proportion is especially high, although the number of broken pieces is slightly larger than in most of the more intensively sampled areas, with the exception of Area 11.

(g) Primary technology

Mean debitage weight is 1.3g. Where bulk samples have been fully processed, ie in Area 9SE, chips constitute 67% of all flintwork, a figure which suggests that some knapping is likely to have taken place here.

Only 26.9% of the lithic assemblage in Area 9 is composed of blades and blade fragments. This, together with Area 11, represents one of the smallest proportions among the North Park Farm assemblages, and the percentage of complete blades, at 4.1%, is the lowest of any of the sampled areas. This lower incidence of blades in Area 9 is also reflected in the proportion of classified flake cores (41%, with 59% of all cores classified as blade types), although one or more bladelet scars are evident on 72.2% of the cores identified here. Five blade cores are of characteristic Mesolithic shape, with three of pyramidal form and two cylindrical types, but there are also two cube-shaped flake cores, and four keeled types in all, which are almost certainly of Neolithic date (cf Holgate 2004, 26). Incipient cones of percussion, usually taken as evidence of hard hammer mishits, are more frequent in the Area 9 core assemblage (22.2% of the total), but it is worth noting that this feature has also been observed on some typical Mesolithic blade cores from North Park Farm. Hinge and step terminations are a recurring feature on 17 of the 22 cores represented (94.1% of the total sample), and the mean core weight is 77.2g; both values are higher than in any other sampled area. Taken together, these aspects of core reduction (albeit confined to the final stages of working), clearly indicate the presence of some later, probably Neolithic flinworking waste in Area 9, but it should be noted that four of the five cores recovered from the south-eastern area around hearth 122 are of blade type, with single examples each of pyramidal and cylindrical form.

Core dressings represent 1.8% of the total lithic assemblage in Area 9. Characteristic Mesolithic forms include two bidirectional and four unidirectional crested pieces, and three plunging blades. The high proportion of partial platform renewals (41.4%, with 12 examples) may be a reflection of the high percentage of flake cores in this area, as some pieces could simply be by-products of a core rotational reduction strategy usually associated with cube- shaped flake cores of Neolithic date. Careful platform preparation is indicated by the presence of edge abrasion on eight core dressings (27.6% of all rejuvenators) and 11 cores (50% of the total).

(h) Secondary technology

One hundred and forty-two modified pieces and spalls were recovered from Area 9, representing 8.8% of the flintwork total. Typical Mesolithic forms are present in small quantitites, including two adzes, two adze sharpening flakes, three burins and four truncations.

Of the eight scrapers and nine serrates (one example illustrated; fig 5.26 no 14), some at least could be Neolithic or Early Bronze Age. The proportion of edge modified

pieces present (at 52.8% of all classified 'tool' forms and spalls) is similar to that in most other areas.

No tool debitage, with the exception of 18 microburins and two Krukowski pieces, has been identified. Of the classified microburins (which represent 1.2% of all quantified flintwork), 15 are proximal types, with one distal and one possible double microburin. Five could be classed as mishits, and most have been characteristically notched on the right side, although two proximal examples have been notched on the left, and the distal microburin has been notched on the right (as viewed in most illustrations). These 'atypical' pieces, which were all recovered in the vicinity of hearth 122, represent 16.7% of the microlith population in Area 9, and suggest some technological affinity with Area 6, relating to the production of right lateralised microliths, 7 of which were identified in Area 9.

The predominant microlith type identified here (with 13 examples, or 35% of all microliths) is of straight-backed bladelet form, and it is likely that some of the 18 unclassified pieces are also fragments of the same type. At least one narrow lanceolate microlith could be classed as a 'needle point'. In addition, there are three scalene triangles and two inversely retouched microliths. As a group, these pieces are most closely comparable to the so-called 'Early Pioneering' microlith assemblage of probable Late Mesolithic date recovered from Kettlebury 53 (Ellaby 1987, 64), and, if truly associated with hearth 122 (radiocarbon dated to 6430-6240 BC), would tend to confirm the 7th millennium dating proposed for assemblages of this type.

(i) Compositional and distributional variability

The 'woodland soil' in Area 9, despite the crude sampling methodology generally adopted, nevertheless produced nine microliths, three microburins, an adze and an adze sharpening flake.

Overall lithic densities around hearth 122 show little horizontal differentiation. The quantified vertical variation in lithic totals has been noted above; this 'stepped' distribution is even more pronounced in Area 11, where there seems to have been a slightly greater accumulation of flint-bearing sands, and must surely relate to formation processes affecting this deepest part of the valley head depression infill, since it is not apparent, or apparent to the same extent, in any other area.

With regard to artefact distribution, patterning is evident in the concentration of microburins around hearth 122. This pattern is also apparent, to varying degrees, in Areas 1, 2, 6 and 10, where microburin clusters are often located on the fringes of lithic concentrations or putative hearths.

One other aspect of the Area 9 flintwork assemblage meriting discussion relates to the generally small size of the debitage present. The absence of any large flakes and blades, and a likely over-representation of the smaller debitage fraction, is suspected to be a product of the same, or analogous, formation processes affecting lithic spit densities noted above.

(j) Re-fitting

No re-fitting artefacts have been identified in Area 9.

(k) Discussion

The flintwork from Area 9, especially in the south-eastern corner, produced evidence of compositional and distributional variability in the form of a volumetric (size-related) bias amongst the debitage, which is probably related to post-depositional factors including excavation. Some Neolithic flintwork, mostly in the form of a few cores and an unquantifiable proportion of the debitage, is present, mostly within the western half of the sampled area.

A microlith industry, comprising straight-backed bladelets, narrow lanceolates, and scalene triangles, is believed to be contemporary with a hearth radiocarbon dated to the second half of the 7th millennium BC.

It seems likely that the hearth served as a focus for knapping activity and microlith production. If accurate, this association would provide some confirmation of Ellaby's proposed dating for the 'Early Pioneering' phase of the Late Mesolithic period in Surrey.

5.4.10 Area 10 **(tables 5.1-14; figs 5.1-5.18 and 5.39)**

(a) Summary

Area 10, located on the northern flank of the valley depression, was the largest of the areas investigated, encompassing 143 metre squares. Evidence of Mesolithic activity was forthcoming across the whole area. Primarily this consisted of flintworking evidence in the form of cores and debitage, but also of microlith discard and production, with microburins well represented. A range of other Mesolithic tool types and spalls has also been identified, including burins, burin spalls, truncations and adze sharpening flakes. Contoured distribution plots of all lithics indicate one major concentration around squares J4-43 and J4-53 in the eastern half of the area investigated and part of another just to the south-east. Lesser concentrations are indicated around hearth 129 at the northern end, one other (139) in the north-western corner and, less certainly, close to hearth 179 which has produced a radiocarbon determination of Saxon date.

Seemingly discrete or overlapping microlith distributions, although dispersed, suggest at least four main phases of activity spanning the 'Middle' Mesolithic 'Horsham' period, the 'Early Pioneering' and 'geometric' phases of the Late Mesolithic, and the very latest Surrey Mesolithic typified by tanged points. Hearth 139 may be associated with one discrete group of scalene triangles, and hearth 124, rather tentatively, with straight-backed bladelets. 4-sided microliths appear to be centred on the principal lithic concentration.

A transverse arrowhead and a possible leaf arrowhead fragment, as well as a number of characteristic flake cores, provide evidence of Neolithic and later activity, which is more certainly indicated by the presence of four features dated to the Bronze Age by associated ceramic finds.

(b, c) Sampling and contexts

One hundred and forty-three metre squares were sampled, with up to seven 5cm spits spanning a variety of context types. These included (with overall lithic percentages excluding chips): layers (92.8%); miscellaneous features (2.8%); layer/hearth feature combinations (1.7%); hearths (2%); and unprovenanced contexts (0.7%).

Layer contexts comprised three main deposits: 'humic sand' 36 (12.6% of all lithics excluding chips), 'transitional' sand layer 159 (20.6%); and natural cream/buff

sand 121 (63.7%). Mixed layer contexts 36/121 and 121/159 account for 1.3% and 1.5% respectively of the total collection, and variant natural layers 153, 166 and 177 another 0.5%.

Thirty metre squares were bulk sampled, producing 93 individual soil samples. Of these, only one has been fully sorted down to chip size (less than or equal to 10mm) lithic debitage.

(d) Quantification

14,059 items of flintwork and 1634 chips have been quantified, constituting 39% of the North Park Farm 2005 lithics, excluding chips, and 32% of all lithic material including chips.

(e) Distribution

Metre square lithic densities excluding chips range from 15 to 362 (discounting square J4-58, which was compromised by metre square sample B5 of the 2002 evaluation). A contoured overall lithic density plot (fig 5.39) indicates one major, and parts of up to four lesser, concentrations. The largest concentration is located in the central southern part of Area 10 around squares J4-43 and J4-53. Part of a similar concentration is situated *c*1-2m to the south-east. Lesser concentrations appear to be centred on hearths 124, 139 and 141 along the northern edge of the excavated area and, possibly, in the vicinities of hearth 146 and hearth 147 close to the eastern edge, as well as hearth 126/179 further west.

Although the humic soil 36, accounts for 12.6% of the material collected in Area 10, it should be stated that this was irregularly and intermittently sampled across the whole area (with regard to both depth and extent), eg two squares produced two spits, but in many others the volumes of spit material removed are likely to have varied considerably. Significant quantities of Mesolithic material were nevertheless present within the woodland soil, including higher proportions of cores, irregular waste and core dressings than in underlying 'layers' 159 and 121, a phenomenon noted elsewhere in eg Areas 4 and 6.

These sampling biases notwithstanding, the apparent concentrations in overall lithic densities are also evident in contoured total lithic distributions for Area 10 excluding layer 36 as well as for layer 121 alone, albeit with subtle modifications in relation to their extent; one concentration in the vicinity of hearth 141, for instance, is no longer apparent in the 121 lithic density plot, and the more extensive cluster located north-east of Late Bronze Age feature 127/143 becomes more fragmented when the total lithic distribution for context 121 is viewed in isolation.

Owing to the variable character of spit deposits in Area 10, and an absence of true chip proportions, examination of the vertical distribution of lithic artefacts has only been attempted for one metre square sample, J4-54. Most artefacts were present in spit 1 (layer 159), with 44.1% of the total recovered. Although spit totals diminish thereafter, there is a slight increase in spit 4, and spit 5 still contained 12.3% of the overall lithic totals recovered.

(f) Raw material

The flintwork from Area 10 is predominantly mottled grey (pale to dark grey), but with smaller proportions of light tan and honey-coloured material. Condition is variable,

ranging from mint in square J4-77 (which is likely to represent part of a single knapping episode), to slightly weathered (usually, but not invariably, within layer 36).

Cortex is predominantly off-white and coarse, and often thick.

Breakage rates are similar to most other sampled areas, with 59.1% of the lithic total represented by blade and flake fragments.

13.6% of all flintwork is burnt.

(g) Primary technology

Flakes (with 3539 items or 25.2%), and fragments (4823 pieces or 34.3%) together make up 59.5% of the total flint collected from Area 10. Total complete blade proportions are low, at 5.3% of all recovered flintwork. Area 10 is the only sampled area with a sizable core assemblage in which blade cores (one three platformed example illustrated, fig 5.34 no 2) do not outnumber flake cores, with 60 examples of each, and the incidence of bladelet scars on cores, at 59% of the total, is the lowest recorded at North Park Farm. Evidence of platform edge abrasion was only noted on 34.4% of cores. A proportion of the Area 10 core assemblage is certainly of Neolithic or later date, including five typical cube-shaped forms, seven keeled and two tortoise types.

Core dressings, which form 1.7% of all excavated flintwork, are present in the form of crested pieces, core tablets, partial platform rejuvenation flakes (fig 5.29 no 14), face renewals (*flancs de nucleus*; fig 5.29 no 16) and plunging pieces (fig 5.29 no 10).

Chip proportions, at 10.4% of all lithics, are clearly not an accurate representation of microdebitage numbers in Area 10. Proportions in the only comprehensively sorted layer context bulk sample residue (from square J4-54) are, however, comparable (at 82% of the lithic sample) to other North Park Farm percentages, and it seems certain that some knapping activity did take place in Area 10.

(h) Secondary technology

Five hundred and seventy-five modified pieces and spalls (4.1% of all quantified flintwork) were recovered in Area 10. Most classified tool forms are represented, although edge modified pieces (53.3% of the modified total) doubtless include a proportion of post-depositionally induced damaged pieces.

Diagnostic Mesolithic forms include an adze fragment reworked as a bladelet core (fig 5.24 no 5), nine burins (1.6%), two chamfered pieces (0.4%; one illustrated fig 5.26 no 16), and 19 truncations (3.4%; one concave example and a piercer formed on a truncation illustrated in fig 5.26 nos 6 and 8). Only 21 scrapers (3.7%) are present, and some of the larger examples may be of Neolithic date. Other post-Mesolithic artefacts include a broken transverse arrowhead and a barbed and tanged arrowhead.

Microliths, with 346 examples (or 2.5% of the lithic total from Area 10), are, characteristically for North Park Farm, the most numerous retouched form identified. As with most other sampled areas, straight-backed bladelets are well represented (80 pieces, or 24% of the microlith total), but there are higher than normal proportions of scalene triangles (32 examples or 9%), 4-sided microliths (19 or 6%), hollow based (five or 1%) and tanged point (seven or 1%) forms. Obliquely blunted microliths, with 30 examples, constitute 9%, and unclassified forms (139) make up a further 41% of the microlith total. Distribution of the various types is, seemingly, restricted to some extent, suggesting that they may once have defined spatially limited single-period assemblages (see (i) below).

Two hundred and forty-two microliths (71%) are broken and 51 (15%) are burnt. The proportion of burnt microliths at North Park Farm is generally higher than for any other lithic artefact category.

Tool debitage is represented by two burin spalls and one notch spall (fig 5.26 no 21 and no 20), two possible scraper retouch flakes, and 39 adze sharpening flakes (6.9% of the modified and spall total).

There are in addition 157 microburins (1.1% of the total lithic assemblage) and one *lamelle a cran* (fig 5.30 no 11). The microburins include 117 proximal (76.3% of the total, 30 distal (19%) and four double types (3%), of which 39 or 26.6% could be classed as mishits or 'notch and snap' forms (one example illustrated; fig 5.30 no 4). Microburin breakage rates are quite high, with 31 examples (20.9% of the microburin total), and there are seven burnt pieces (4.7%).

Additional evidence of microlith production is provided by seven Krukowski pieces (one illustrated; fig 5.30 no 15) and an unfinished microlith of probable tanged point form from square J4-43 (fig 5.30 no 14).

(i) Compositional and distributional variability

The coincident distribution of lithic artefacts is apparent, to some degree, in the two largest clusters, with the highest densities of microliths, microburins, cores and core dressings.

As in some other areas, adze sharpening flakes are generally located on the periphery of the main lithic clusters.

Distal microburins appear to be concentrated in two groups towards the southern edge of the area, centred on the principal lithic clusters there and also around hearth 126/179.

Straight-backed bladelet microliths are present across most of Area 10, although possibly in two separate groups, with a minor cluster around hearth 124. The distribution of oblique points and scalene triangles is rather intermittent, but there is one concentration of seven scalenes in the north-eastern corner, within and around hearth 141. 4-sided microliths are largely focussed on the main lithic scatter, with another small group of three situated just south of hearth 126/179.

Overlapping clusters of chronologically distinct microlith types in the north-eastern corner of Area 10 are reflected in one group of Horsham points and five isosceles triangles likely to date to the Middle Mesolithic period (*c*8200-7000 BC), and a rather loosely defined cluster of seven tanged points (including one unfinished piece) probably dating to the latest Surrey Mesolithic (5th millennium BC).

(j) Re-fitting

Several pairs of re-fits have been identified, and most of the material from squares J4-76/77 appears to derive from a single knapping episode. Much of the flintwork from the principal flint cluster centred on square J4-43 is markedly similar in appearance.

(k) Discussion

Of all the areas investigated at North Park Farm, Area 10 seems to offer the best evidence for the superimposition of discrete chronological episodes, largely due to the restricted distributions of relatively securely dated microlith groups. Given their rather vague

parameters, however, it seems fruitless to attempt any definition of associated knapping groups, especially given the uncertainty with regard to causal factors governing microlith loss and discard. The comparable forms of many 4-sided pieces may be attributable to occasional losses or the deliberate discard of a composite tool on a single occasion, or to the discard of several elements from multiple composite tools on different occasions, but within a limited time-frame.

Although lithic concentrations appear to relate to some of the hearths, or possible hearths, identified in Area 10, such as 124, 147 (?) and 126/179, the principal cluster centred on squares J4-43 and J4-53 does not relate to any surviving hearth (unless the increased number of burnt worked flint artefacts is a true indication of the former presence of one here).

Despite the possibility that most of the hearths may be Mesolithic, the only radiocarbon date obtained so far (for hearth 126/179) has produced a determination of Saxon age (440-620 cal AD).

Two later prehistoric arrowheads have been identified in Area 10, and higher proportions of flake cores, including two diagnostic Late Neolithic types, across the whole area might suggest a higher degree of later contamination than in any of the other investigated areas. Nevertheless, some of the flake cores are likely to be Mesolithic (the very late, 5th millennium BC, site of Charlwood produced almost exclusively flake types; Ellaby 2004, 20). There is no overt distinction in the distribution of flake or blade cores across Area 10, however, which might relate to chronologically distinct flint knapping episodes.

Another issue of some concern regards the extent of vertical truncation of Mesolithic flintwork here, and the consequent depletion of lithic and specific artefact category totals, especially in view of the fact that the very limited samples of woodland soil 36 taken here produced 42 microliths and 19 microburins. Wherever the woodland soil was sampled at North Park Farm, larger artefacts such as cores, core dressings, irregular waste chunks and hammerstones were more abundant than in the underlying deposits and, conversely, the smaller lithic retouched and debitage fraction such as microliths and chips, was proportionately more frequent in the 'transitional' layer and clean sands. Consequently, the material collected in Area 10 can hardly be construed as truly representational of the original lithic scatters, and elements relating to the initial stages of core reduction including large primary flakes and chunks are clearly underrepresented.

Despite these caveats and the apparent mixing of originally discrete knapping episodes in Area 10, some loose chronological phasing can be attempted based on the microlith distributions here. An area of Middle Mesolithic activity is indicated in the north-eastern corner by finds of 'Horsham' points, isosceles triangles and one or two small oblique points with additional retouch (cf Ellaby 1985, 55). This assemblage conforms more closely to the 'classic Horsham' assemblage type of Kettlebury 103, and may be earlier in date than the postulated 'intermediate' 'Horsham' and straight-backed bladelet assemblage present in Area 6, although there are two 'outlier' Horsham points in squares I4-29 and I4-58.

Probably representative of the early part of the Late Mesolithic are two clusters of straight-backed bladelets, possibly focussing on hearth 124 at the northern end of the area and hearth 126/179 (if this is of Mesolithic date) towards the southern edge.

Perhaps more closely associated with the main lithic cluster in and around squares J4-43 and J4-54 is a cluster of 4-sided microliths, although one secondary group of three is also present in squares J4-76 and J4-67. The increased density of distal microburins here is also likely to relate to the same period, given their similar distributions.

Likely to be representative of the very latest Surrey Mesolithic period are a loosely defined group of seven tanged points and one unfinished example (with two isolated outliers), also located in the north-eastern corner and overlapping to some extent with the 'Horsham' points, isosceles triangles and 4-sided microlith distributions. One noteworthy characteristic of the North Park Farm tanged points is the total absence of inverse retouch so typical of the Charlwood examples; nor do they appear to be associated distributionally in Area 10 with micro-scalene triangles which were found in association with tanged points at Charlwood.

5.4.11 Area 11 **(tables 5.1-12; figs 5.1-18 and 5.39**)

(a) Summary

Area 11, located towards the eastern end of the valley floor, comprised nine one metre square samples situated immediately south of a multi-phase 'fire pit' of probable Late Mesolithic date (several conflicting radiocarbon dates have been obtained spanning the period 7460-7170 BC to 7060-6690 BC). Contoured distribution plots provide some slight indications that the 'fire pit' may have served as the focus for knapping and other related activities such as microlith production. The microlith inventory consists principally of narrow straight-backed bladelets and 4-sided pieces.

