Chapter 4: The Palaeolithic and Mesolithic

Introduction (Fig. 4.1)

Although small numbers of pieces of residual Mesolithic worked flint were found on many sites, scattered widely across the project area, the largest concentrations of Mesolithic flint were concentrated in two areas, both along the former Thames channel, around Basin R (Fig. 2.1; along the northern edge in evaluation trenches, and to the south in Areas Ex1, Evaluation Trench 46, and Area 11) and in Areas 3 and 5. Smaller numbers of Mesolithic finds were also recovered from Areas 20 and 24 and from Area 16.

Evidence for early Mesolithic activity was concentrated primarily along the northern side of Basin R, where lakeside occupation was evident from high densities of struck flint. These flint scatters were investigated only in three evaluation trenches, and were otherwise preserved *in situ*. Further evidence of early Mesolithic activity was provided by much smaller flint scatters distributed along the edge of the palaeochannel in Areas 20 and 24.

Late Mesolithic activity was evidenced on the southern side of Basin R by worked flint from tree-throw holes on the floodplain and on Gravel Island X (Fig. 2.1) in Areas Ex1 and 11 and in Evaluation Trench 46. Late Mesolithic and late Mesolithic or early Neolithic flint was also recovered from scatters and tree-throw holes on the floodplain in Areas 3 and 5. A small assemblage of late Mesolithic flint was also recovered from a tree-throw hole in Area 16.

Evidence for the Mesolithic environment was recovered from backswamp deposits in evaluation trenches in Basin R and in Area 3. A small number of probably Mesolithic animal bones were also recorded from Areas Ex2, Ex3 and 3.

The residual Mesolithic flint from other sites (Areas 6 and 10, Taplow Mill Site 2, Marsh Lane East Site 1, Amerden Lane West, Roundmoor Ditch and Agar's Plough) is described in the online archive.

Areas 20 and 24: Palaeolithic and early Mesolithic flint *by Tim Allen*

The earliest evidence of human activity in Areas 20 and 24 consists of eighteen Mesolithic flints found near Palaeochannel N in the grading-strip extension on the eastern side of Area 20. The underlying gravels and silts dip away at this point towards the palaeochannel to the east, and these flints lay within a 5m wide band of alluvium (layers 15127 and 15326; Fig. 4.2) which ran across the extension of the excavation. A sparse scatter of Mesolithic blades and bladelets was also found in Area 24a, including several in layer 18100, which filled the top of what was probably a large periglacial hollow. This fill contained charred hazel nutshells and also produced pieces of red deer antler, but was cut

Table 4.1 The Mesolithic assemblage from Areas 20 and 24 by category

CATEGORY TYPE	*Alluvial layer 15127*	*Alluvial layer 15326*	*Other Mesolithic flint (residual pieces)*	*Grand total*
Flake	4	8		12
Blade	6	2	8	16
Blade-like	2			2
Irregular waste	1	1		2
Chip	1			1
Core single platform blade core	1		2	3
Other blade core			1	1
Multiplatform flake core	1			1
End and side scraper	1			1
Axe			1	1
Burin	1			1
Grand total	18	11	12	41
Burnt unworked flint (g)	-	24	-	24
Burnt no. (%) (exc. chips)	-	-	-	-
Broken no. (%) (exc. chips)	3 (17.7)	1 (9)	-	4 (10)
Retouched no. (%) (exc. chips)	2 (11.8)	-	-	2 (5)