(b) Sampling

Nine single metre squares were sampled spanning up to 16 5cm spits and a variety of context types. The latter included layers, a layer/hollow context, two tree-throw hollows, 'fire-pit' 160, hearth 173, seven 'grey cones' associated with the 'fire-pit' complex, and a few unnumbered contexts. 119 bulk environmental samples were taken from eight metre squares, of which only one (representing less than 1% of the total) has been fully processed down to microdebitage level.

(c) Contexts

Sampled layers included a remnant, in two metre squares, of woodland soil 36, a thin beige/buff 'transitional' soil layer 174, and cream/buff natural sands 121. A few worked flints have been ascribed to 'clean sand' layer 182, presumably a variant of 121. There is one tree-throw hollow, 164/174. Seven 'grey cones' were identified in Area 11: contexts 167, 169, 175, 176, 180 181 183 and 185. Flintwork was also collected from 'fire-pit' 160, hearth 173, tree-throw hollows 163 and 164, and two unnumbered contexts comprising collapsed material surrounding square J6-55, and the rather equivocally labelled 'J6-44-46'.

(d) Quantification

Area 11 produced 2545 lithic artefacts with maximum linear dimensions greater than 10mm, or 7.1% of the North Park Farm 2005 worked flint total, and 704 chips.

(e) Distribution

Because of the effect of test pit A11 from the 2002 evaluation in reducing lithic totals for two of the squares in Area 11, density variations must be treated with caution. Lithic counts range from 14 in square J6-43 to 307 in J6-66, although only layer 36 was sampled in J6-43. Overall, these totals are approximately twice those of comparably sampled squares within Area 9 which occupied a similar topographic location. There would appear to be a slight fall-off in lithic totals at the eastern end of Area 11 in squares J6-57 and J6-67.

One thousand seven hundred and forty-three worked flints (68.5% of the total excluding chips) were collected from layers, and a further 550 (21.6%) from so-called 'grey cones'. 75.3% of the layer total, or 1312 lithic artefacts, were recovered from 'natural' sand 121, and 22.9% from the 'transitional' layer 174. The fact that only 22 artefacts, constituting 1.3% of the Area 11 layer total, were collected from the woodland soil 36 is simply due to the machined removal of this deposit prior to sampling.

73.5% of the 'cone' total of 405 worked flints can be attributed to context 175.

94.6% of the tree-throw hollow total (53 pieces) was derived from context 164.

(f) Raw material

Although much of the flintwork from Area 11 is predominantly grey in colour (very pale to dark grey), there are in addition small quantities of light to dark tan hued artefacts. Cortex is, typically, white to off-white and coarse in texture, although not noticeably weathered, suggesting a source in primary or secondary chalk deposits.

Most of the flintwork is in good condition, but some finds appear to have been subject to a slight degree of weathering, characterised by varying proportions of surface gloss (patination *sensu strictu*; cf Reynier 2005, 132), or rather dull surfaces.

64.7% of the Area 11 flintwork total is composed of flake and blade fragments. This is the highest proportion of fragmentary debitage recovered from any of the area excavations at North Park Farm and, together with the large number of edge modified pieces collected (61) and variable condition of the artefacts, is probably indicative of significant levels of post-depositional modification.

Five hundred and twenty-four artefacts (13.6% of the overall total) are burnt, a seemingly low proportion given the number of hearth-related contexts present.

(g) Primary technology

Blade and blade fragments together, with 632 pieces, constitute 24.8% of the overall lithic collection, a figure which is one of the lowest among the North Park Farm assemblages, but still indicative of Mesolithic blade production, when compared to the much lower figure of 12.4% of all flints recovered from the 'latest' Mesolithic pits at Charlwood and the rather higher figure of 35% from 'local' Early Mesolithic and Horsham industries (Ellaby 2004, 20).

Only eight cores were recovered in Area 11, representing 0.4% of the overall lithic total, but these included six blade types (mainly double platformed), five with evidence of platform edge abrasion indicating their careful preparation prior to flaking.

Crested and plunging pieces, with two examples each, constitute only 12.7% of the core dressings total, and the clear preponderance of flake rejuvenators is indicated further by the much larger number of core tablets, partial platform and core face renewal flakes, which together form 84.8% of all dressings. A high proportion of rejuvenators

(42.4%) exhibit evidence of platform edge abrasion, so core reduction was still carefully managed, albeit perhaps geared more to the production of flakes.

Chip proportions for the only fully processed environmental bulk sample are high, forming 68% of all lithics, a figure indicative of *in situ* knapping activity.

(h) Secondary technology

Modified pieces and spalls (excluding microliths and microburins) from Area 11 comprise 5.3% of all lithics excluding chips. In addition to 68 miscellaneous edge modified pieces, there are small numbers of burins (4), core burins (2), notches (14; one example illustrated in fig 5.26 no 19), piercers (5), scrapers (6, including two 'core scrapers'), serrates (4) and truncations (5), with one denticulate. Overall proportions are comparable to the other sampled areas, although piercers (at 3.7% of the modified and spall total) are comparatively well represented for such a small area (one additional example was recovered in 2002 from square B1, located *c*3m west of the 'fire pit').

Tool debitage is represented by three adze sharpening flakes, two burin spalls, and two possible scraper sharpening flakes.

Microlith proportions in Area 11 are second only to Area 3, with 3.4% of all lithics, constituting 10.5% of the overall North Park Farm total. The main type identified is of straight-backed bladelet form (37 examples, or 43% of all microliths from Area 11), most of which are very narrow and would probably be classed as 'rods' by some specialists. There are ten 4-sided microliths (11%). The latter vary much both in size and outline, and one or two are 'sub triangular'.

There are five oblique points, including two of the partially backed variety. Three are very small, and two may be unfinished pieces analogous to the specimens recovered in Area 4. Their diminutive proportions would suggest a late date for their manufacture, but at least one burnt example is likely to be Early Mesolithic.

66% of all the microliths recovered are broken, and 13% are burnt.

Microlith production waste is in the form of 30 microburins, one Krukowski piece, and another unfinished microlith. Together they form 1.3% of the lithics from Area 11. There are 22 proximal (73.4% of all forms), and seven distal (23.3%) types (one illustrated; fig 5.30 no 7), with one double microburin (3.3%). Eight of these pieces could be classed as mishits.

(i) Gross compositional and distributional variability

An important aspect of the vertical distribution of artefacts in Area 11 is the very large number of spits excavated (up to 16) and the irregular horizontal distribution of lithics (excluding chips) revealed throughout, as illustrated in Charts 72-74 (in archive) for two metre square sample test pits, J6-64 and J6-67. This type of 'multi modal' distribution pattern may be due to the intensity of activity here, post-depositional factors such as slumping, slippage and erosion or, more likely, to a combination of such factors, with intermittent periods of occupation and bioturbation.

Whilst microlith numbers are clearly aggregated around the hearths and their associated pits, the lack of more extensive sampling here (especially further south and north), precludes further comment.

One cluster of possible significance, however, is evident in the distribution of microburins (including both proximal and distal types) within squares J6-57, J6-66 and J6-67 around the south-eastern corner of the 'fire- pit' complex.

Cores are concentrated in the more immediate vicinity of the hearths and there is a small cluster of burins and burin spalls in and around square J6-64, slightly removed from the 'fire-pit' complex. Scrapers are thinly distributed across four metre squares immediately south-east of the hearth.

Adze sharpening flakes are centred on squares J6-66 and J6-57, adjacent to square J6-56 which also produced an adze.

No spatial patterning is apparent with regard to microlith type, the two main forms being clearly superimposed on one another.

The small proportion of cores recovered here may be attributable to their deliberate discard away from the hearths, or to post-depositional factors such as those suggested above, including the excavated truncation of woodland soil deposits, especially when considered in relation to the large number of platform rejuvenators identified.

(j) Re-fitting

Only one pair of re-fitting artefacts, within square J6-67, was identified in the course of classification.

(k) Discussion

Although large quantities of flintwork were recovered from Area 11, proportionately fewer flints were present in each spit because of the extent of vertical truncation of the artefacts. The low mean debitage weight, reflected in an apparent absence of large flakes and blades, and the moderate condition of the flintwork, may well be attributable to taphonomic factors operating to a greater extent in this deepest part of the valley head depression, although the fact that a number of separate firings took place here suggests a likely increase in the dispersal of lithic artefacts from once nucleated lithic scatters. These considerations and the possible effect of slope processes may partly explain the stepped horizontal lithic distributions apparent in many metre squares. Given the substantial numbers of diagnostic Mesolithic artefacts recorded here, especially microliths and microburins, however, it seems likely that most of the flintwork is of Mesolithic age. Current uncertainty with regard to microlith chronology in the Surrey Later Mesolithic does not permit a more specific suggested date range for activity here, other than to say that nearly all of the microliths are likely to be of Late Mesolithic date, ie spanning the early 7th to the 5th millennia cal BC (7000-4000 BC).

Most of the straight-backed bladelets found in Area 11 are extremely narrow, more consistently so than in any other sampled area, and they could be classed as of rod-like form. Although Roger Ellaby has suggested their replacement in the latter half of the Late Mesolithic by 'geometric' forms such as the 4-sided pieces also recovered in Area 11, there is clear evidence in other parts of the British Isles for their continuation right through to the supposed end of the Mesolithic, at least as late as the 5th millennium BC (see references *supra*). Although there is no conclusive evidence at North Park Farm for their direct association (an element of coincident distribution in Area 10 may be due to overlapping phases of activity), there are some slight indications at the St Annes Heath

School site in Virginia Water for the chronological association of diminutive microlith types and rod-like forms (Marples forthcoming).

The small number, but wide range, of tool forms present in Area 11, which can be said to be characteristic of the North Park Farm sampled areas, if truly contemporaneous with the scatters in which they are embedded and the apparently associated hearths, would suggest a range of home-based activities, with some degree of spatial separation.

5.4.12 Area 12 **(tables 5.1-12; figs 5.1-5.18)**

(a) Summary

Area 12, located on the southern slope of the valley towards its eastern end, comprised 100 metre squares which were only sampled through single 5cm spits in four squares along its southern edge, although a few artefacts were also collected from the previously machine exposed surface of grey sands across the entire area. Slightly higher lithic densities are evident in the extreme south-eastern corner. Diagnostic Mesolithic artefacts include eight microliths, five microburins, and an adze sharpening flake, suggesting that hunter-gatherer activity extended upslope in this part of the valley.

(b) Sampling

Only four metre squares were excavated, all close to the southern edge of Area 12, including squares J8-94, J8-96, J8-98 and J8-100, although finds were recovered from the surface of all save ten of the remaining 96 squares. No bulk samples were taken in Area 12.

(c) Contexts

Only a portion of the previously exposed underlying grey sands was sampled, although it is not clear whether this constitutes the 'transitional' layer, or clean natural sand deposits.

(d) Quantification

Four hundred and forty-three lithic artefacts were collected altogether, including 99 chips, representing 0.9% of the total recovered in the 2005 excavations.

(e) Distribution

Lithic densities varied between one and 21 (in square J8-88), with slightly higher numbers generally in the south-eastern corner.

(f) Raw material

The appearance of the material from Area 12 largely mirrors that from the other sampled areas, with mainly pale to dark grey (often mottled) and some other tan hued material. Finds are generally fresh, although there are occasional slightly weathered pieces.

Debitage breakage rates are broadly comparable to most other areas, with 54.1% of all lithics made up of flake fragments (186 pieces).

Forty-nine worked flints, or 10.8% of the total, were also burnt.

(g) Primary technology

Mean debitage weight is 1.50g. 30 blades and 79 blade fragments were recovered, or 31.7% of the lithic total excluding chips. This would suggest that some Mesolithic

flintworking took place here, despite the fact that no cores were recovered. Although only one of nine core dressings is of blade form (a plunging piece), there are also two core face renewals, which have been found to be characteristic of 'Horsham' type assemblages (Reynier 2005, 48). Chip proportions are comparatively high, at 22.3% of all lithics, but the lack of any bulk sampling here suggests that the true percentage is likely to have been very much higher, and that some knapping activity did occur here.

(h) Secondary technology
Excluding microliths and microburins, 14 modified pieces and spalls (4.1% of the total) were found in Area 12. Forms identified included one adze sharpening flake, a serrate and a fragment from a polished artefact. The latter two artefacts are both probably of Neolithic date.

Of the nine microliths identified, three are oblique points, one is an isosceles triangle and there is also one straight-backed bladelet. Some of the unclassified microliths may well be fragments of straight-backed pieces. The presence of three oblique points, one with additional retouch on the leading edge, typical of Horsham period microlith assemblages, and an isosceles triangle, suggests that a 'Middle Mesolithic' element may have been present here, and it is worth noting that a 'Horsham' point microlith was recovered from square B7 located *c*10m to the west.

Four microburins and one Krukowski piece testify to microlith production in Area 12. All of the microburins are of proximal type, notched on the right side.

(i) Gross compositional variability
The slight concentration of lithic artefacts in the south-eastern corner of Area 12 has been referred to *supra*. It is mirrored to some extent by the increased frequencies of microliths (3) and microburins (2) in the same area.

(j) Re-fitting
Unsurprisingly, given the very partial nature of the sampling undertaken in Area 12, no re-fitting material has been identified.

(k) Discussion
The material recovered in Area 12 extends the known distribution of Mesolithic flintwork to this part of the valley head depression, and would tend to suggest that some knapping activity and microlith manufacture took place here as well. The presence of three microliths sharing affinities with 'Horsham' type assemblages, and one definite, and a few possible, straight-backed bladelets, suggests a Middle Mesolithic date, perhaps extending into the earlier part of the Late Mesolithic period (8th to 7th millennia BC).

5.4.13 All other flintwork **(tables 5.1-12 and 5.14; figs 5.1-5.18)**
(a) Summary
In addition to the flintwork recovered as part of the area and metre square sampling exercise, some artefacts were collected as unstratified finds from 38 of the 100 metre grid squares, as unassigned material from the woodland soil 52, from a variety of post-Mesolithic features and as general unstratified finds from the entire site. Diagnostic material includes 11 microliths and seven microburins. A few patinated flints were

recovered from four 100 metre squares around Area 2, as well as three 100 metre squares west of Area 3, extending the known distribution of patinated material at North Park Farm. Higher proportions of unstratified cores were retrieved than in any recorded layer or feature.

(b) Sampling

Little of the material collected outside of the area sample excavations was recovered by sieving. Although four bulk samples were taken from three Late Bronze Age pits and one possible Late Bronze Age cremation pit, none of these have been processed to microdebitage level.

(c) Contexts

Only six collections of flints from the 100 metre square material were assigned spit numbers, and these were invariably taken from spit 1, although 13 were assigned metre square or metre square block numbers (ie 46-50 and 56-60 in square F5). One sample from Area 4 square F8 may be the missing group from metre square F8-15 spit 2.

The only layer context present is woodland soil 52, presumably comprising material from the western end of the site only. A handful of flints were collected from two Mesolithic or later burnt flint scatters in D7, contexts 19 and 21.

There are three prehistoric or later tree-throw hollows, contexts 68, 85 and 91. Late Bronze Age contexts include one possible cremation pit (75), three hollows (82, 93 and 96), and eight pits (contexts 62-64, 73, 102-3, 105 and 120).

Flintwork was also recovered from medieval features including a hearth pit (30), a possible stakehole (38), two segments of a track gulley (186 and 188), seven pits (27, 37, 45-6, 53, 71, and 191), and thirteen ditches or ditch segments (7, 11, 12, 16, 17, 79, 86, 87, 97, 98, 108, 109, and 118).

There were three post-medieval contexts containing flintwork: late medieval/ early post-medieval causeway 4, beam-slot 295 and hollow 196. A few flints were retrieved from undated pit 77, and several loosely designated unstratified groups from various locations across the site.

(d) Quantification

1009 lithic artefacts and 22 chips were recovered from various features of post-Mesolithic date outside the principal excavation areas, as well as unstratified contexts across the site, forming 2.1% of the 2005 flint total (including chips).

(e) Raw material

Raw material types are identical to those identified in the area excavations, consisting mostly of chalk derived flint. The finds are of varying shades of grey, usually mottled, with some light tan to brown, olive green, nearly black, and a few semi-translucent pieces.

The artefacts are generally fresh, although weathering has affected some finds, producing glossy surfaces in a few instances, especially among the general unstratified lithics and some of the residual finds from post-Mesolithic contexts, including most of the identified Early Bronze Age knife forms.

There are a few items with ferrous sandy concretions and/or iron staining, usually on surviving cortex. A few pieces are patinated white to pale blue, mainly around Area 2 and west of Area 3.

Breakage rates are noticeably lower among flakes and blades, at 32.5% of all flintwork, no doubt due in part to the *ad hoc* character of their collection.

Seventy-two struck flints, or 7% of the total, were also burnt.

(f) Distribution

Most of the one hundred metre square allotted flints can be attributed to grey sand deposits, either of 'transitional' character, or deriving from the natural sands, although 45 artefacts were recovered from the woodland soil, presumably in the vicinity of Area 1. Apart from post-Mesolithic features across the site, the remainder was collected from a variety of spoilheaps or disturbed contexts.

(g) Primary technology

Although blades and blade fragments only represent 25.9% of the lithic total from this group, such proportions still suggest that a significant Mesolithic debitage component is present. This supposition is borne out by the identification of 35 blade cores, which constitute 57.9% of the residual and unstratified core total, as well as four predominantly flake cores with one or more bladelet scars. There are three cores of typical pyramidal form. 27 cores bear evidence of platform edge abrasion. Neolithic and later types are represented by three keeled and one 'tortoise' core, and there are two cube-shaped flaked examples.

Characteristic Mesolithic core dressings include 12 crested pieces, 19 face renewals, and seven plunging pieces.

(h) Secondary technology

Of the 12 identified microliths, four are of obliquely blunted and three of straight-backed bladelet form. In addition, four microburins and two Krukowski pieces (one illustrated; fig 5.30 no 16) were collected. Three of the microburins are typical proximal types, all notched on the right side, and there is a single distal microburin notched on the left. One of the proximal microburins is a mishit piece.

Examples of most tool forms identified at North Park Farm are present. Characteristic Mesolithic tools and tool waste include an adze, four adze sharpening flakes, 13 burins, three burin spalls, two chamfered pieces and five truncations. Some of the 18 scrapers and four serrates recovered may be of post-Mesolithic date. More certainly attributable to the Neolithic and Bronze Ages are two fragments from polished artefacts, four knives (including one discoidal and two plano-convex forms), and a barbed and tanged arrowhead of Sutton Park type.

(i) Distributional variability

Diagnostic or probable Mesolithic material was recovered from most context types, including each of the period groups identified. Three artefacts of probable Early Bronze Age date, including the barbed and tanged arrowhead, a bi-facially worked knife, and a plano-convex knife fragment, were retrieved from adjoining squares I2, I3 and J3 immediately north of Area 10.

(j) Re-fitting
No re-fits have been identified.

(k) Discussion
Although a few post-Mesolithic artefacts were recovered as unstratified items, none were found in association with pot sherds of contemporary date, or in securely similarly dated features. Their residual character is clearly indicated by a degree of weathering, in the form of surface gloss, on some pieces. The recovery of Mesolithic flintwork from a number of one hundred metre square blocks and later features beyond the parameters of the excavated areas, provides yet further evidence of its apparent ubiquity within the valley head depression.

Worked flints collected in proximity to Area 2 and west of Area 3 extend the known distribution of patinated flintwork at North Park Farm

5.5 THE ILLUSTRATED FLINTWORK

5.5.1 Introduction

Material has been selected from the 2002 and 2005 excavations to illustrate the range and diversity of artefact and raw material types recovered from the area as a whole, including debitage deriving from core tool manufacture in Area 6 and bladelet production in Area 1.

5.5.2 Catalogue

Fig 5.21 Area 6 Group B (produced from a distinctive speckled grey-brown flint with off-white interior) adze thinning and sharpening flakes

1 Dorso-ventrally re-fitting 'preparation' type thinning flakes up to 26mm thick, with plain or dihedral butts, two with hinged terminations, five with hard hammer impact scars (various squares, spits 1-3, contexts 18, 106)

2-15 Various thinning flakes: nos 7, 11, 13 and 14 with dihedral butts; 5 and 11-13 with divergent margins; 4, 5, 7 and 8 with hinged terminations (squares F5-67, F5-77 and F5-68, spits 1-2, contexts 18 and 106)

16-17 Dorso-ventrally re-fitting thinning flakes, no 17 with facetted butt (no 16 from square F5-67, spit 1, contexts 18 and 157, no 17 from squares F5-67 and F5-77, spit 1, context 18)

18-20 Thinning flakes with divergent margins. No 18 has bi-directional flake scars on its dorsal surface and a stepped termination, 19 has a dihedral butt, and 19 and 20 have curved profiles. Thickness of no 19 is 5mm (squares F5-69, spit 2, context 18, F5-66, spit 3, context 106, and trench A square 20, spit 7)

21-22 Distal thinning flake fragments with divergent margins (squares F5-67 and F5-77, spit 1, context 18)

23-24 Small fragments, no 23 with facetted butt (square F5-77, spit 1, context 18)

25 Sharpening flake (square F5-59, context 158)

26-27 Sharpening flake fragments. No 27, with a hinged termination, is a near re-fit to no 25, and was struck from the opposite side of the parent adze (squares F5-69 and F5-68, spit 2, contexts18 and 106)

Fig 5.22 Area 6 Group A (produced from an opaque yellowish cherty flint) adze thinning and sharpening flakes

1 Dorso-ventrally re-fitting sharpening flake and thinning flakes (square F5-59 spit 1, contexts 18 and 158, and trench A square 20, spit 8)

2 Block of re-fitting thinning flakes (squares F5-59 and F5-69, spits 1, 2 and 4, contexts 18, 18/36,106 and 158)

3-9 Thinning flakes with break re-fits (squares F5-59, F5-69, spit 1, and trench A square 20, spits 7-8, contexts 18, 18/36, and 158)

10-11 Thinning flakes with re-fitting eraillure flakes, no 10 with a facetted butt and no 11 with multiple pronounced bulbs (both trench A square 20, spits 8 and 11)

12-15 Proximal thinning flake and sharpening flake (13) fragments, no 13 with *siret* and *languette* breaks (squares F5-63, F5-59, spit 2, contexts 18 and 158, trench A square 20, spit 3)

16-19 Mesial and distal thinning flake fragments (squares F5-59, F5-69, and trench A square 20, contexts 18 and 158)

20-21 Small thinning flakes with hinged terminations (square F5-59, context 158, and trench A square 20, spit 6)

22 Small thinning flake with facetted butt (square F5-69, spit 2, context 18)

23-25 Small thinning flake fragments (squares F5-59 and F5-69, spit 1, contexts 18 and 158)

26-28 Chips. No 27 is a complete micro-flake, nos 28 and 29 are fragments (squares F5-59 and F5-69, spits 2-4)

29 Thinning flake with double bulb of percussion, facetted butt, bi-directional flake scars on its dorsal surface, divergent margins, and slightly curving profile. Thickness: 13.5mm (trench A, context 13)

30 Thinning flake with dihedral butt, bi-directional flake scars, and stepped termination (square F5-59, context 158)

31 Thinning flake with facetted butt and multi-directional flake scars on its dorsal surface (trench A, context 13/14)

32 Thinning flake with dihedral butt, bi-directional flake scars, one divergent margin, and stepped termination (square F5-99, context 18)

Fig 5.23 Area 6 Group A and Group C (produced from brown mottled flint) adze thinning and sharpening flakes

1 L-shaped thinning flake with divergent margins, bi-directional flake scars, and hinged termination (square F5-79, spit 2, context 106)

2 L-shaped thinning flake with one divergent margin and hinged termination. Thickness: 10mm (square F5-59, spit 3, context 18)

3 L-shaped thinning flake with one divergent margin, bi-directional flake scars, curved profile, and stepped termination. Thickness: 4mm (square F5-59, context 158)

4 L-shaped thinning flake with one divergent margin and curved profile. Thickness: 5mm (square F5-87, spit 2, context 18)

5 Thinning flake with facetted butt, divergent margins, and hinged termination (square F5-90, spit 3)

6 Large L-shaped thinning flake with divergent margins, bi-directional flake scars, and stepped termination. Some retouch scars present along right edge, and lighter modification of left edge. Thickness: 18mm (square F5-68, spit 1, context 106)
7 Blade-like flake (square F5-98, spit 3, context 106)
8 Adze thinning fragment used to produce blades (Area 6, square F5-98, spit 1, context 18)
9 Dorso-ventrally re-fitting thinning flakes from Group C, one (right) with a facetted butt, divergent margins and slightly curving profile. The other pieces, retaining extensive areas of cortex, could be classified as 'preparation' type flakes up to 22mm thick (square F5- 57, spits 1 and 3, contexts 18 and 106)
10 Dorso-ventrally re-fitting 'finishing' type thinning flakes with curved profiles, bi-directional dorsal flake scars, divergent margins, and plain or facetted butts. The L-shaped flake on the left is 9mm thick (square F5-66, spit 1, context 18)
11 Blade-like flake with hinged termination (square F5-57, spit 1, context 18)
12 Typical thinning flake with divergent margins, curved profile, hard hammer impact scar on butt, and large eraillure scar (square F5-94, spit 5, context 106)
13 Re-fitting sharpening flake fragments with a languette-type break and hinged termination (square F6-14, spit 1, context 18, and trench A flint scatter 1)
14 Distal sharpening flake fragment (square F6-13 section, context 18)

Fig 5.24 Core tools
1 Adze roughout (Area 8, square J2-100)
2 Adze, radially flaked at both ends, wedge shaped in section (Area 4, square F7-95, spit 3)
3 Tranchet adze, possibly re-used as a hammerstone at butt end, but the bruising visible here can be paralleled on other Mesolithic core tools and may be a deliberate feature to reduce wear in a sleeve (cf Field 1989, 7) (square I5 NW, context 36)
4 Tranchet axe or adze, blade fragment with lenticular cross-section and two transverse sharpening flake removals (trench A, square 25, spit 1)
5 Adze fragment re-used as a bladelet core. Blade end of adze, with bladelet removals made from break (Area 10, square I4-24, spit 4, context 121)

Fig 5.25 Sharpening flakes and pick
1 Adze sharpening flake (Area 6, square F6-34, spit 3, context 18)
2 Adze sharpening flake (Area 6, square F6-16/26, context 33)
3 Adze sharpening flake (Area 6, square F5-66, spit 1, context 18)
4 Adze sharpening flake (Area 6, square F6-40, context 18/58)
5 Pick (square I5-96)
6 Pick sharpening flake (Area 4, square F8-37, spit 1)

Fig 5.26 Tools and tool debitage (UW refers to use-wear finds number (table 6.4))
1 End scraper on a blade with retouch along both lateral margins (UW 2, Area 1 square C5-78, spit 2, context 60)
2 End scraper on a blade-like flake (UW 226, Area 6 square F5-66, spit 1, context 18)

3 End scraper on a flake with additional light retouch along distal right edge (possibly incidental or use related), and notch on proximal left edge (UW 13, Area 6 square F6-34, spit 4, context 106)
4 Oblique truncation (UW 229, Area 6 square F5-67, spit 2, context 106, BS 462)
5 Straight truncation (UW 233, Area 6 square F5-88, context 156, BS 359)
6 Concave truncation (UW 275, Area 10 square I4-37, spit 2, context 121)
7 Piercer on a flake or blade fragment (UW 242, Area 6 square F6-24, spit 2, context 18)
8 Piercer on a truncation formed on the proximal end of a flake or blade, with slight additional retouch on distal end (UW 282, Area 10 square J4-44, spit 1, context 36
9 Fabricator (UW 165, Area 3 square D7-98, spit 1)
10 Transverse burin formed on lateral retouch and a distal truncation (Area 6, square F6-38, spit 1, context 18)
11 Burin formed on the proximal truncation of a blade (Area 6, square F6-27, spit 4, context 106)
12 Denticulate on a flake (UW 256, Area 6, square F6-39, context 58)
13 Denticulate on a core face trimming flake, proximal end and parts of both lateral edges missing. Small area of scraper type retouch on right lateral edge close to break (UW 260, Area 6 context 72)
14 Serrated flake or blade fragment, with up to ten teeth per 10mm and additional retouch along left edge (Area 9, square I5-84, context 36)
15 Serrated flake, up to eight teeth per 10mm (UW 199, Area 4, square F8-43, spit 2, context 153)
16 Chamfered piece on a flake. Transverse chamfer facet on ventral surface, with some prior transverse flaking on dorsal surface. Retouch scars (probably use related) on distal end and along part of one edge (UW 273, Area 10 square I4-19, spit 2, context 121)
17 Chamfered piece on a blade. Transverse chamfer facet with some probably use related retouch on dorsal surface (Area 4, square F8-36, spit 2, context 153/154)
18 Notched flake (UW 191, Area 4, square F8-33, spit 2, context 152/154)
19 Notched flake (UW 294, Area 11, square J6-64, spit 6, context 183
20 Notch spall (Area 10, square J4-65, spit 1, context 159)
21 Burin spall. Distal fragment of burin re-sharpening spall (Area 10, square I4-43, 4, context 121)
22 Edge modified plunging blade with light irregular damage extending along right lateral margin (UW 159, Area 1 square C5-97, spit 1, context 34
23 Edge modified plunging blade with irregular damage extending along right lateral margin and much fainter damage on left lateral margin (UW 153, Area 1, square C5-66, spit 1, context 34)
24 Retouched blade, retouch extends along most of right edge (trench A, square 27, spit 1)
25 Retouched blade, alternating retouch on right edge and irregular, possibly use related modification on left edge (trench A, square 27, spit 1)
26 Hammerstone with five areas of heavy impact damage, several incidental flake scars and one intentionally flaked facet (Area 4, square F8-24, spit 1, context 151)

Fig 5.27 Area 1 dark flint nodule

1 Partially re-fitted nodule, including one bladelet core (fig 5.33 no 2) and four rejuvenation flakes (various squares, contexts 34, 52, 56 and 60, including finds 1 and 2)
2 Dorso-ventrally re-fitting blades and flakes (one burnt) that re-fit onto no 1 (squares C5-76, C5-78, and C5-88, spits 1 and 2, context 52
3 Dorso-ventrally re-fitting blade and plunging blade (squares C5-87 and C5-88, spit 1, contexts 34 and 52)
4 Rejuvenation flake (square C5-76, spit 1, context 52)
5 Primary flake (square C5-96, context 55, BS 65)
6 Bladelet core (square C5-78, spit 1, context 34)
7-10 Secondary and tertiary flakes (various squares, spits 1 and 2, contexts 34 and 52)
11-14 Secondary and tertiary bladelets (various squares, spit 1, contexts 34 and 52, including BS 39, 48 and 53)
15-16 Proximal bladelet fragments (various squares, spit 1, context 52, including BS 39)
17-20 Mesial blade and bladelet fragments, with 18 and 20 burnt (various squares, spit 1, context 52, including BS 24 and 48)
21-24 Distal blade and bladelet fragments (various squares, spit 1, contexts 34, 52 and 60, including BS 180)
25 Proximal microburin (square C5-97, context 52)

Fig 5.28 Area 1 light flint nodule

1-2 Dorso-ventrally re-fitting primary and secondary flakes (squares C5-87 and C5-77, spit 1, contexts 34 and 52, including find 13 and BS 151)
3 Partially re-fitted nodule including two blade cores (fig 5.32 nos 1 and 3) (various squares, contexts 34 and 52, including find 12)
4-8 Dorso-ventrally re-fitting secondary and tertiary flakes and blades. No 5 re-fits onto no 3 (various squares, contexts 34, 52 and 60, spits 1 and 2, including find 1 and BS 26, 49)
9-11 Tertiary flakes (squares A27, spit1, C5-68, spit 1, C5-67, spit 1, contexts 34 and 52, including BS 53)
12-14 Tertiary blades (squares A27, spit 1, C5-67, spit 1, C5-87, spit 1, context 52)
15-24 Chips, comprising complete micro-flakes as well as fragments (nos 17, 23 and 24), (square C5-77, spit 2, context 60, BS 189)
25-30 Proximal bladelet fragments (various squares, spits 1 and 2, contexts 34, 52 and 60, including BS 24, 49 and 177)
31-36 Mesial bladelet fragments (various squares, spit 1, contexts 34 and 52, including BS 48, 49 and 154)
37-42 Distal bladelet fragments (various squares, spit 1, contexts 34 and 52, including BS 53 and 151)
43-45 Proximal microburins (squares C5-76, spit 2 and C5-78, spits 1 and 2, contexts 34, 52 and 60, including BS 204)
46 Broken microlith (square C5-78, spit 1, context 52)
47 Crested blade (square C5-76, spit 1, context 52)
48 Notched plunging blade (square C5-66, spit 1, context 34)

49 Burin formed on the proximal end of a blade (square C5-86, spit 1, context 34)
50 End scraper on the distal fragment of a flake or blade (square A27, spit 1)

Fig 5.29 Cores and core dressings

1 Re-fitting retouched crested blade (b) and blade core (a) on a thinning flake (Area 6, square F5-99, spit 2 and spit 1, context 18)
2 Re-fitting retouched flake (b), burnt flake (c), which re-fits onto (b), and minimally worked core on a flake (a) (all trench A, square 27, spit 1)
3 Single platform bladelet core with remnant cresting (right view) (trench A, square 22, spit 2)
4 Re-fitting platform rejuvenation flake (b) and single platform bladelet core (a), with crushing towards base of core possibly caused by resting on an anvil (both trench A, square 27, spit 1)
5 Three platform bladelet core with crushing on base (lower view), resulting from anvil or hammerstone use (trench A, square 20, spit 5/6)
6 Single platform flake core with crushing on base (lower view), probably due to resting on an anvil (trench A, square 13, spit 4)
7 Bilaterally crested blade (trench A square 21, spit 3(E)
8 Unilaterally crested blade (Area 6, square F5-86, spit 1, context 18)
9 Plunging blade (Area 6, square F5-68, spit 2, context 166, BS 381)
10 Plunging bladelet (Area 10, square J4-14, spit 2, context 121)
11 Core tablet (Area 6, square F5-87, spit 2, context 18, BS 501)
12 Core tablet (Area 2, square D3-30, spit 1)
13 Partial platform rejuvenation flake (trench A, 76-81m, context 13)
14 Partial platform rejuvenation flake (Area 10, square H4-50, spit 1, context 121)
15 *Flanc de nucleus* (trench C, context C16)
16 *Flanc de nucleus* (Area 10, square J4-56, spit 1, context 159)

Fig 5.30 Microburins and related forms

1 Proximal right notched microburin (Area 1, square C5-97, context 52, BS 45)
2 Proximal left notched microburin (Area 6, square F5-77, context 156, BS 358)
3 Proximal right notched microburin mishit (Area 4, square F8-16, spit 1, context 151)
4 Proximal left notched microburin mishit (Area 10, square J4-39, spit 1, context 121)
5 Distal right notched microburin (Area 6, square F6-15, context 33)
6 Distal left notched microburin (Area 6, square F6-14, spit 1, context 18)
7 Distal right notched microburin mishit (Area 11, square J6-54, spit 4, context 121)
8 Ditstal left notched microburin mishit (Area 4, square F8-16, spit 1, context 151)
9 Double microburin mishit (Area 6, square F5-78, spit 2, context 168, BS 510)
10 'Spatulate' form (Area 4, square F8-65, spit 1, context 151)
11 *Lamelle a cran* (Area 10, square H4-40, spit 3, context 121)
12 *Lamelle a cran* (Area 4, square F8-23, spit 1, context 151)
13 Unfinished microlith (Area 6, square F6, context 58, BS 181)
14 Unfinished microlith (Area 10, square J4-43, spit 2, context 159, BS 484)
15 Krukowski microburin (Area 10, square J4-13, spit 3, context 121)

16 Krukowski microburin (Area 12, square J8-87)

Fig 5.31 Microliths

1 Obliquely blunted point fragment, Clark type A. Obliquely truncated, Jacobi class 1a (trench A, square 29, spit 3, UW 155)
2 Obliquely blunted point fragment, Clark type A. Partially backed, Jacobi class 1ac (trench A, square 26, spit 1,UW 53)
3 Obliquely blunted point fragment with possible impact fracture, Clark type A. Partially backed, Jacobi class 1ac (trench A, square 27, spit 1)
4 Obliquely blunted point, Clark type A. Partially backed, Jacobi class 1a? (trench A, square 25, spit 3)
5 Obliquely blunted point with impact fracture, Clark type A. Partially backed, Jacobi class 1ac (trench A, square 13, spit 8)
6 Obliquely blunted point, burnt, Clark type A. Obliquely truncated with additional retouch on leading edge, Jacobi class 1b (trench A, context 14, 63-68m)
7 Obliquely blunted point fragment, Clark type A. Partially backed with additional retouch on leading edge, Jacobi class 1bc (trench A, square A25, spit 1)
8 Obliquely blunted point, Clark type A. Obliquely truncated, Jacobi class 1a (trench C, context 15)
9 Obliquely blunted point, Clark type A. Partially backed, Jacobi class 1ac (trench C, context 15, test pit 1)
10 Isosceles triangle, Clark type D1a, Jacobi class 2a (trench B, square 1, spit 3, BS B)
11 Lanceolate, Jacobi class 3c. Blunted back Clark type B (Area 6, square F5-79, spit 1, context 18)
12 Straight-backed bladelet with additional retouch on leading edge, Jacobi class 5b. Blunted down one edge and across base, Clark type C? (trench A, square 31, spit 2, UW 82)
13 Straight-backed bladelet, Jacobi class 5a. Blunted down the whole of one edge, Clark type B (trench A, square 31, spit 4, BS A)
14 Convex backed, Jacobi class 4. Crescent, Clark type D2 (Area 10, square I4-55, spit 4, UW 97)
15 Convex backed, Jacobi class 4. Crescent, Clark type D2 (Area 6, square F5-99, spit 2, context 18)
16 Rod, Jacobi class 6a. Blunted down the whole of two edges, Clark type B2 (trench A, square 22, spit 2)
17 Rod, Jacobi class 6a. Blunted down the whole of one edge, Clark type B1 (trench A, square 31, spit 4, UW 83)
18 Scalene triangle, Jacobi class 7a, Clark type D1b (trench A, square 13, spit 2, BS A)
19 Scalene triangle, Jacobi class 7a, Clark type D1b (trench A, square 10, spit 6)
20 Scalene triangle, Jacobi class 7b, Clark type D1b (trench A, square 8, spit 2)
21 'Geometric' isosceles triangle, Clark type D1a (Area 10, square J4-47, spit 1, context 159, BS 471)
22 4-sided microlith, Jacobi class 8, Clark type D6 (trench A, square 10, spit 6, context 43)

23 4-sided microlith, Jacobi class 8, Clark type D6 (trench A, square 6, spit 1)

24 Lunate, Jacobi class 9. Crescent with arc blunted, Clark type D2a (trench A, square 6, spit 1)

25 Assymetrical point with concave basal modification ('Horsham point'), Jacobi class 10a. Assymetrical hollow-based point, retouched from the dorsal side, Clark type F1b (trench B, square 7, spit 4)

26 Straight backed microlith with inverse retouch on both lateral edges, Jacobi class 12c. Point with inverse retouch at pointed base, Clark type E2 (trench A, square 10, spit 7)

27 Shouldered or tanged point, Clark type G, with steep, bidirectional (anvil) retouch along right edge (trench B, square 6, spit 3)

28 Shouldered or tanged point, Clark type G, with steep, bidirectional (anvil) retouch along right edge (Area 10, square J4-25, spit 2, context 159, UW 340)

29 'Curved point', Group A with bulb intact (cf Rankine 1946, 6-8) (Area 6, square F6-27, spit 1)

Fig 5.32 Single and opposed platform bladelet cores

1 Single platform bladelet core from light flint nodule re-fitting group (cf fig 5.28 no 3), 74g (Area 1, square C5-67, spit 1, context 52). This core was produced on a flake detached at an early stage in the reduction sequence from the partially re-fitted light flint nodule, and part of its ventral surface is still extant (0 in fig 5.32 no 1). A number of bladelets (removals 2-7), one large re-fitting blade (1), and at least two flakes, were removed from a single platform that was rejuvenated by the removal of two core tablets in immediate succession. The scar of the second rejuvenation flake (8), which had probably been detached to rectify the flaking angle occasioned by removal of the earlier core tablet, served as the striking platform for a few subsequent detachments (9-12), including two flakes with hinge terminations (11 and 12). The presence of the latter, coupled with the extensive area of remnant cortex on the back of the core, precluded any further working, and the core was then abandoned

2 Single platform pyramidal bladelet core, 43g (Area 6, square F5/6, context 57). All extant removal scars with negative bulbs of percussion indicate flaking from a single striking platform with a flaw at one end (4), the edges of which have been carefully abraded to remove projecting spurs, until the final sequence of detachments (represented by scars 22-25). Earlier flaking from an opposed platform (which was probably removed by a plunging blade, 21), is indicated by bladelet scars (1) and (2) lacking their negative bulbs of percussion. Whilst some earlier removals (eg 5 and 7) run down the extant face of the core, subsequent bladelets became progressively shorter, or are characterised by hinged distal terminations (11, 14-17 and 22-25), a factor which may have resulted in the core's rejection

3 Opposed platform bladelet core/burin, 67g (Area 1, square C5- 87, spit 1, context 52). This is the residual core from the partially re-fitted light flint nodule group (fig 5.28 no 3). The main striking platform was generated by the initial removal of a large primary or secondary flake with a hinged termination (1). Flake scar (2) derives from the lateral edge of a large re-fitting secondary flake, attributable to

initial decortication and shaping of the core. A subsequent phase of shaping and modification of the other side and base of the core is represented by flake scars (3-10), struck from two platforms at right angles to the first, which derive from removal of the large flake forming core 1 and the secondary flake represented by partial flake scar (2). The first of these removals relates to a large re-fitting secondary flake (3) and a group of six re-fitting flakes and blades, including two bladelets with curving profiles (fig 5.28 no 5). Subsequent opposed platform working of the core face is indicated by blade-like scars (11-22), with one flake re-fitting onto scar (5). Two removals (17 and 20) had hinged terminations, and these may have been intended to produce graving points on the base of the core, corresponding with the graving edge formed by burin facet removals (23-26). Some additional working after the removal of (20) is indicated by a small spall and faint crack-lines, which may have been caused by an unsuccessful blow on the proximal end of flake scar/burin facet (10). Platform edge retouch is evident along the top of the core, especially in the vicinity of the main burin spall removal sequence, and may constitute deliberate preparation in advance of their striking

4 Opposed platform cylindrical bladelet core, 32g (Area 6, square F6, context 76). An earlier phase of working on this core is represented by the truncated flake scar (1), struck at right angles to both striking platforms. Most extant removals (3-12) were made from the main platform, and these take the form of bladelet scars running down the working face of the core, except where truncated by later removals from the opposite platform, or where, especially latterly (10-12), intended removals stopped short due to hinged terminations. Evidence of platform edge abrasion is apparent after the removal of the bladelets represented by scars (7-9). The second striking platform was probably formed by rejuvenation at the base of the core (flake scar 13), from which were struck one bladelet (14) and four flakes with hinged terminations (15-18). The extent of hinged removals extending down the working face of the core precluded further rejuvenation, and it was therefore discarded.

Fig 5.33 Orthogonal bladelet cores

1 Double platform bladelet core, two platforms at right angles, 100g (trench A, square 7, spit 3). The earliest detectable phase of working on this core is indicated by a few truncated bladelet scars (1-3 and possibly 4-5), prior to rejuvenation of the main striking platform (represented by flake scar 6). Removals (7-10) traversed the greater part of the working face of the core, although, as with removal (4), bladelets (9) and (10) terminated in hinges. Another phase of platform rejuvenation is indicated by truncated flake scar (11), from which a number of successively shorter bladelet and small flake removals were made (as represented by scars 12-19), many with hinged terminations (12-14 and 17), and some platform edge trimming was undertaken, but successful flaking was clearly hampered by the presence of a large void (V1). A second platform was then initiated at right angles, by removing the blade-like flake represented by scar (20). A number of progressively shorter bladelets and small flakes were then detached, including three with hinged terminations (24, 26, 30), but no platform edge trimming was carried out, and flaking was hampered by the presence of three

small voids (V2-V4). The presence of cortex on the back of the core, coupled with the size and number of voids present, and the increasing frequency of hinged terminations, precluded effective rejuvenation of either striking platform or of the working faces of the core and, unsurprisingly, it was then abandoned.

2 Double platform bladelet core from dark flint nodule re-fitting group (cf fig 5.27 no 1), 87g (Area 1, square C5-78, spit 1, context 34, BS 154). This core was produced on a thick flake, the original ventral surface of which is represented by scar (0), part of its bulbar scar (B), and a small thermal flaw (T). Flaking was initiated from a cortical surface with the removal of a bladelet (1), the distal portion of which extends across the surface of a re-fitting rejuvenation flake. A few small flakes were then detached, including those represented by scars (2) and (3), the latter terminating in a hinge. One element of this sequence, a flake fragment resulting from a *siret* knapping accident, has been re-fitted onto its parent core. The resultant hinge, and the presence of two small voids (V1), precluded further flaking, and removals were then made from another platform at right angles to the first, deriving from the ventral surface of the original flake, although there is no evidence of this on the relict core. A pronounced hinge close to the platform edge was formed during this brief phase of reduction, however, necessitating the removal of a re-fitting rejuvenation flake, the distal extremity of which is represented by flake scar (4). Removals then proceeded at right angles to the immediately preceding phase, utilizing a striking platform generated by the removal of a primary or secondary flake which terminated in a small hinge, which had occurred prior to flaking from the second platform. Most removals from this third striking platform are of bladelet proportions. Successive rejuvenation flakes (12 and 13), both of which have been re-fitted, were then detached, possibly to modify the flaking angle and to remove an area of small hinges close to the platform edge. Flaking then resumed from the rejuvenated platform with the detachment of a series of successively shorter bladelets and small flakes, represented by flake scars (14-25), two (14 and 23) with hinged terminations. By this stage, the working face of the core had become progressively undercut (a feature exemplified by a nearly re-fitting plunging blade likely to derive from a slightly earlier phase in this reduction sequence), and the flaking angle had become increasingly acute, rendering the successful production of bladelets increasingly difficult. This development, and the presence of remnant cortex around the back, are likely to have been the determining factors leading to the core's ultimate abandonment

Fig 5.34 Core on a flake and three platform core

1 Double platform flake and bladelet core on a flake, with platforms at right angles, 52g (Area 4, square F8-24, spit 1). This core was also produced on a thick, hard hammer struck flake with a pronounced bulb of percussion. An earlier phase of working, perhaps relating to the initial trimming of the parent nodule, or flaking from a striking platform no longer extant, is indicated by flake scar (1). Flake scars (2) and (3) may derive from removals from the flake's original striking platform. Reduction was initiated from the ventral surface of the flake, and the extant scars (4-15) represent a series of flake and possible bladelet removals, five

with hinged terminations (9, 11, 12, 14, and 15, although the last may be of modern origin), which have become progressively shorter in length. Platform edge trimming is evident prior to the final stage of flaking represented by scars (13) to (15). The resulting working face of the core was then used as a second platform, although one flake scar (17) attests to earlier flaking, perhaps from a platform that is no longer extant. A small flake scar (16) relates to partial rejuvenation of this platform, from which a few flake and bladelet type removals were then made prior to the core's abandonment. Further flaking might have been possible, but the depth of flake scar (13), the presence of some remnant cortex, and the uneven surface of the second striking platform caused by the residual flake scar (1), may have been reasons for the core's abandonment

2 Three platform bladelet core, 114g (Area 10, square J4-14, spit 1, context 159). Three flake scars (1-3) on this core relate to an earlier phase of reduction, but most of the remaining scars reflect a pattern of successive bladelet removals from two opposed platforms (6-16 and 22-27, including two with hinged terminations, 23 and 24), punctuated by phases of rejuvenation, or attempted rejuvenation (represented by scars 17-21 and 32-37). The final stage of rejuvenation of the main striking platform was followed by removing the bladelets and flakes represented by scars (22-27), although rejuvenation was hampered by the termination of three flake scars in pronounced hinges (17, 19 and 20), as well as by the presence of a small void (V). Attempted rejuvenation of the opposing platform was characterised by the detachment of three flakes with hinged terminations, and no further bladelet production was attempted from this platform due to the presence of stacked hinged termination scars (including 29-31) on the adjacent working face of the core. This phase was followed by the generation and attempted rejuvenation of a third striking platform at right angles, represented by flake scars (38-43) and (44-46), respectively. Both platform preparation (38) and attempted rejuvenation (44-46) flake scars, as well as flake removals 41-43 relating to the working of this platform, terminated in hinges, and it seems likely that the presence of these on all three striking platforms, as well as on the working faces, of the core, resulted in its rejection

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Abbreviations

ASE **Archaeology South-East**
BAR **British Archaeological Reports**
CBA **Council for British Archaeology**
SCAU **Surrey County Archaeological Unit**
SyAC **Surrey Archaeological Collections**
SyAS **Surrey Archaeological Society**

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TABLES

Table 3.1 Context listing

context	square	Areas	description	date
1	all	-	unstratified	-
2	all	-	plough soil	modern
3	all	-	buried plough soil	LM/PM
4	F4-E7	-	causeway	LM or EPM
5	E9	MED	storage pit (whole pot)	L11th/E12th
6	E9	MED	pit/ph	L11th/E12th
(7	-	-	*=79)*	-
(8	-	-	*=28, 29)*	-
9	-	-	-	-
10	-	-	-	-
11	K6	-	ditch, NE/SW, inc 16. joins 12	medieval
12	K6	-	ditch, NW/SE, inc 17. joins 11	medieval
13	K6	-	gully. joins 14	medieval
14	K6	-	gully. joins 13	medieval
15	K6	-	recut of ditch 79	medieval
(16	-	-	*segment of 11)*	-
(17	-	-	*segment of 12)*	-
18	F5/F6	6	transitional layer	mesolithic
19	D7	3	burnt flint scatter, above 26.	Mesolithic or later
20	D7	3	burnt flint scatter	Mesolithic or later
21	D7	3	burnt flint scatter	Mesolithic or later
22	-	-	-	-
23	G5	-	tree-throw hollow	prehist or later
24	D7	3	pit	Mesolithic or later
25	F6	-	tree-throw hollow	prehist or later
26	D7	3	pit, below 19	Mesolithic or later
27	G1	-	pit, at N end of ditch 28	12th C
28	F5-G1	-	ditch, N/S, inc 97. =8	12th C
29	E7-D9	-	ditch, N/S, inc 86, 87. =8	12th C
30	E9-E10	MED	hearth pit	L11th/E12th
31	F6	-	tree-throw hollow	prehist or later
32	E9	MED	ph	L11th/E12th
33	F5/F6	6	tree-throw hollow	prehist or later
34	C5	1	transitional layer	Mesolithic
35	C5	1	tree-throw hollow	prehist or later
36	-	-	'woodland soil' layer. =52, 151	medieval
37	D9	MED	pit	L11th/E12th
38	D9	MED	sh?	L11th/E12th
39	D9	MED	pit	L11th/E12th
40	D9	MED	pit	L11th/E12th
41	D9	MED	pit with carstones	L11th/E12th
42	E8	MED	pit	L11th/E12th
43	E8	MED	pit	L11th/E12th
44	E9	MED	pit	L11th/E12th
45	E9	MED	pit	L11th/E12th
46	E9	MED	pit	L11th/E12th
(47	*K6*	-	*segment of 50)*	-
48	F9	MED	pit	L11th/E12th
49	F9	MED	pit	L11th/E12th
50	K6	-	gully	medieval
51	F9	MED	pit	L11th/E12th
(52	-	-	*'woodland soil' layer. =36)*	-
53	F9	MED	pit	L11th/E12th

context	square	Areas	description	date
54	F9	MED	pit	L11th/E12th
55	C5/6	1	tree-throw hollow	prehist or later
56	C5/6	1	tree-throw hollow	prehist or later
57	F5/6	6	tree-throw hollow	prehist or later
58	F5/6	6	tree-throw hollow, =72, 76	prehist or later
59	I2	-	pit	LBA
60	C5/6	1	clean sand layer, below 34	Mesolithic
61	H1	-	pit	LBA
62	I3	-	pit	LBA
63	I3	-	pit	LBA
64	I3	-	pit	LBA
65	I3	-	pit	LBA
66	I3	-	pit	LBA
67	I3	-	FALSE	nat
68	I3	-	cremation pit	LBA
69	G6	-	tree-throw hollow	prehist or later
70	I3	-	pit	LBA
71	H9	-	pit	medieval
(72	*F5/6*	*6*	*sample through 58)*	-
73	H3	-	pit	LBA
74	J3	-	pit	LBA
75	J3	-	cremation pit	LBA
76	F6	6	tree-throw hollow. =58	prehist or later
77	F3/G3	-	pit	?
78	F3	-	posthole	12th C
79	I5	9	ditch, inc 98, 108, 118. = 8	12th C
80	-	-	-	-
81	I5	9	tree-throw hollow	prehist or later
82	I5	9	hollow =96, 127/143.	LBA
83	I5	9	sand layer, below 82.	Mesolithic
84	G3	-	hollow	LBA
85	I5	9	tree-throw hollow	prehist or later
(86	-	-	*segment through 29)*	-
(87	-	-	*segment through 29)*	-
88	G6	-	tree-throw hollow	prehist or later
89	I5	9	tree-throw hollow	prehist or later
90	I5	9	tree-throw hollow	prehist or later
91	I5	9	tree-throw hollow	prehist or later
92	I5	9	tree-throw hollow	prehist or later
93	I5	9	hollow	LBA
94	K/L2	-	beam slot	PM
95	K/L2	-	beam slot	PM
96	I5	9	hollow =82, 127/143	LBA
(97	-	-	*segment of 28)*	-
(98	-	-	*segment of 79)*	LBA
99	I2	-	pit	LBA
100	I2	-	pit	LBA
101	I2	-	pit	LBA
102	I2	-	pit	LBA
103	I2	-	pit	LBA
104	I2	-	pit	LBA
105	H2	-	pit	-
106	F6	5	clean sand layer	Mesolithic
107	C5	1	podsolised layer	Mesolithic
(108	*E4*	-	*segment of 79)*	-

context	square	Areas	description	date
109	E5	-	ditch	medieval
110	H5	-	tree-throw hollow, inc 111	prehist or later
(111	*H5*	-	*part of 110)*	-
112	H5	-	tree-throw hollow	prehist or later
113	H5	-	tree-throw hollow	prehist or later
114	G5	-	tree-throw hollow	prehist or later
115	G5	-	tree-throw hollow	prehist or later
116	G5	-	tree-throw hollow	prehist or later
117	G5	-	tree-throw hollow	prehist or later
(118	*G5*	-	*seg of 79)*	-
119	F6	6	clean sand layer	Mesolithic
120	F3	-	pit	LBA
121	-	7, 10, 11	transitional sand layer	Mesolithic
122	I5	9	hearth	Mesolithic
123	F5/6	6	?feature	Mesolithic
124	I4	10	hearth	Mesolithic
125	I4	10	?feature	LBA
126	I4	10	hearth	Mesolithic
127	I4	10	hollow. =143	LBA
128	F3	-	burnt flint scatter	Mesolithic or later
129	E3	2	burnt flint scatter	Mesolithic or later
130	D3	2	burnt flint scatter	Mesolithic or later
131	C4	-	burnt flint scatter	Mesolithic or later
132	B6	-	burnt flint scatter	Mesolithic or later
133	B6	-	burnt flint scatter	Mesolithic or later
134	C7	3	burnt flint scatter	Mesolithic
135	D8	3	burnt flint scatter	Mesolithic
136	G7	-	pit	LBA
137	C3/4	-	track gully, inc 186	medieval
138	B3/4	-	track gully, inc 188, 189, 190	medieval
139	I4	10	hearth. =198	Mesolithic
140	F7/8	4	struck flint scatter	Mesolithic
141	I4	10	hearth	Mesolithic
142	H4	10	ph	?Mesolithic
(143	*I4/H4*	*10*	*=127)*	-
144	D3	2	?feature	Mesolithic
145	D3/E3	-	struck flint scatter	Mesolithic
146	J4	10	possible hearth	Mesolithic
147	J4	10	possible hearth	Mesolithic
148	F6	5	tree-throw hollow	prehistoric or later
149	F6	-	?feature	?Mesolithic
150	F5	6	tree-throw hollow	prehistoric or later
(151	*F7/8*	*4*	*=36)*	-
152	F7/8	4	layer	Mesolithic
153	F7/8	4	clean sand	Mesolithic
154	F8	4	natural Folkestone sands	natural
155	F8	4	?feature	Mesolithic
156	F5	6	hearth	Mesolithic
157	F5	6	grey cone	Mesolithic
158	F5	6	flint concentration	Mesolithic
159	I4, J4	7, 10	transitional layer	Mesolithic
160	J6	11	hearth pit	Mesolithic
161	F5	6	grey cone	Mesolithic
162	F6	6	grey cone	Mesolithic

context	square	Areas	description	date
163	J6	11	tree-throw hollow	prehist or later
164	J6	11	tree-throw hollow	prehist or later
165	F5	6	?stakehole	Mesolithic
166	H4	10	clean sand layer, over 141	Mesolithic
167	J6	11	grey cone	Mesolithic
168	F5	6	grey cone	Mesolithic
169	J6	11	grey cone	Mesolithic
170	F6	6	?feature	Mesolithic
171	I4	10	posthole, inc 172	LBA
(172	*I4*	*10*	*fill of 171)*	-
173	J6	11	hearth	Mesolithic
174	J6	11	transition layer	Mesolithic
175	J6	11	grey cone	Mesolithic
176	J6	11	grey cone	Mesolithic
177	I4	10	clean sand layer, over 126	Mesolithic
178	I4	10	pit	Mesolithic
179	I4	10	hearth	Mesolithic
180	J6	11	grey cone	Mesolithic
181	J6	11	grey cone	Mesolithic
182	J6	11	clean sand layer	Mesolithic
183	J6	11	grey cone, inc 185	Mesolithic
184	J6	11	grey ‘horizon’	Mesolithic
(185	*J6*	-	*=183)*	-
(186	*C3/4*	-	*segment of 137)*	-
187	J6	11	clean sand layer	Mesolithic
(188	*C3/4*	-	*segment of 138)*	-
(189	*C3/4*	-	*part of 188)*	-
(190	*C3/4*	-	*part of 188)*	-
191	D5	-	pit	LM
192	I4	10	clean sand layer, over 124	Mesolithic
193	J4	10	clean sand layer, over 146	Mesolithic
194	J4	10	clean sand layer, over 147	Mesolithic
195	I4	10	clean sand layer, over 198	Mesolithic
196	I4	10	grey patch	Mesolithic
197	I4	10	clean sand layer, over 196	Mesolithic
(198	*I4*	*10*	*= 139)*	-
199	I4	10	hearthstones of 124	Mesolithic
200	I3	-	linear feature, within 74	LBA
201	G6	-	tree-throw hollow	prehist or later
202	H6	-	tree-throw hollow	prehist or later
203	J6	11	hearthstones/burnt flints in 160	Mesolithic
204	H6	-	tree-throw hollow	prehist or later
205	J6	11	clean sand, over 161, 157	Mesolithic
206	H6	-	tree-throw hollow	prehist or later
207	H6	-	tree-throw hollow	prehist or later
208	-	10	grey ‘blob’	Mesolithic
209	-	19	grey ‘blob’	Mesolithic
210	-	11	burnt flints, in 183/5	Mesolithic

Table 4.1: Details of monolith samples

Sample number	Area no	Section no	Elevation (m OD) (taken on line level; see Figures 1 to 14)	Table number	Figure number
<RH4>	10	4	112.785	2	2, 3
<RH5>	7	5	112.449	3	4, 5
<RH6>	6	6	112.493	4	6, 7
<RHA1>	9	8	112.231	5	8, 9
<RH9upper>	NA	9	112.494	6	10, 11
<RH9lower>	NA	9	112.494	7	10, 11
<RH1upper>	11	10	112.166	8	12, 13
<RH2lower>	11	10	112.166	9	12, 13
<RH12>	11	12	XXXXXXXXXX	10	14, 15

Table 4.2: Lithostratigraphic sequence from section 4 (south facing), area 10, monolith sample <RH4>

Depth (m)	Context number	Description
0.00 -0.20	159	10YR 7/2 light grey with faint rusty mottles; well-sorted slightly silty fine sand with occasional coarse sand grains; slightly blocky; rare root channels and roots; a few small (<1mm) particles of charcoal; no acid reaction; well-marked change of coherence to:
0.20-0.30	126	10YR 7/2 light grey; well-sorted free-running fine sand with occasional coarse sand grains and clasts of burnt flint (up to 40mm), becoming more clayey, browner and more coherent in the lowest few millimetres; massive; very small ?charcoal; no acid reaction; sharp colour change to:
0.30-0.50	121	10YR 8/1 white; free-running fine sand with occasional coarse sand grains and scattered clasts (up to 28mm) of sharply angular flint; slightly darker horizon at 039-042 with two flint clasts; no acid reaction

Table 4.3: Lithostratigraphic sequence from section 5 (east facing), area 7, monolith sample <RH5>

Depth (m)	Context Number	Description
0.00-0.17	36	10YR 5/4 yellowish brown, becoming paler downward; well-sorted slightly silty fine sand with occasional coarse sand grains; massive; no acid reaction; gradual patchy colour transition to:
0.17-0.22	18	10YR 7/2 light grey; well-sorted fine sand with occasional coarse sand grains; massive; no acid reaction; gradual colour transition to:
0.22-0.50	106/121	10YR 8/1 white with brown patches in upper 10cm and rusty staining at lower levels; very well-sorted ; free-running fine sand with occasional coarse sand grains; massive; fresh flake (16mm) of flint cortex at 027, (no typical impact features); no acid reaction

Table 4.4: Lithostratigraphic sequence from section 6 (east facing), area 6, monolith sample <RH6>

Depth (m)	Context number	Description
0.00-0.16	36	10YR 3/4 dark yellowish brown becoming patchily paler downward; well-sorted silty fine sand with occasional coarse sand grains and a small (4mm) chalk clast at 003; massive; infrequent roots in uncoated root channels; no acid reaction; gradual patchy colour transition to:
0.16-0.33	18	Gradual transition from 10YR 3/4 (overlying) to 10YR 8/1 white (underlying), transition faintly layered in upper part of transition passing down to downward penetration of darker colour in narrow root-like forms; no acid reaction; gradual transition to
0.33-0.50	106	10YR 8/1 white; very well-sorted free-running fine sand with occasional coarse sand grains with a single fragment (28mm) of well-rounded flint pebble; massive; burnt flint at 033-034; no acid reaction

Table 4.5: Lithostratigraphic sequence from section 8 (south facing), area 9, monolith sample <RHA1>

Depth (m)	Context number	Description
0.00-0.17		Separate piece of 'cemented' sand approximately 110 x 70mm; 7.5R 4/2 to 3/2 weak red to dusky red; fine sand with occasional coarse sand grains; interstitial silty clay appears to have been fired; quasi-dendritic precipitation of iron oxide on parts of outer surface of sand body; no acid reaction
0.17-0.27	122	10YR 4/2 dark greyish brown, well-sorted fine to medium sand with occasional coarse sand grains; no acid reaction; patchy colour transition (possibly conglomeratic mixture) to:
0.27-0.50	121	10YR 7/1 light grey with darker patches; well-sorted fine sand with occasional coarse sand grains; faint indication of slightly inclined bedding; no acid reaction

Table 4.6: Lithostratigraphic sequence from section 9 (west facing), monolith sample <UpperRH9>

Depth (m)	Context number	Description
0.00-0.22	Plough soil	10YR 3/4 dark greyish brown; moderately sorted silty fine sand; with flint clasts (up to 13mm) slight crumb/blocky structure; roots common in uncoated root channels; particles of CBM; no acid reaction; gradual transition to:
0.22-0.50	Colluvium	10YR 5/4 yellowish brown; well-sorted slightly silty fine sand with broken piece of well-rounded flint pebble; massive; occasional roots in uncoated root channels; worm burrows; occasional CBM; scattered chalk particles (up to 6mm); no acid reaction from body of sediment

Table 4.7: Lithostratigraphic sequence from section 9 (west facing), monolith sample <LowerRH9>

Depth (m)	Context number	Description
0.00-0.20	Colluvium	10YR 5/4 yellowish brown; well-sorted slightly silty fine to medium sand; very porous and slightly blocky; occasional roots in uncoated root channels; worm burrows (up to 5mm diam); no acid reaction; well-marked colour transition to:
0.20-0.34	36	Patchy mix of 10YR 5/4 yellowish brown and 10YR 8/1 white, with intermediate mixtures; well-sorted slightly silty fine to medium sand with scattered well-rounded flint pebbles (up to 30mm); massive and very porous; occasional roots in uncoated root channels; occasional worm burrows; no acid reaction; well-marked colour transition to:
0.34-0.50	106/121	Mainly 10YR 8/1 white with rusty staining but penetrated by worm burrows introducing 10YR 5/4 from above; very well sorted fine sand with broken pieces of well-rounded flint pebble (up to 34mm); occasional worm burrows; very infrequent particles of charcoal; no acid reaction

Table 4.8: Lithostratigraphic sequence from section 10 (north facing), area 11, monolith sample <RH1upper>

Depth (m)	Context number	Description
0.00-0.22	175	10YR 7/1 light grey (uneven colour); well-sorted fine sand with occasional coarse sand grains with broken piece (35mm) of well-rounded flint pebble (angles damaged and subsequently polished); massive; no acid reaction; gradual colour transition to:
0.22-0.30	175	5YR 6/1 grey/light grey; well-sorted fine sand with occasional coarse sand grains and broken piece (15mm) of well-rounded flint pebble; massive; no acid reaction; well-marked colour transition to:
0.30-0.50	160	10YR 3/1 very dark grey; well-sorted fine sand with clast of burnt flint (30mm) displaying preferential accumulation of dark ?organic matter and weak cementation on upper side of clast; faint indication of slightly inclined bedding marked by slight textural variations; no acid reaction

Table 4.9: Lithostratigraphic sequence from section 10 (north facing), area 11, monolith sample <RH2lower>

Depth (m)	Context number	Description
0.00-0.18		void
0.18-0.26	160	10YR5/1 grey (uneven colour); well-sorted fine sand with occasional coarse sand grains and clast (15mm) of burnt flint at 019; massive; no acid reaction; sharp transition to:
0.26-0.40	182	10YR8/1 white; well-sorted free-running fine sand with occasional coarse sand grains; massive; no acid reaction; gradual colour transition to:
0.40-0.45	?	10YR5/1 grey (grading downward from light to dark); well-sorted fine sand with occasional coarse sand grains; grading downward from free-running to weakly cemented; no acid reaction; sharp colour transition to:
0.45-0.50	?	10YR8/1 white well-sorted free-running fine sand with occasional coarse sand grains; massive; no acid reaction

Table 4.10: Lithostratigraphic sequence from section 12 (east facing), area 11, monolith sample <RH12>

Depth (m)	Context number	Description
0.00-0.16	36	10YR 5/4 yellowish brown with rusty mottles/staining; well-sorted silty fine sand with occasional coarse sand grains; slightly blocky; occasional roots in uncoated root channels; no acid reaction; well-marked colour transition to:
0.16-0.29	18	10YR 7/2 light grey; well-sorted very slightly silty fine sand with occasional coarse sand grains and cluster of three clasts (well-rounded flint pebble (16mm), burnt flint (10mm), sub-angular flint (50mm); massive; no acid reaction; well-marked colour transition to:
0.29-0.50	106/121	10YR 8/1 white; very well-sorted free-running fine sand with occasional coarse sand grains and a clast of burnt flint (20mm) at 49-50mm and a clast of Lower Greensand cherty sandstone (10mm); massive; no acid reaction

Table 4.11: Samples, contexts, sections and areas selected for soil micromorphology

Sample number	Context number	Section number	Area number
<RH4>	159	4	10
	126 - 121 (Across boundary)		
<K1>	36	5	7
<K2>	18		
<K3>	106/121		
<RH6>	36 - 18 (Across boundary)	6	6
	18 - 106 (Across boundary)		
<RHA1>	122 - 121 (Across boundary)	8	9
<KO1>	Colluvium/Aeolian/Anthropogenic deposit	9	NA
<KO2>	36		
<K4>	175	10	11
<RH2lower>	160 - 182 (Across boundary)	10	11
<K10>	Black layer in 182		
<RH12>	18	12	11
<2.1>	Dark lens	13	Northern Geology Trench

Table 5.1 Flintwork totals by Area

TOTAL NOS.

Area	Cores	Irregular Waste	Core dressings	Flakes	Fragments	Blades	Blade Fragments	Modified & Spalls	Microliths	Microburins	**Total**	Chips	Burnt
2002 Excavation	160	71	113	1552	3227	519	1083	212	196	67	**7200**	8837	2217
Area 1	5	1	6	133	106	60	132	13	11	10	**477**	2104	75
Area 2	1	13	9	82	97	37	110	3	7	2	**361**	10	98
Area 3	2		1	20	35	17	76	10	6		**167**	26	61
Area 4	57	38	110	1062	1229	367	1014	294	78	25	**4274**	2501	828
Area 5	2		6	48	52	15	47	10	2		**182**	1	14
Area 6	81	22	199	2557	3458	854	2606	494	233	134	**10638**	4945	1226
Area 7		1	3	14	46	8	52	3	1		**128**	2	11
Area 8	4	2	10	52	100	13	41	16	3	1	**242**	4	117
Area 9	18		29	344	594	66	369	142	39	20	**1621**	964	216
Area 10	125	19	239	3539	4823	743	3493	575	344	157	**14057**	1634	2135
Area 11	10	6	33	479	1132	117	515	134	87	32	**2545**	704	524
Area 12			9	92	107	30	79	14	9	5	**345**	99	49
All Other	64	1	56	187	166	100	161	256	12	6	**1009**	22	72
TOTAL	**529**	**174**	**823**	**10161**	**15172**	**2946**	**9778**	**2176**	**1028**	**459**	**43246**	**21853**	**7643**
%	1.2%	0.4%	1.9%	23.5%	35.1%	6.8%	22.6%	5%	2.4%	1.1%	100.0%	50.5%	17.7%

Total % by Area

Area	Cores	Irregular Waste	Core dressings	Flakes	Fragments	Blades	Blade Fragments	Modified & Spalls	Microliths	Microburins	Total %	Chips	Burnt
2002 Excavation	2.2	1	1.6	21.6	44.8	7.2	15	3	2.7	0.9	100	55.1	13.8
Area 1	1	0.2	1.3	27.9	22.2	12.6	27.7	2.7	2.3	2.1	100	81.5	2.9
Area 2	0.3	3.6	2.5	22.7	26.9	10.2	30.5	0.8	1.9	0.6	100	2.7	25.8
Area 3	1.2		0.6	12	21	10.1	45.5	6	3.6		100	13.5	30.3
Area 4	1.3	0.9	2.6	24.8	28.8	8.6	23.7	6.9	1.8	0.6	100	36.9	12.2
Area 5	1.1		3.3	26.4	28.6	8.2	25.8	5.5	1.1		100	0.5	7.3
Area 6	0.8	0.2	1.9	24	32.5	8	24.5	4.6	2.2	1.3	100	31.7	7.9
Area 7		0.8	2.3	10.9	35.9	6.3	40.7	2.3	0.8		100	1.5	7.9
Area 8	1.7	0.8	4.1	21.5	41.3	5.5	16.9	6.6	1.2	0.4	100	1.6	45.9
Area 9	1.1		1.7	21.2	36.5	4.1	22.8	8.8	2.6	1.2	100	37.3	8.3
Area 10	0.9	0.1	1.7	25.2	34.3	5.3	24.8	4.2	2.4	1.1	100	10.4	13.6
Area 11	0.4	0.2	1.3	18.8	44.5	4.6	20.2	5.3	3.4	1.3	100	21.7	16.1
Area 12			2.6	26.7	31	8.7	22.9	4.1	2.6	1.4	100	22.3	10.8
All Other	6.3	0.1	5.6	18.5	16.5	9.8	16	25.4	1.2	0.6	100	2.1	7
Mean	1.5	0.8	2.4	21.6	31.8	7.8	25.5	6.2	2.1	1.0		22.8	15.0

Table 5.2 Chip totals by area

Area	Chip Total	% of all flintwork	% of flintwork in re-sorted samples	Re-sorted Bulk Samples	Bulk Sample Totals	% Re-sorted	Total m. sqs.	Total m.sqs. Bulk Sampled
2002	8837	55.1			169		36	27
Area 1	2104	81.5	81.5	79	79	100	16	16
Area 2	10	3		0	0		19	0
Area 3	26	13		0	0		9	0
Area 4	2501	36.9	78	7	7	100	38	2
Area 5	1	0.5		0	0		2	1
Area 6	4945	32	70	26	206	13	60	35
Area 7	2	1		0	0		2	0
Area 8	4	2		0	0		11	0
Area 9	964	37	67	22	46	48	33	27
Area 10	1634	10	82	1	93	1	143	30
Area 11	704	22	68?	1	119	1	11	10
Area 12	99	22		0	0		100	0
All Other	10	1		0	0			0
TOTAL	**21841**			**136**	**719**		**480**	**148**

Table 5.3 Flintwork totals by principal context type (excluding chips)

Context type	Cores	Irregular waste	Core dressings	Flakes	Fragments	Blades	Blade fragments	Modified & spalls	Microliths	Microburins	**Total**	%
WOODLAND SOIL	69	24	105	1204	1329	318	801	352	94	49	**4603**	14.30%
TRANSITIONAL LAYER	61	16	128	1858	2711	494	1870	283	189	92	**7725**	24%
CLEAN NATURAL SAND	98	30	275	3798	5329	1088	3571	681	370	177	**15669**	48.70%
GREY CONES	3	2	17	183	339	44	199	36	29	7	**859**	2.69%
MESOLITHIC/LATER BURNT FLINT SCATTERS				2		1	1			1	**5**	0.02%
HEARTHS	4		8	102	182	18	100	15	12	5	**446**	1.40%
LBA FEATURES	5		3	18	19	4	7	29		1	**86**	0.30%
PREHISTORIC/LATER TREE-THROW HOLLOWS	14	3	31	366	538	99	412	139	30	25	**1657**	5.20%
MEDIEVAL FEATURES	5		6	45	54	24	50	44	1		**229**	0.69%
LATE MEDIEVAL/POST-MED FEATURES			2	3	2	3	3	17			**30**	0.10%
UNDATED/UNSTRATIFIED	59	1	48	154	176	76	129	183	14	8	**848**	2.60%
TOTAL	**318**	**76**	**623**	**7733**	**10679**	**2169**	**7143**	**1779**	**739**	**365**	**32157**	100.00%

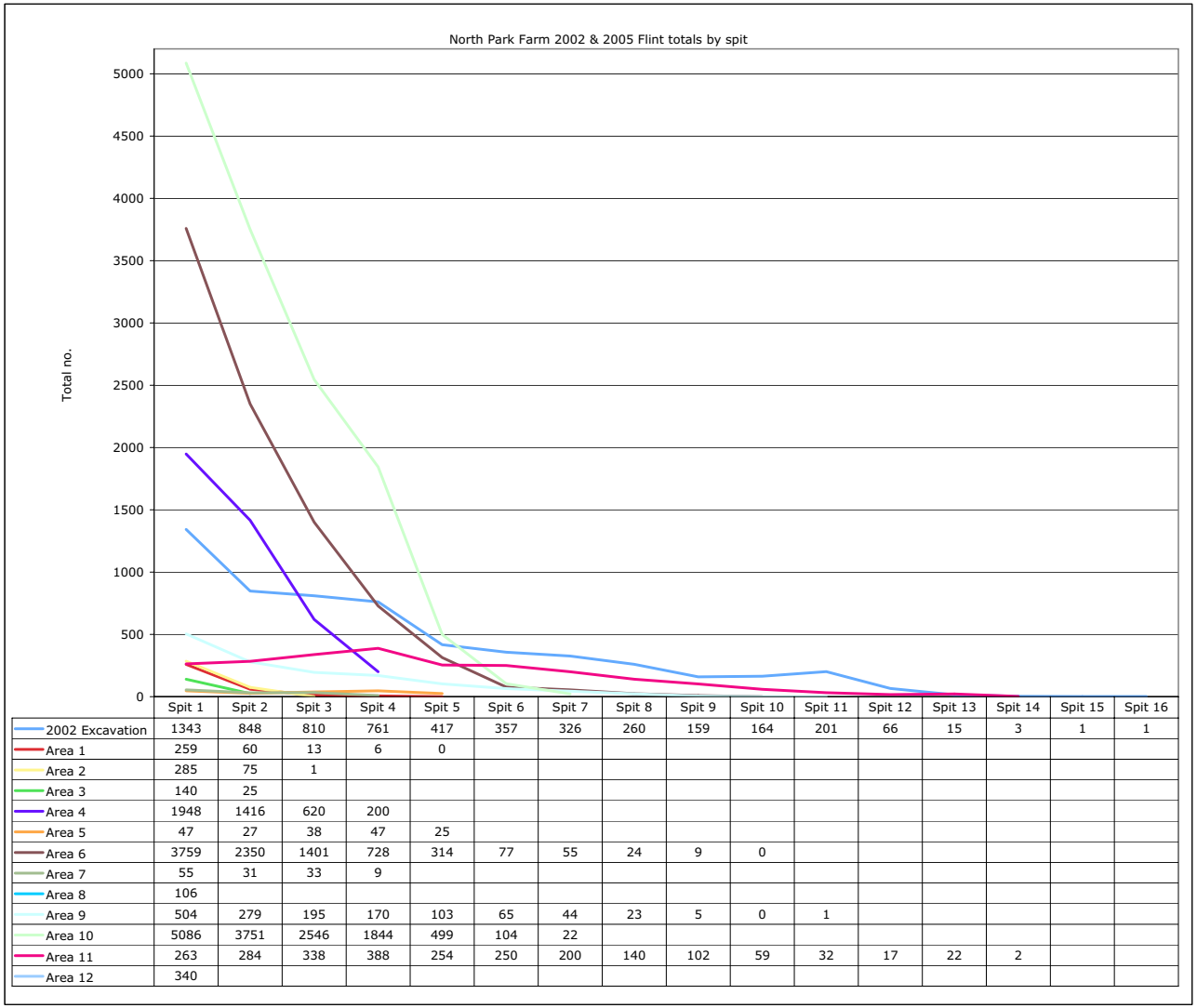
%

Context type	Cores	Irregular waste	Core dressings	Flakes	Fragments	Blades	Blade fragments	Modified & spalls	Microliths	Microburins	Total
WOODLAND SOIL	1.6%	0.6%	2.4%	27.7%	30.6%	7.3%	18.4%	8.1%	2.2%	1.6%	100%
TRANSITIONAL LAYER	0.8%	0.2%	1.7%	24.1%	35.2%	6.4%	24.3%	3.7%	2.5%	1.2%	100%
CLEAN NATURAL SAND	0.6%	0.2%	1.8%	24.6%	34.6%	7.1%	23.2%	4.4%	2.4%	1.1%	100%
GREY CONES	0.3%	0.2%	2.0%	21.3%	39.5%	5.1%	23.2%	4.2%	3.4%	0.8%	100%
MESOLITHIC/LATER BURNT FLINT SCATTERS				40.0%		20.0%	20.0%			20.0%	100%
HEARTHS	0.9%		1.8%	22.9%	40.8%	4.0%	22.4%	3.4%	2.7%	1.1%	100%
LBA FEATURES	5.8%		3.5%	20.9%	22.1%	4.7%	8.1%	33.7%		1.2%	100%
PREHISTORIC/LATER TREE-THROW HOLLOWS	0.8%	0.2%	1.9%	22.1%	32.5%	6.0%	24.9%	8.4%	1.8%	1.5%	100%
MEDIEVAL FEATURES	2.2%		2.6%	19.7%	23.6%	10.5%	21.8%	19.2%	0.4%		100%
LATE MEDIEVAL/POST-MED FEATURES			6.7%	10.0%	6.7%	10.0%	10.0%	56.7%			100%
UNDATED/UNSTRATIFIED	7.0%	0.1%	5.7%	18.2%	20.8%	9.0%	15.2%	21.6%	1.7%	0.9%	100%

Table 5.4 Flint totals by spit (excluding chips)

	Spit 1	Spit 2	Spit 3	Spit 4	Spit 5	Spit 6	Spit 7	Spit 8	Spit 9	Spit 10	Spit 11	Spit 12	Spit 13	Spit 14	Spit 15	Spit 16	**Total**
2002 Excavation	1343	848	810	761	417	357	326	260	159	164	201	66	15	3	1	1	**5732**
Area 1	259	60	13	6	0												**338**
Area 2	285	75	1														**361**
Area 3	140	25															**165**
Area 4	1948	1416	620	200													**4184**
Area 5	47	27	38	47	25												**184**
Area 6	3759	2350	1401	728	314	77	55	24	9	0							**8717**
Area 7	55	31	33	9													**128**
Area 8	106																**106**
Area 9	504	279	195	170	103	65	44	23	5	0	1						**1389**
Area 10	5086	3751	2546	1844	499	104	22										**13852**
Area 11	263	284	338	388	254	250	200	140	102	59	32	17	22	2			**2351**
Area 12	340																**340**
Total	**14135**	**9146**	**5995**	**4153**	**1612**	**853**	**647**	**447**	**275**	**223**	**234**	**83**	**37**	**5**	**1**	**1**	**37847**
%	37.3%	24.2%	15.8%	11.0%	4.3%	2.3%	1.7%	1.2%	0.7%	0.6%	0.6%	0.2%	0.1%	0.1%	0.0%	0.0%	100.1%

Table 5.4 Flint totals by spit (excluding chips)



	Spit 1	Spit 2	Spit 3	Spit 4	Spit 5	Spit 6	Spit 7	Spit 8	Spit 9	Spit 10	Spit 11	Spit 12	Spit 13	Spit 14	Spit 15	Spit 16
2002 Excavation	1343	848	810	761	417	357	326	260	159	164	201	66	15	3	1	1
Area 1	259	60	13	6	0											
Area 2	285	75	1													
Area 3	140	25														
Area 4	1948	1416	620	200												
Area 5	47	27	38	47	25											
Area 6	3759	2350	1401	728	314	77	55	24	9	0						
Area 7	55	31	33	9												
Area 8	106															
Area 9	504	279	195	170	103	65	44	23	5	0	1					
Area 10	5086	3751	2546	1844	499	104	22									
Area 11	263	284	338	388	254	250	200	140	102	59	32	17	22	2		
Area 12	340															

Table 5.5 Core classification by Area

TOTAL

Area	Bl 1	Bl 2 opp	Bl 2 ort	Bl 3	Bl/fl	Fl 1	Fl 2 opp	Fl 2 ort	Fl 2 div	Fl 3	Fl/fl	Keel	Tort	Other	Frg	**Total**	Blade cores	Flake cores	Blt scar	Pris Bl	Pyr Bl	Cyl Bl	Pyr Fl	Cube Fl	Bnt	Ab	Inc	Hi	Ctx	Mn Wt.(g)
2002 Excavation	12	17	9	15	5	19	4	21		25	5	7	2	6	13	**160**	58	89	62	8	4	2	1	3	4	48	57	109	138	109.2
1	2		1	2												**5**	5		5							5		4	5	73.6
2							1									**1**		1										1	1	183
3		1		1												**2**	2									1		2	2	83.6
4	11	5	2	5	7	2		3	2	2	4			2	3	**48**	30	13	33		1				3	25	7	40	42	57.8
5	1							1								**2**	1	1	2									2	2	30
6	15	15	8	13	6	5	2	5	1	5	2				5	**82**	57	20	61		10	3			5	36	16	71	69	70.1
7																**0**														
8	3		1													**4**	4		4							2		3	3	45.5
9	4	3	2	3	1			2				3				**18**	13	5	13		3	2		2		11	4	17	16	71.4
10	15	13	9	19	3	11	4	7	3	21	4	7	2	1	9	**128**	60	60	77	1	9	1	1	5	6	45	21	96	106	63.9
11	1	2	2	1						1	1					**8**	6	2	5							5	2	7	6	65.3
12																**0**														
OTHER	8	9	9	5	2	2	2	1	2	8	1	4	1	2	2	**58**	35	20	39		3			2	4	27	19	51	43	63.8
TOTAL	**72**	**65**	**43**	**64**	**24**	**39**	**13**	**40**	**8**	**62**	**17**	**21**	**5**	**11**	**32**	**516**	**271**	**211**	**301**	**9**	**30**	**8**	**2**	**12**	**22**	**205**	**126**	**403**	**433**	78.8
%	14.0%	12.6%	8.3%	12.4%	4.7%	7.6%	2.5%	7.8%	1.6%	12.0%	3.3%	4.1%	1.0%	2.1%	6.2%	100%	56.2%	43.8%	58.3%	1.7%	5.8%	1.6%	0.4%	2.3%	4.3%	39.7%	24.4%	78.1%	83.9%	

%

Area	Bl 1	Bl 2 opp	Bl 2 ort	Bl 3	Bl/fl	Fl 1	Fl 2 opp	Fl 2 ort	Fl 2 div	Fl 3	Fl/fl	Keel	Tort	Other	Frg	**Total**	Bl Tot	Fl Tot	Blt scar	Pris Bl	Pyr Bl	Cyl Bl	Pyr Fl	Cube Fl	Bnt	Ab	Inc	Hi	Ctx
2002 Excavation	7.5	10.6	5.6	9.4	3.1	11.9	2.5	13.1		15.6	3.1	4.4	1.3	3.8	8.1	100	39.5	60.5	38.8	5	2.5	1.3	0.6	1.9	2.5	30	35.6	68.1	86.3
1	40		20	40												100	100		100							100		80	100
2							100									100		100										100	100
3		50		50												100	100		100							50		100	100
4	22.9	10.3	4.2	10.3	14.6	4.2		6.3	4.2	4.2	8.3			4.2	6.3	100	62.5	27.2	68.8		2.1				6.3	52.1	14.6	83.3	87.5
5	50							50								100	50	50	100									100	100
6	18.3	18.3	9.8	15.9	7.3	6.1	2.4	6.1	1.2	6.1	2.4				6.1	100	74	26	75.3		12	3.6			6	43.4	19.3	85.5	83.1
7																													
8	75		25													100	100		100							50		75	75
9	22.1	16.7	11.1	16.7	5.6			11.1				16.7				100	59	41	72.2		16.7	11.1		11.1		61.1	22.2	94.1	88.9
10	11.8	10.2	7	14.8	2.3	8.6	3.1	5.5	2.3	16.4	3.1	5.5	1.6	0.8	7	100	46	45	59	0.8	6.9	0.8		3.8	4.6	34.4	16	73.3	81.7
11	12.5	25	25	12.5						12.5	12.5					100	75	25	62.5							62.5	25	87.5	75
12																													
OTHER	13.8	15.5	15.5	8.6	3.5	3.5	3.5	1.7	3.5	13.8	1.7	6.9	1.7	3.4	3.4	100	57.9	35	68.4		5.3			3.5	7	47.4	33.3	87.9	74.1

Table 5.6 Core dressing classification by Area

Area	Crested piece, bidirectional	Crested piece, unidirectional	Core tablet	Partial platform renewal	Core face renewal	Plunging piece	Other	Total	Burnt	Fragments	Flake	Blade	Cortex	Hinged/stepped	Abraded
2002 Excavation	4	30	16	28	21	8	5	112	15	45	60	36	58	36	59
1		2		3		1		**6**		6	1	4	1		
2			2	1	2	1	2	**8**	1	3	6	2	5	1	3
3						1		**1**				1			
4	3	23	9	43	23	2	6	**109**	7	45	70	35	49	20	49
5		3	1	1	1			**6**		1	4	3	3	1	2
6	7	65	16	54	26	21	8	**197**	9	82	93	95	87	50	82
7			1	1		1		**3**		1	1	1	1	1	1
8			1	3	5	1		**10**	3	3	7	1	6	6	1
9	2	4	1	12	5	3	2	**29**	3	12	15	11	12	5	8
10	4	53	18	88	26	26	22	**237**	12	99	116	104	107	53	56
11		2	4	21	4	2		**33**	2	11	28	5	11	5	14
12				6	2	1		**9**		3	7	1	2	2	2
Other	2	10	8	11	19	7		**57**	2	12	32	23	28	16	18
TOTAL	**22**	**192**	**77**	**272**	**134**	**75**	**45**	**817**	**54**	**323**	**440**	**322**	**370**	**196**	**295**
%	2.7%	23.5%	9.4%	33.3%	16.4%	9.2%	5.5%	100.0%	6.6%	39.5%	53.9%	39.4%	45.3%	24.0%	36.1%

%

Area	Crested piece, bidirectional	Crested piece, unidirectional	Core tablet	Partial platform renewal	Core face renewal	Plunging piece	Other	Total	Burnt	Fragments	Flake	Blade	Cortex	Hinged/stepped	Abraded
2002 Excavation	3.6	26.8	14.2	25	18.8	7.1	4.5	100	13	39.8	53.1	31.9	51.3	31.9	52.2
1		33.3		50		16.7		100	16.7	100	16.7	66.7	16.7		
2			25	12.5	25	12.5	25	100	12.5	37.5	75	25	62.5	12.5	37.5
3						100		100				100			
4	2.8	21.1	8.3	39.4	21.1	1.8	5.5	100	6.4	41.3	64.2	32.1	45	18.3	45
5		50	16.6	16.7	16.7			100		16.7	66.7	50	50	16.7	33.3
6	3.6	33	8	27.4	13.2	10.7	4.1	100	4.6	41.6	47.2	48.2	44.2	25.4	41.6
7			33.3	33.4		33.3		100		33.3	33.3	33.3	33.3	33.3	33.3
8			10	30	50	10		100	30	30	70	10	60	60	10
9	6.9	13.8	3.4	41.4	17.3	10.3	6.9	100	10.3	41.4	51.7	37.9	41.4	17.2	27.6
10	1.7	22.4	7.6	37	11	11	9.3	100	5.1	41.8	48.9	43.9	45.1	22.4	23.6
11		6.1	12.1	63.6	12.1	6.1		100	6.1	33.3	84.8	15.2	33.3	15.2	42.4
12				66.7	22.2	11.1		100		33.3	77.8	11.1	22.2	22.2	22.2
Other	3.5	17.5	14	19.4	33.3	12.3		100	3.5	21.1	56.1	40.4	49.1	28.1	31.6
Mean %	3.7	24.9	13.9	35.6	21.9	18.7	9.2		10.8	39.3	57.3	39.0	42.6	25.3	33.4

Table 5.7 Microlith classification by Area

AREA	Obliquely blunted	Isosceles triangle	Obliquely pointed	Trapeze	Rhomboid	Lanceolate	Convex backed	Straight backed	Rod	Scalene triangle	4-sided	Lunate	Hollow based	Inversely retouched	Tanged	Unclassified	**Total**	%
2002 Excavation	22	1	1			3	2	75	5	13	3	1	1	6	2	61	**196**	19
Area 1	3			1		1		1	1							4	**11**	1.1
Area 2								6								1	**7**	0.7
Area 3	3															3	**6**	0.6
Area 4	5				1			54	6	1				4	1	6	**78**	7.5
Area 5								2									**2**	0.2
Area 6	30	1	1			6	13	104	4	4			3	12		55	**233**	22.7
Area 7								1									**1**	0.1
Area 8								2								1	**3**	0.3
Area 9	1					6		11		3				2		16	**39**	3.8
Area 10	30	7				11	5	80	5	32	19		5	8	8	134	**344**	33.4
Area 11	5	1				3	1	36	2		13			4		22	**87**	8.5
Area 12	3	1						1								4	**9**	0.9
Other	4							3								5	**12**	1.2
TOTAL	**106**	**11**	**2**	**1**	**1**	**30**	**21**	**376**	**23**	**53**	**35**	**1**	**9**	**36**	**11**	**312**	**1028**	100
%	10.3	1.1	0.2	0.1	0.1	2.9	2	36.7	2.2	5.1	3.4	0.1	0.9	3.5	1.1	30.3	100	-

%

AREA	Obliquely blunted	Isosceles triangle	Obliquely pointed	Trapeze	Rhomboid	Lanceolate	Convex backed	Straight backed	Rod	Scalene triangle	4-sided	Lunate	Hollow based	Inversely retouched	Tanged	Unclassified	Total
2002 Excavation	11.2	0.5	0.5			1.5	1	38.3	2.6	6.6	1.5	0.5	0.5	3.1	1	31.1	99.9
Area 1	27.3			9.1		9.1		9.1	9.1							36.4	100.1
Area 2																	
Area 3	50															50	100
Area 4	6.4				1.3			69.2	7.7	1.3				5.1	1.3	7.7	100
Area 5								100									100
Area 6	12.9	0.4	0.4			2.6	5.6	44.6	1.7	1.7			1.3	5.2		23.6	100
Area 7								100									100
Area 8								67								33	100
Area 9	2.6					15.4		28.2		7.7				5.1		41	100
Area 10	8.7	2				3.2	1.5	23.3	1.5	9.3	5.5		1.5	2.3	2.3	39	100.1
Area 11	5.7	1.2				3.4	1.2	41.4	2.3		14.9			4.6		25.3	100
Area 12	33.3	11.1						11.1								44.4	99.9
Other	33.3							25								41.7	100

Table 5.8 Microlith attributes by Area

AREA	Burnt	Fragments	Broken tips	Intact bulbs	Microburin scars	Left lateralized	Right lateralized
2002 Excavations	42	162	22	19	6	115	34
Area 1		7	2	1	1	8	3
Area 2	3	7				4	3
Area 3	3	4				4	1
Area 4	15	69	5	6	2	50	14
Area 5		1				1	
Area 6	26	172	29	13	7	109	54
Area 7		1				1	
Area 8	1	3				3	
Area 9	6	26	5	3	1	18	7
Area 10	51	242	44	21	11	168	63
Area 11	11	57	3	2	2	46	13
Area 12	1	5			1	4	
Other	2	8	1	2		7	3
TOTAL	**161**	**764**	**111**	**67**	**31**	**538**	**195**
Site %	16%	75%	11%	7%	3%	53%	19%

%

AREA	Burnt	Fragments	Broken tips	Intact bulbs	Microburin scars	Left lateralized	Right lateralized
2002 Excavations	21	82.7	11.2	9.7	3.1	58.7	17.3
Area 1		63	37	9	9	73	27
Area 2	43	100				57	43
Area 3	50	67				67	17
Area 4	19	89	6	8	4	64	18
Area 5		50				50	
Area 6	11	74	13	6	3	48	23
Area 7		100				100	
Area 8	33	100				100	
Area 9	16	70	14	8	3	49	19
Area 10	15	71	13	6	3	49	18
Area 11	13	66	3	2	2	53	15
Area 12	11	55			11	44	
Other	17	67	8	17		58	25

Table 5.9 Microburin classification by area

Area	Proximal right	Proximal left	Proximal right miss-hit	Proximal left miss-hit	Distal right	Distal left	Distal right miss-hit	Distal left miss-hit	Double	Double miss-hit	Unclassified	**Total**	Site %	Broken	Burnt
2002 Excavations	34	1	5	3	1	4	2	2				**52**	12.6	11	7
1	6		2									**8**	2		
2	1		1									**2**	0.5	1	
3												**0**			
4	5		14	1		2		1				**23**	5.6	2	
5												**0**			
6	52	19	25	2	4	6	2	5	1	1	3	**120**	29.3	20	8
7												**0**			
8	1											**1**	0.2	1	
9	10	2	3				1			1	1	**18**	4.4	3	
10	79	3	27	4	2	22	1	3		4	3	**148**	36.1	31	7
11	17		5		1	4		2		1		**30**	7.3	7	1
12	4											**4**	1	1	2
Other	**2**		**1**			**1**						**4**	1		
TOTAL	**211**	**25**	**83**	**10**	**8**	**39**	**6**	**13**	**1**	**7**	**7**	**410**	100	**66**	**25**
%	51.50%	6.10%	20.20%	2.40%	2%	9.50%	1.50%	3.20%	0.2	1.70%	1.70%	-	-	18.80%	6.10%

%

Area	Proximal right	Proximal left	Proximal right miss-hit	Proximal left miss-hit	Distal right	Distal left	Distal right miss-hit	Distal left miss-hit	Double	Double miss-hit	Unclassified	Total	Broken	Burnt
2002 Excavations	65.4	1.9	9.6	5.8	1.9	7.8	3.8	3.8				100	21.2	13.5
Area 1	75		25									100		
Area 2	50		50									100	50	
Area 4	22		61	4		9		4				100	8.7	
Area 6	43.3	15.8	20.8	1.7	3.3	5	1.7	4.2	0.8	0.8	2.6	100	16.7	6.7
Area 8	100											100	100	
Area 9	55.6	11	16.6				5.6			5.6	5.6	100	16.7	
Area 10	53.3	2	18.1	2.7	1.4	14.8	0.7	2		3	2	100	20.9	4.7
Area 11	56.7		16.7		3.3	13.3		6.7		3.3		100	23.3	3.3
Area 12	100											100	25	50
Other	50		25			25						100		

Table 5.10 Other tools & tool debitage classification by Area

Area	Axe	Axe Sharpening Flake	Arrowhead	Burin	Burin Spall	Chamfered Piece	Combination Tool	Core/Burin	Core/Scraper	Denticulate	Fabricator	Hammerstone	Knife	Edge Modified	Notch	Polished Piece	Piercer	Misc.Retouched	Scraper	?Sharpening Flake	S
2002 Excavation	1	13		8	3	2				6		2		67	29		5	41	18		
Area 1							1			1				8	1			1	1		
Area 2														1				2			
Area 3											1			7	1	1		1			
Area 4	1	9		12	3	1	2	8	1	4		3		142	23		12	48	5	1	
Area 5														3				3		1	
Area 6		32		24	3	1	4	1	2	17	1		1	257	32	1	8	58	19	9	
Area 7															1				1		
Area 8	1	1		1										8	3				1		
Area 9	2	2		3					1	2		1		75	11		4	20	8		
Area 10	1	39	2	9	3	2	3		2	8	1	3		302	38		7	70	21	12	
Area 11	1	3		4	2			2	2	1				68	14		5	18	4	2	
Area 12		1												4	2	1		5			
OTHER	1	4	1	13	3	2	1	1		3		2	4	125	26	2	7	28	18		
Total	**8**	**104**	**3**	**74**	**17**	**8**	**11**	**12**	**8**	**42**	**3**	**11**	**5**	**1067**	**181**	**5**	**48**	**295**	**96**	**25**	
%	0.4%	4.8%	0.1%	3.4%	0.8%	0.4%	0.5%	0.6%	0.4%	1.9%	0.1%	0.5%	0.2%	49.5%	8.4%	0.2%	2.2%	13.7%	4.5%	1.3%	
Burnt total	**0**	**2**	**0**	**1**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**30**	**5**	**0**	**0**	**30**	**7**	**3**	
Burnt %	0.0%	1.9%	0.0%	1.4%	5.9%	0.0%	0.0%	8.3%	0.0%	0.0%	0.0%	9.1%	0.0%	2.8%	2.8%	0.0%	0.0%	10.2%	7.3%	12.0%	

%

Area	Axe	Axe Sharpening Flake	Arrowhead	Burin	Burin Spall	Chamfered Piece	Combination Tool	Core/Burin	Core/Scraper	Denticulate	Fabricator	Hammerstone	Knife	Edge Modified	Notch	Polished Piece	Piercer	Misc.Retouched	Scraper	?Sharpening Flake	S
2002 Excavation	0.5	6.3		3.8	1.4	1				2.9		1		32.3	13.8		2.4	19.7	8.7		
Area 1							7.7			7.7				61.5	7.7			7.7	7.7		
Area 2														33.3				66.7			
Area 3											8.3			58.3	8.4	8.3		8.4			
Area 4	0.3	3.1		4.2	1	0.3	0.7	2.8	0.3	1.4		1		49.5	8		4.2	16.7	1.7	0.4	
Area 5														30				30		10	
Area 6		6.5		4.9	0.6	0.2	0.8	0.2	0.4	3.4	0.2		0.2	52	6.5	0.2	1.6	11.7	3.8	1.8	
Area 7															33.3				33.4		
Area 8	6.3	6.3		6.3										50	18.5				6.3		
Area 9	1.4	1.4		2.1					0.7	1.4		0.7		52.8	7.7		2.8	14.1	5.6		
Area 10	0.2	6.9	0.4	1.6	0.5	0.4	0.5		0.4	1.4	0.2	0.5		53.3	6.7		1.2	12.3	3.7	2.1	
Area 11	0.7	2.2		3	1.5			1.5	1.5	0.7				50.4	10.4		3.7	13.3	3	1.5	
Area 12		7.1												28.6	14.3	7.1		35.8			
OTHER	0.4	1.6	0.4	5.2	1.2	0.8	0.4	0.4		1.2		0.8	1.6	50	10.4	0.8	2.8	11.2	7.2		

Table 5.11 Other tool & tool debitage attributes by Area

Area	Burnt	Flake	Blade	Proximal Frag	Mesial Frag	Distal Frag	Core
2002 Excavation	11	89	82	38	15	43	4
Area 1		4	8			2	
Area 2	1	1					
Area 3		2	9	1	1		
Area 4	9	92	121	44	20	49	9
Area 5		4	3	2	1	1	
Area 6	22	161	248	79	44	85	4
Area 7		1	1				
Area 8		9	4			2	1
Area 9	5	37	80	29	8	37	4
Area 10	23	194	278	105	41	110	11
Area 11	7	38	67	23	16	34	4
Area 12		7	2	2	4		
OTHER	4	104	124	35	15	44	3
Total	**82**	**743**	**1027**	**358**	**165**	**407**	**40**
%	3.8%	34.5%	47.7%	16.6%	7.7%	18.9%	1.9%

%

Area	Burnt	Flake	Blade	Proximal Frag	Mesial Frag	Distal Frag	Core
2002 Excavation	5.3	42.8	39.4	18.3	7.2	20.7	1.9
Area 1		30.8	61.5			15.4	
Area 2	33	66.7					
Area 3		16.7	75	8.3	8.3		
Area 4	3.1	32.1	42.2	15.3	7	17.1	3
Area 5		40	30	20	10	10	
Area 6	4.5	32.6	50.2	16	8.9	17.2	0.8
Area 7		33.3	33.3				
Area 8		56.3	25			12.5	6.3
Area 9	3.5	26.1	56.3	20.4	5.6	26.1	2.8
Area 10	4.1	34.2	49	18.5	7.2	19.4	1.9
Area 11	5.2	28.1	49.6	17	11.9	25.2	3
Area 12		50	14.3	14.3		28.6	
OTHER	1.6	40	49.6	14	6	17.6	1.2

Table 5.12 Burnt flintwork totals by Area & lithic artefact category

TOTAL NOS.

Area	Cores	Core dressings	Modified & Spalls	Microliths	Microburins	Other debitage	**Total burnt**
2002 Excavation	4	15	11	42	7	2138	**2217**
Area 1						75	**75**
Area 2		1	1	3		93	**98**
Area 3				3		58	**61**
Area 4	3	7	9	15		794	**828**
Area 5						14	**14**
Area 6	5	9	22	26	8	1156	**1226**
Area 7						11	**11**
Area 8		3		1		113	**117**
Area 9		3	5	6		202	**216**
Area 10	6	12	23	51	7	2036	**2135**
Area 11		2	7	11	1	503	**524**
Area 12				1	2	46	**49**
All Other	4	2	4	2		60	**72**
TOTAL	**22**	**54**	**82**	**161**	**25**	**7299**	**7643**
Overall % Burnt	4.30%	6.60%	3.80%	16.00%	6.10%	12.10%	11.70%

Total % by Area

Area	Cores	Core dressings	Modified & Spalls	Microliths	Microburins	Other debitage	**Total burnt %**
2002 Excavation	2.5	13	5.3	21	13.5	14	**13.8**
Area 1		16.7				3	**2.9**
Area 2		12.5	33	43		26.6	**25.8**
Area 3				50		33.3	**30.3**
Area 4	6.3	6.4	3.1	19		12.8	**12.2**
Area 5						8.6	**7.3**
Area 6	6	4.6	4.5	11	6.7	8	**7.9**
Area 7						8.9	**7.9**
Area 8		30		33		53.3	**45.9**
Area 9		10.3	3.5	16		8.6	**8.3**
Area 10	4.6	5.1	4.1	15	4.7	14.3	**13.6**
Area 11		6.1	5.2	13	3.3	17	**16.1**
Area 12				11	50	11.3	**10.8**
All Other	7	3.5	1.6	17		9.4	**7**
Mean	5.3	10.8	7.5	22.6	15.6	16.4	15.0

Table 5.13 Flintwork chronological framework (all dates calendrical or derived from recalibration of radiocarbon dates)

PERIOD	TIMESCALE	SURREY FRAMEWORK (ELLABY 1987)	SURREY SITES	NATIONAL SITES	MICROLITH TYPES	OTHER	NORTH PARK FARM	NPF MICROLITHS
EARLY MESOLITHIC	*c* 10000-8000 BC (late 10th–early 8th millenium cal BC) *c* 8500–7700 BC (Gardiner nd after Jacobi 1978, 1981)	Early Mesolithic	Redhill (Ellaby 1987) St Catherine's Hill, Guildford (Gabel 1976)	Star Carr (Clark 1971) Deepcar (Radley & Mellars 1964) Oakhanger (Waddington 2007, 219) *c* 8000 cal BC	Oblique points (broad) Large scalene triangles Oblique points (narrow)	Double opposed platform cores Double opposed platform cores Simple end scrapers	Areas 1, 3 occasional eg in other Areas 1 Early oblique point from Bletchingley	Oblique points, some large, all narrow
MIDDLE MESOLITHIC	*c* 8000-7000 BC (8th millenium cal BC with overlaps) (Gardiner nd after Jacobi 1978, 1981)	Horsham Period *c* 8200–7000 BC	Kettlebury 103 (Reynier 2002; Waddington 2007, 219) (*c* 7000 cal BC)		Horsham points, isosceles triangles, oblique points with opposed retouch, rhomboids?	Orthogonal & diverse platformed cores, occasional 'helix' types Chamfered pieces, face dressings	Area 10 NE	Horsham points, oblique point with opposed retouch, isosceles triangles, rhomboid?
			Goldhoard	Honey Hill type assemblages (Reynier 2005, 29) (*c* 8000 BP)	Oblique points, backed points, rhomboids, scalene & isosceles triangles, inverse basally retouched points	Large microburins, curved points		
				Howick (Waddington et al) 2007, 71) (7970–7760 cal BC; phase 4 began 7560–7330 cal BC)	Scalene triangles (all sizes), 2 oblique points, isosceles triangles, backed blades, 1 rod, needle points			
		Transitional Early/Late Mesolithic	Flanchford Mill (Ellaby 1985; 1987)		Rare Horsham points, oblique points, scalene triangles, straight backed bladelets			
				Rock Common (Harding 2000)	Rare Horsham points, backed blades, scalene triangles, convex backed pieces, oblique points		Area 6 (*c* 7580–7050 BC)	Scarce Horsham points, inversely retouched microliths, backed blades, oblique points
				Broom Hill (Waddington 2007, 212) (hut 7610–7300 cal BC) Mt Sandel (Waddington 2007, 215 (*c* 7500 cal BC))	Straight backed bladelets, inverse basally retouched points, scalene triangles, needle points, rare oblique points			
LATE MESOLITHIC	*c* 7000–4000 BC (early 7th–late 5th millenium cal BC) Gardiner nd after Jacobi 1978, 1981)	Early Phase or Pioneering later Mesolithic *c* 7000–6000 BC	Kettlebury 59 (Ellaby 1987)		Straight backed bladelets, inverse basally retouched points, scalene triangles, needle points, rare oblique points	Spatulate microburins	NPF 01 Pit 638	Straight backed bladelets, 2 oblique points, 1 inverse basally retouched
							Area 2	Straight backed bladelets
							Area 4	Straight backed bladelets, rare oblique points
							Area 9 (*c* 6430–6240 BC)	Straight backed bladelets, scalene triangles
							NPF 01 Pit 702	3 rods
				Lydstep Haven (*c* 5300 BP, Barton et al 1995, 109)	Straight backed bladelets	Absence of scrapers		
				South Haw (4230–3980 cal BC, Chatterton 2007) March Hill Top (3940–3700 cal BC, Spikins 2002, 43)	Straight backed bladelets		?Area 11 (from *c* 7460–7170 BC to 7060–6690 BC)	Straight backed bladelets, 4-sided microliths
		Geometric phase of the later Mesolithic, *c* 6000–4000 BC			Small convex backed pieces, micro scalene triangles, 4-sided pieces		NPF 01 Pits 779, 772 NPF 01 Pits 728/9	Scalene triangles, few straight backed bladelets 4-sided microliths, straight backed bladelets rare
			Charlwood (Ellaby 2004) (*c* 4500 BC)		Tanged points, micro scalene triangles		Area 10, S Central	4-sided microliths
							Area 10 , NE	Tanged points, 1 unfinished

Table 5.14 Diagnostic post-Mesolithic flintwork

Area	Leaf arrowhead	Oblique arrowhead	Barbed & tanged arrowhead	Discoidal knife	Plano-convex knife	Invasively retouched knife	Polished flake or fragment	Discoidal core
3							1	
6							1	
10	1	1						2
12							1	
Other			1	1	2	1	2	1
Total	**1**	**1**	**1**	**1**	**2**	**1**	**5**	**3**

Use Code	Group								Grand Total
	Adzes	Burins	Denticulates	End scrapers	MR blades	Microliths	MR flakes	Truncates	
Bone working		1							1
Hide cutting			3			2		2	7
Hide scraping			1	3	2				6
Hide working							1	1	2
Hide piercing		1				2			3
Butchering				1 (lateral edge)		7		1	9
Plant cutting			1		1				2
Hafting only						1			1
Weapon point/barb						16			16
Wood working	1								1
Grand Total	1	2	5	4	3	28	1	4	48

Table 6.1 Tool use frequencies according to broad tool types.

Use Code	Area								
	1	3	4	6	10	11	2001	TA	Total
Bone working						1			1
Hide working	2		7	4	2	3			18
Butchering	1		1	3	1			3	9
Plant cutting	2								2
Weapon point or barb		1	1	6	2	3	2	1	16
Wood working			1						1
Total	5	1	10	14	5	7	2	4	48

Table 6.2 Spatial distribution of tool use by Area.

Use	Sites		
	North Park Farm	B&Q	Lismore Fields
Meat/Butchering	19.1	0	41.4
Hide Working	38.3	53.3	28.6
Soft Material	0	10.0	0.0
Herbaceous Plant	4.3	3.3	17.1
Wood Working	2.1	0	0.0
Bone/Antler	2.1	3.3	10.0
Hard Material	0	6.7	0.0
Impact (Projectile)	34.0	23.3	2.8
Percent Total	99.9	99.9	99.9
Total Used	47	30	70

Table 6.3 Tool use percentile distributions for a sample of Mesolithic sites in Britain.

Table 6.4 List of Tools with use-wear

Small Finds Number	Type	UseCode	Use	Illustration
2	Retouched flake	H1U	Hide	Fig 5.26 no 1
13	End scraper	H1S	Hide	Fig 5.26 no 3
24	Four sided microlith	H1P	Hide	-
28	Obliquely blunted point microlith	U0I	Armature	-
30	Rod microlith	U0I	Armature	-
35	Backed blade	U0I	Armature	-
41	Inversely based point microlith	U0I	Armature	-
48	Obliquely blunted point microlith	U0I	Armature	-
53	Obliquely blunted point microlith	M2M	Butchering	Fig 5.31 no 2
54	Obliquely blunted point microlith	U0I	Armature	-
55	Obliquely blunted point microlith	M2P	Butchering	-
58	?Lanceolate microlith	Y1P	Butchering	-
69	Lanceolate microlith	U0I	Armature	-
71	Scalene triangle microlith	U0I	Armature	-
73	Lanceolate microlith	U0G	Undetermined	-
75	Straight backed microlith	Y1P	Butchering	-
79	?Four sided microlith	U0I	Armature	-
80	Convex backed microlith	Y1P	Butchering	-
83	Rod microlith	M1P	Butchering	Fig 5.31 no 17
87	Straight backed microlith	M1P	Butchering	-
91	Lanceolate microlith	U0I	Armature	-
102	Straight backed microlith	H0P	Hide	-
109	Scalene triangle microlith	H0S	Hide	-
110	Hollow based point microlith	U0I	Armature	-
123	Straight backed microlith	U0I	Armature	-
129	Straight backed microlith	H2M	Hide	-
131	Straight backed microlith	U0I	Armature	-
153	Modified blade	Y0S	Hide	Fig 5.26 no 13
154	Notched blade	P0O	Plant	-
159	Modified plunging blade	P0O	Plant	Fig 5.26 no 22
167	Modified blade	Y0S	Hide	-
185	Truncation	H0P	Hide	-
187	Truncation	H2P	Hide	-
190	Serrated blade	H2P	Hide	-
192	End scraper	M1P	Butchering	-
196	Adze sharpening flake	W0I	Wood	-
197	Notch	H0S	Hide	-
204	Truncation	H2M	Hide	-
211	Serrated blade	H2P	Hide	-
224	Truncation	M1P	Hide	-
244	End scraper	H0S	Hide	-
245	End scraper	H1S	Hide	-
248	?Serrated blade	H2P	Hide	-
304	Straight backed microlith	U0I	Armature	-
305	Rod/Straight backed microlith	U0I	Armature	-
351	Unclassified microlith	U0I	Armature	-
445	Blade (Burin?)	H2S	Hide	-
448	Flake	B0P	Bone/Antler	-

Sample No.	Spit No.	Context No.	Description	Vol. (Ltrs)	*Corylus avellana* shell	*Galium verum*
182	C6-07-3	60	Layer	19.25	1	1
151	C5-77-1	34	Layer	22.00		3
246	C5-77-4	60	Layer	22.25		8
119	C5-87-1	34	Layer	22.75	2	
132	C5-88-1	34	Layer	22.75	1	
159	C5-97-1	34	Layer	15.75		1
188	C5-97-2	60	Layer	22.50	1	

Table 7.1 Area 1: Plant macrofossil results

Sample No.	Spit No.	Context No.	Description	Volume (Ltrs)	Charcoal Weight	Number of pieces analysed	*Quercus* sp.	*cf. Pinus*	Unident.
358	F5-77	156	Hearth	3.5	0.01	0	0	0	0
509	F5-78	156	Hearth	3.75	0.12	4	0	1	3
508	F5-87	156	Hearth	10	0.06	3	0	0	3
359	F5-88	156	Layer	4.5	0.05	1	0	0	1
321	F5-94-7	123	Poss. feature	1	3.43	6	3	0	3
445	F6-09	162	Poss. hearth	2.25	0	0	0	0	0
437	F5-47	161	Small spread	15.00	6.20	22	19	0	3
436	F5-58	161	Small spread	10.00	2.24	14	10	0	4

Table 7.2 Area 6: Charcoal results for contexts 123, 156, 161 and 162

Sample No.	Spit No.	Context No.	Description	Vol. (Ltrs)	*Galium* sp.	*Corylus avellana* shell	*Galium verum*	*Triticum* sp.	Unident.
430	F5-47-1	18	Layer	26.00		10	1		
433	F5-47-2	106	Layer	24.00		1			
369	F5-48-4	106	Layer	18.00		3			
435	F5-58-2	106	Layer	23.00		2			
379	F5-59-3	18	Layer	23.75		1			
419	F5-60-4	18	Layer	26.75		1	3		
421	F5-67-1	121	Layer	22.75		1			
462	F5-67-2	106	Layer	26.00		3			
381	F5-68-2	106	Layer	23.50		6	1		
382	F5-68-3	106	Layer	21.00		11			
463	F5-69-2	106	Layer	18.00		1			
459	F5-76-1	18	Layer	25.75		5	1		
360	F5-77-2	106	Layer	22.75		11			
363	F5-77-4	106	Layer	24.00		6			
510	F5-78-2	168	Layer	15.50		1		1	
539	F5-78-6	106	Layer	25.00		11			
511	F5-87-2	18	Layer	24.00		12			
520	F5-87-3	168	Layer	23.00		10			
521	F5-87-4	168	Layer	24.00		19			
364	F5-88-2	106	Layer	21.00	1	2			
368	F5-88-4	106	Layer	23.50		5			
426	F5-89-2	106	Layer	11.00		13			
428	F5-89-3	106	Layer	23.75		34			
431	F5-89-4	106	Layer	26.00		24			
443	F5-89-5	106	Layer	25.50		11			

273	F5-94-3	18	Layer	11.00		2			
269	F5-94-4	18	Layer	14.25		2			
265	F5-95-2	18	Layer	6.00		1			
309	F5-95-7	106	Layer	16.00	4	1	2		
270	F5-96-1	18	Layer	26.00		17			
311	F5-96-3	106	Layer	24.00		2			1
425	F5-98-1	18	Layer	23.00		11			
494	F5-98-1	106	Layer			6			
498	F5-98-2	106	Layer	18.00		7			
500	F5-98-3	106	Layer	27.00		2			
507	F5-98-4	106	Layer	26.00		5			
170	F6	33	Fill of hollow	21.25		3			
313	F6-04-2	106	Layer	21.00		6			
259	F6-05-2	18	Layer	22.75		2			
260	F6-05-3	18	Layer	16.00		1			
298	F6-05-6	106	Layer	23.25		1			
245	F6-06-1	18	Layer	5.25		1			
262	F6-06-1	18	Layer	23.00	1	2			
528	F6-09-2	106	Layer	21.00		2			
533	F6-09-3	106	Layer	25.00		1			
299	F6-14-2	106	Layer	22.75		6			
314	F6-16-2	106	Layer	22.25	2	4			
447	F6-18-1	18	Layer	21.50		10			
505	F6-18-4	106	Layer	24.50		1			
236	F6-24-2	18	Layer	20.00		10			
285	F6-24-3	106	Layer	20.75		9			
288	F6-24-4	106	Layer	23.75		13			
230	F6-25-2	18	Layer	15.50		5			
229	F6-26-1	18	Layer	24.50		6			
212	F6-34-1	18	Layer	21.50		2			
214	F6-34-2	18	Layer	11.25		13			
274	F6-34-4	106	Layer	22.75		13			
277	F6-34-5	106	Layer	23.50		21			
278	F6-34-6	60	Layer	22.75		9	1		
280	F6-34-7	106	Layer	23.00		6			
213	F6-35-1	18	Layer	16.50		1			
215	F6-35-2	18	Layer	16.50		1			
217	F6-35-3	18	Layer	21.50		15			
275	F6-35-5	106	Layer	22.75		6			
279	F6-35-7	106	Layer	23.50		1			
216	F6-36-1	18	Layer	21.00		5			
218	F6-36-2	18	Layer	24.00		1			
282	F6-36-3	106	Layer	25.00		9			

Table 7.4 Area 6: Plant macrofossil results

Sample No.	Spit No.	Context No.	Description	Volume (Ltrs)	Charcoal Weight	Number of pieces analysed	*Quercus* sp.	*Corylus avellana*	Unident.
571	I5-89	122	Poss.Hearth	24	0.03	1	1	0	0
319	I5-99-6	122	Poss. Hearth	15	0.61	26	7	15	4

Table 7.4 Area 9: Charcoal results for hearth 122

Sample No.	Spit No.	Context No.	Description	Vol. (Ltrs)	*Corylus avellana* shell	*Galium* sp.	*Galium verum*	Unident.
570	I5-89-1	121	Layer	35.50				
574	I5-89-3	121	Layer	33.25			1	
573	I5-89-2	121	Layer	31.00			1	
544	I5-98-1	121	Layer	23.75	3			
543	I5-100-1	121	Layer	23.50				1
545	I5-100-2	121	Layer	23.75	1			
550	I5-100-4	121	Layer	24.00				
552	I5-100-5	121	Layer	23.00		1		

Table 7.5 Area 9: Plant macrofossil results

Sample No.	Spit No.	Context No.	Description	Volume (Ltrs)	Charcoal Weight	Number of pieces analysed	*Quercus* sp.	*Pinus sylvestris*	*Taxus baccata*	Cf.Prunus	Acer sp.	Unident.
492	H4-20	141	Poss. fill of pit?	87	2.82	17	12	0	0	3	0	2
518	H4-29	141	Poss. Pit	35.5	0.81	3	3	0	0	0	0	0
341	I4-11	141	Poss. Pit	26.75	4.38	15	11	0	0	1	0	3
340	I4-22	139	Poss. Hearth	12.25	0.07	0	0	0	0	0	0	0
343	I4-55	126	Hearth		22.34	11	11	0	0	0	0	0
597	I4-56	126	Hearth	37.00	1.61	17	9	0	0	0	1	7
599	I4-56	179	Poss. Hearth	12	10.62	39	32	0	0	0	0	7
600	I4-56	126	Hearth	18.5	60.28	100	74	1	1	1	0	19
640	I4-56	179/126	Hearth interface	7	40.31	46	43	0	0	0	0	3
469	I4-65	126	Hearth	20	1.03	5	4	0	0	0	0	1
338	I4-66-4	126	Hearth	13	93.09	100	81	0	0	0	0	19
346	J4-28	146	Hearth			23	23	0	0	0	0	0

Table 7.7 Area 10: Charcoal results

Sample No.	Spit No.	Context No.	Description	Vol. (Ltrs)	*Corylus avellana*	*Galium* sp	*Galium verum*	Unident.
492	H4-20	141	Poss. pit	87.00	1			
341	I4-11	141	Poss. pit	26.25				1
535	I4-20-4	121	Layer	25.00			1	
461	I4-23-4	121	Layer	24.00			1	
493	I4-45-3	121	Layer	21.25		2	3	
457	I4-47-3	159	Layer	22.25			6	
424	I4-54-2	159	Layer	23.00			1	

450	J4-54-4	121	Layer	18.00			1	
481	J4-43-1	159	Layer	23.00		1	2	
497	J4-43-4	159	Layer	26.00	4			
499	J4-43-5	121	Layer	22.75				1
600	I4-56	126	Hearth	18.50				1
391	I4-76-3	121	Layer	12.25			1	

Table 7.8 Area 10: Plant macrofossil results

Sam.No	Spit No.	Con. No.	Descrt.	Vol. (Ltrs)	Charcoal Weight	Num. Ident.	Quercus sp	Pomo.	Corylus	Betulaceae	Salix/ Pop.
624	J6-45-7	160	Hearth	12.5	4.37	25	21	3	1	0	0
629	J6-45-8	160	Hearth	10.75	7.61	44	26	2	8	0	0
635	J6-45-9	160	Hearth	15	6.06	75	43	8	8	0	0
672	J6-45-11	160	Hearth	2	0.1	0	0	0	0	0	0
621	J6-96-9	160	Hearth			9	9	0	0	0	0
647	J6-46-10	160	Hearth	17.75	0.4	4	1	3	0	0	0
655	J6-46-11	160	Hearth	20.25	5.01	21	6	11	4	0	0
657	J6-46-13	160	Hearth	18.5	9.24	62	51	3	4	0	0
658	J6-46-14	160	Hearth	26	10.1	81	51	7	1	0	0
679	J6-46-15/16	160	Hearth	15	0.68	4	3	0	1	0	0
706	J6-55-5	169	Poss. hearth	11	0.28	4	1	0	2	1	0
707	J6-55-6	169	Poss. hearth	5.75	0.36	4	0	0	0	0	2
715	J6-55-12	160	Hearth	6	0.84	4	0	0	3	0	0
721	J6-55-13	160	Hearth	2	0	0	0	0	0	0	0
723	J6-55-14	160	Hearth	1	0.04	1	0	0	1	0	0
729	J6-55-14	160/175	Hearth interface	3.75	0.89	5	5	0	0	0	0
726	J6-55-15	160/175	Hearth	6	None	0	0	0	0	0	0
556	J6-56-3,4	173	Poss. Hearth	1	3.07	5	2	0	0	0	0
547	J6-56-4	169	Poss. Hearth	5	0.31	0	0	0	2	0	0
620	J6-56-9	160	Hearth	11.5	1.03	6	4	0	1	0	0
648	J6-56-10	160	Hearth	12.00	1.15	11	8	1	0	0	0
719	J6-56-12	160	Hearth	6.5	0.7	6	0	0	0	0	0
725	J6-56-13	160	Hearth	2.75	0	0	0	0	0	0	0
625	J6-66	180	Hearth	8	0.6	4	2	0	0	0	0
601	J6-66-175	176	Poss. Hearth	10.25	0.87	2	0	0	0	0	

Table 7.9 Area 11: Charcoal analysis results

Sample No.	Spit No.	Context No.	Description	Vol. (Ltrs)	Galium sp.	Corylus avellana	Galium verum	Triticum sp.
617	J6-45-4	121	Layer	18.50		2		
592	J6-46-2	174	Fill of hollow	6.00			3	
655	J6-46-11	160	hearth	20.25		6		
675	J6-54-1	174	Fill of hollow	21.25			2	1
702	J6-55-2	164	Fill of hollow	21.25			1	2
705	J6-55-5	174	Fill of hollow	21.50			4	
709	J6-55-6	121	Layer	19.50	2			
707	J6-55-6	169	Poss. hearth	5.75		1	1	
710	J6-55-7	121	Layer	22.25	2	3	7	
555	J6-56-4	121	Layer	24.50	3		5	
621	J6-56-9	182	Layer	10.50			1	
670	J6-57-2	121	Layer	22.00			49	2
676	J6-57-3	121	Layer	24.00			25	
606	J6-64-1	174	Fill of hollow	24.50			1	
632	J6-64-3	121	Layer	23.50			2	
633	J6-64-4	121	Layer	18.25			1	
641	J6-64-5	121	Layer	15.00			1	
674	J6-64-10/13	185	Poss. hearth	23.50		1		
572	J6-66-1	174	Fill of hollow	18.00			1	
589	J6-66-5	121	Layer	24.25	2			

Table 7.10 Area 11: Plant macrofossil results

Table 8.1 ICPMS data for samples NPF05-01 to NPF05-08

Sample	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Ba	Co	Cr	Cu	Li
Standard	62.74	13.80	5.46	2.76	2.54	0.85	2.86	0.55	0.20	0.051	592	10	74	29	46
05-01	99.15	0.31	0.34	0.01	0.03	0.01	0.02	0.08	0.01	0.002	23	0	11	3	1
05-02	99.47	0.21	0.34	0.01	0.00	0.01	0.01	0.10	0.00	0.002	22	0	10	3	1
05-03	99.94	0.22	0.31	0.01	0.00	0.01	0.01	0.07	0.00	0.001	20	1	8	3	1
05-04	99.58	0.18	0.33	0.01	0.00	0.01	0.01	0.08	0.01	0.002	23	0	8	5	1
05-05	99.29	0.18	0.50	0.01	0.03	0.01	0.01	0.08	0.00	0.003	22	1	8	3	1
05-06	99.73	0.18	0.35	0.09	0.02	0.01	0.01	0.09	0.00	0.002	23	0	10	3	1
05-07	99.64	0.18	0.30	0.01	0.00	0.00	0.01	0.05	0.00	0.001	19	1	7	3	1
05-08	99.64	0.24	0.37	0.01	0.00	0.00	0.01	0.08	0.00	0.002	22	1	9	5	1

Table 8.2 ICPMS data for samples NPF05-01 to NPF05-08

Sample	Ni	Sc	Sr	V	Zn	Zr	Pb	U	Th	Rb	Nb	Cs	Hf	Ta	Tl
Standard	28	12	169	129	99	158	30	2.76	9.51	111	11.5	7.80	4.47	0.85	0.90
05-01	4	1	7	0	3	158	3	0.31	0.64	1	3.5	0.13	3.74	0.29	0.09
05-02	3	0	5	0	4	272	4	0.46	0.76	1	3.8	0.12	6.48	0.31	0.08
05-03	3	0	5	0	3	100	6	0.25	0.53	2	2.2	0.30	2.54	0.16	0.08
05-04	3	0	5	1	4	146	4	0.28	0.64	1	2.8	0.13	3.60	0.16	0.09
05-05	3	0	5	1	4	138	5	0.34	0.45	1	2.6	0.12	3.32	0.18	0.08
05-06	8	0	6	0	4	155	5	0.30	0.56	2	3.1	0.14	3.92	0.23	0.07
05-07	3	0	5	1	3	89	3	0.24	0.37	1	1.8	0.12	2.30	0.13	0.08
05-08	3	0	5	0	4	177	5	0.33	0.58	1	2.8	0.15	4.29	0.20	0.11

Table 8.3 ICPMS data for samples NPF05-01 to NPF05-08

Sample	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Dy	Ho	Er	Yb	Lu	Mo
Standard	26	28.3	58.9	6.4	26.7	5.00	1.12	3.99	3.65	0.74	2.03	2.22	0.38	1.7
05-01	3	6.9	5.7	0.5	2.1	0.42	0.10	0.44	0.37	0.10	0.25	0.50	0.07	0.8
05-02	3	2.9	4.7	0.4	1.7	0.43	0.10	0.41	0.45	0.11	0.31	0.61	0.09	0.5
05-03	2	2.3	3.5	0.4	1.4	0.36	0.08	0.27	0.28	0.07	0.21	0.40	0.04	0.6
05-04	3	2.5	4.2	0.4	1.5	0.40	0.08	0.32	0.40	0.09	0.28	0.52	0.07	0.5
05-05	2	2.7	4.2	0.4	1.6	0.41	0.07	0.34	0.35	0.09	0.23	0.41	0.08	0.5
05-06	3	3.1	4.9	0.5	1.9	0.46	0.08	0.36	0.38	0.08	0.23	0.47	0.07	0.5
05-07	2	3.1	4.7	0.4	1.7	0.40	0.08	0.32	0.27	0.06	0.20	0.36	0.06	0.4
05-08	3	3.1	4.8	0.5	1.7	0.49	0.10	0.30	0.31	0.08	0.27	0.46	0.07	0.5

Table 9.1 Radiocarbon results

Laboratory code	Sample ID	Context/Location	Material	δ13C (‰)	Radiocarbon Age (BP)	Calibrated Date (95% confidence)
OxA-16905	436.CH/382	Area 6 – hearth feature (161), spit [F5-58-3]	charcoal, unidentified twig (L Farr)	-25.9	8275 ±40	7480–7170 cal BC
SUERC-13955	436.CH/815	As OxA-16905	charcoal, cf. *Quercus* sapwood (L Farr)	-25.4	8275 ±40	7480–7170 cal BC
OxA-17591	376A	Area 6 – (158) [F5-59], in association with a re-fitting flint scatter	charcoal, cf. *Corylus* (R Gale)	-24.8	3643±22	2140-1910 cal BC
OxA-17592	376B	As OxA-17591	charcoal, *Corylus*/*Alnus*	-25.4	3669±29	2140-1950 cal BC
OxA-17594	510	Area 6 – (168), spit [F5-78-2) which surrounds a hearth-type feature (156)	charcoal, *Ulmus* (R Gale)	-24.9	6771±38	5730-5620 cal BC
OxA17596	521	Area 6 – (168), spit [F5-78-3) which surrounds a hearth-type feature (156)	charcoal, Pomoideae sp. (R Gale)	-25.4	8170±45	7330-7050 cal BC
OxA-17664	520A	As OxA-17664	charcoal, cf. *Corylus*/*Alnus* (R Gale)	-26.0	116±23	cal AD 1680-1940
OxA-17595	520B	As OxA-17664	charcoal, herbaceous stem (R Gale)	-25.7	2905±29	1220-1000 cal BC
OxA-17661	438A	Area 6 – (157), spit [F5-48-3] which formed a small spread around a hearth-type feature (161)	charcoal, *Prunus* (R Gale)	-24.7	1508±24	cal AD 470-610
OxA-17662	438B	As OxA-17761	charcoal, Pomoideae sp. (R Gale)	-23.9	648±23	cal AD 1280-1395
OxA-16904	319.CH/368	Area 9 – hearth (122), spit [I5-99-6]	charcoal, *Corylus avellana* (L Farr)	-23.9	7762 ±40	6660–6470 cal BC
OxA-17659	319A	As OxA-16904	charcoal, *Quercus* sp. sapwood (L Farr)	-23.0	7468±32	6430-6240 cal BC
SUERC-12922	319.CH/370	As OxA-16904	charcoal, *Corylus avellana* (L Farr)	-25.8	7940 ±40	7050–6650 cal BC
OxA-17590	319B	As OxA-16904	charcoal, cf. *Corylus*/*Alnus* (R Gale)	-24.8	7931±40	7050-6650 cal BC
OxA-16933	597.CH/701	Area 10 – hearth (126), spit [I4-56-5]	charcoal, *Acer* sp. (L Farr)	-26.3	1510 ±27	cal AD 440–620
OxA-17593	455A	(121), spit [I4-23-2] from near an area of burnt flint (139)	charcoal, *Quercus* sp. sapwood (R Gale)	-28.2	2807±27	1020-890 cal BC
OxA-17663	455B	As OxA-17593	charcoal, *Fraxinus* (R Gale)	-23.9	110±23	cal AD 1680-1940
OxA-17660	396	Area 10 - (121), spit [I4-21-2] from near an area of burnt flint (139)	charcoal, *Quercus* sp. sapwood (R Gale)	-24.3	108±22	cal AD 1680-1935

SUERC-13207	629.CH/761	Area 11 – uppermost spit of hearth (160), spit [J6-45-8]	charcoal, Maloideae sp. (L Farr)	-27.1	8235 ±35	7450–7080 cal BC
OxA-16934	629.CH/375	As SUERC-13207	charcoal, *Corylus avellana* (L Farr)	-27.7	7990 ±39	7060–6690 cal BC
SUERC-12926	655.CH/380	Area 11 – middle spit of hearth (160), spit [J6-46-11]	charcoal, Maloideae sp. (L Farr)	-27.0	8205 ±35	7340–7070 cal BC
SUERC-12927	658.CH/297	Area 11 – bottom spit of hearth (160) spit [J6-46-14]	charcoal, Maloideae sp. (L Farr)	-27.3	8270 ±35	7460–7170 cal BC
OxA-16921	658.CH/378	As SUERC-12927	charcoal, *Corylus avellana* (L Farr)	-28.4	8005 ±39	7070–6760 cal BC
OxA-13042	A11.1/2/NPF02B	top 5cm test pit A11.1	charcoal, *Corylus avellana*	-24.3	2735 ±55	1010–800 cal BC
OxA-13061	A11.1/2/NPF02A	top 5cm test pit A11.1	charcoal, *Corylus avellana*	-22.6	2781 ±26	1010–840 cal BC

Table 9.2 OSL results from test pit A11

Laboratory number	GL03109	GL03110	GL03111
Age (BP)	2800±200	22800±2200	32500±3600
De (Gy)	1.93	7.65	9.63
uncertainty	0.08	0.6	0.63
Grain size			
Min grain size (μm)	125	125	125
Max grain size (μm)	250	250	250
NaI γ-spectrometry (*in situ*)			
% K	0.16	0	0.01
error (%K)	0.01	0	0.09
Th (ppm)	1.95	0.94	1
error (ppm)	0.12	0.09	0.1
U (ppm)	0.81	0.53	0.33
error (ppm)	0.08	0.06	0.06
Total γ dose rate (Gy/ka)	0.22	0.1	0.09
error	0	0	0
ICP-MS analysis			
% K	0.22	0.01	0.02
error (%K)	0	0	0
Th (ppm)	2.26	1.23	0.85
error (ppm)	0.02	0.01	0.01
U (ppm)	0.67	0.24	0.19
error (ppm)	0.01	0.01	0
Cosmic dose calculations			
Depth (m)	0.59	1.35	1.55
Latitude (deg), north positive	51	51	51
Longitude (deg), east positive	0	0	0
Altitude (m OD)	110	110	110
Cosmic dose rate (Gy/ka)	0.19	0.17	0.16
error	0.02	0.02	0.02
Total β dose fate Gy/ka	0.28	0.06	0.05
error	0.01	0	0
Moisture content			
Moisture (water/ wet sediment)	0.06	0.08	0.11
error	0.02	0.02	0.03
Total dose rate (Gy/ka)	0.69	0.34	0.3
error	0.03	0.02	0.03
Age (ka)	2.8	22.8	32.1
error	0.2	2.2	3.6
% error	7.14	9.65	11.21

Table 9.3 TL results from flint recovered from test pit A11

Laboratory number	GL03112	GL03113	GL03114	GL03115	GL03117
Age (BP)	20100±4700	10300±1200	6600±1600	58500±19800	12500±1300
De (Gy)	7.87	4.22	2.42	21.86	4.01
uncertainty	1.79	0.44	0.59	7.25	0.3
Grain size					
Min grain size (μm)	125	125	125	125	125
Max grain size (μm)	180	180	180	180	180
ICP-MS analysis (associated sediment)					
% K	0.02	0.02	0.01	0.01	0.02
error (%K)	0	0	0	0	0
Th (ppm)	1.08	1.08	0.39	0.39	0.57
error (ppm)	0.02	0.02	0.01	0.01	0.01
U (ppm)	0.23	0.23	0.17	0.17	0.22
error (ppm)	0.01	0.01	0.01	0.01	0
Total γ dose rate (Gy.ka)	0.08	0.08	0.04	0.04	0.06
error	0.01	0.01	0	0	0
ICP-MS analysis (flint)					
% K	0.04	0.04	0.03	0.03	0.02
error (%K)	0	0	0	0	0
Th (ppm)	0.2	0.18	0.17	0.21	0.08
error (ppm)	0	0.01	0.01	0.01	0
U (ppm)	0.16	0.21	0.25	0.25	0.18
error (ppm)	0	0.01	0	0	0.01
Total α dose rate (Gy/ka)	0.06	0.07	0.08	0.09	0.06
error	0.01	0.02	0.02	0.02	0.01
Cosmic dose calculations					
Depth (m)	0.65-0.70	0.65-0.70	1.00-1.05	1.00-1.05	1.60-1.65
Latitude (deg), north positive	51	51	51	51	51
Longitude (deg), east positive	0	0	0	0	0
Altitude (m OD)	110	110	110	110	110
Cosmic dose rate (Gy/ka)	0.19	0.19	0.18	0.18	0.16
error	0.02	0.02	0.02	0.02	0.02
Total β dose fate Gy/ka	0.06	0.07	0.07	0.07	0.05
error	0.	0	0	0	0
Moisture content					
Moisture (water/ wet sediment)	0.07	0.07	0.01	0.01	0.02
error	0.02	0.02	0	0.01	0.02
				0	0
Total dose rate (Gy/ka)	0.39	0.41	0.37	0.37	0.32
error	0.02	0.02	0.02	0.02	0.02
Age (ka)	20.1	10.3	6.6	58.5	12.5
error	4.7	1.2	1.6	19.8	1.3
% error	23.38	11.65	24.24	33.85	10.4

Table 9.4 OSL results from Area 9 hearth section (122), North Park Farm, Bletchingley

Laboratory number	NPF05-01	NPF05-02	NPF05-03	NPF05-04
Age (BP)	10580±930	23750±1750	24090±1980	630540±50070
De (Gy)	3.15	7.97	7.32	168.66
uncertainty	0.14	0.35	0.35	7.7
Grain size				
Min grain size (μm)	180	180	180	180
Max grain size (μm)	250	250	250	250
Measured concentrations				
standard fractional error	0.05	0.05	0.05	0.05
% K	0.008	0.008	0.017	0.008
error (%K)	0	0	0.001	0
Th (ppm)	0.64	0.76	0.64	0.53
error (ppm)	0.032	0.038	0.032	0.027
U (ppm)	0.28	0.46	0.31	0.25
error (ppm)	0.014	0.023	0.016	0.013
Cosmic dose calculations				
Depth (m)	1.11	1.47	1.325	1.685
error (m)	0.1	0.1	0.1	0.1
Average overburden density ($g.cm^3$)	2	2	2	2
error ($g.cm^3$)	0.1	0.1	0.1	0.1
Latitude (deg), north positive	51	51	51	51
Longitude (deg), east positive	0	0	0	0
Altitude (m OD)	100	100	100	100
Geomagnetic latitude	77.6	77.6	77.6	77.6
Dc (μGy/ka), 55ºN, 0km altitude	0.18	0.171	0.175	0.166
error	0.021	0.017	0.018	0.015
Cosmic dose rate (Gy/ka)	0.185	0.176	0.179	0.171
error	0.021	0.017	0.019	0.016
Moisture content				
Moisture (water/ wet sediment)	0.031	0.042	0.052	0.052
error	0.02	0.02	0.02	0.02
Total dose rate (Gy/ka)	0.3	0.34	0.3	0.27
error	0.02	0.02	0.02	0.02
% error	7.58	5.92	6.66	6.5
Age (ka)	10.58	23.75	24.09	630.54
error	0.93	1.75	1.98	50.07
% error	8.78	7.37	8.2	7.94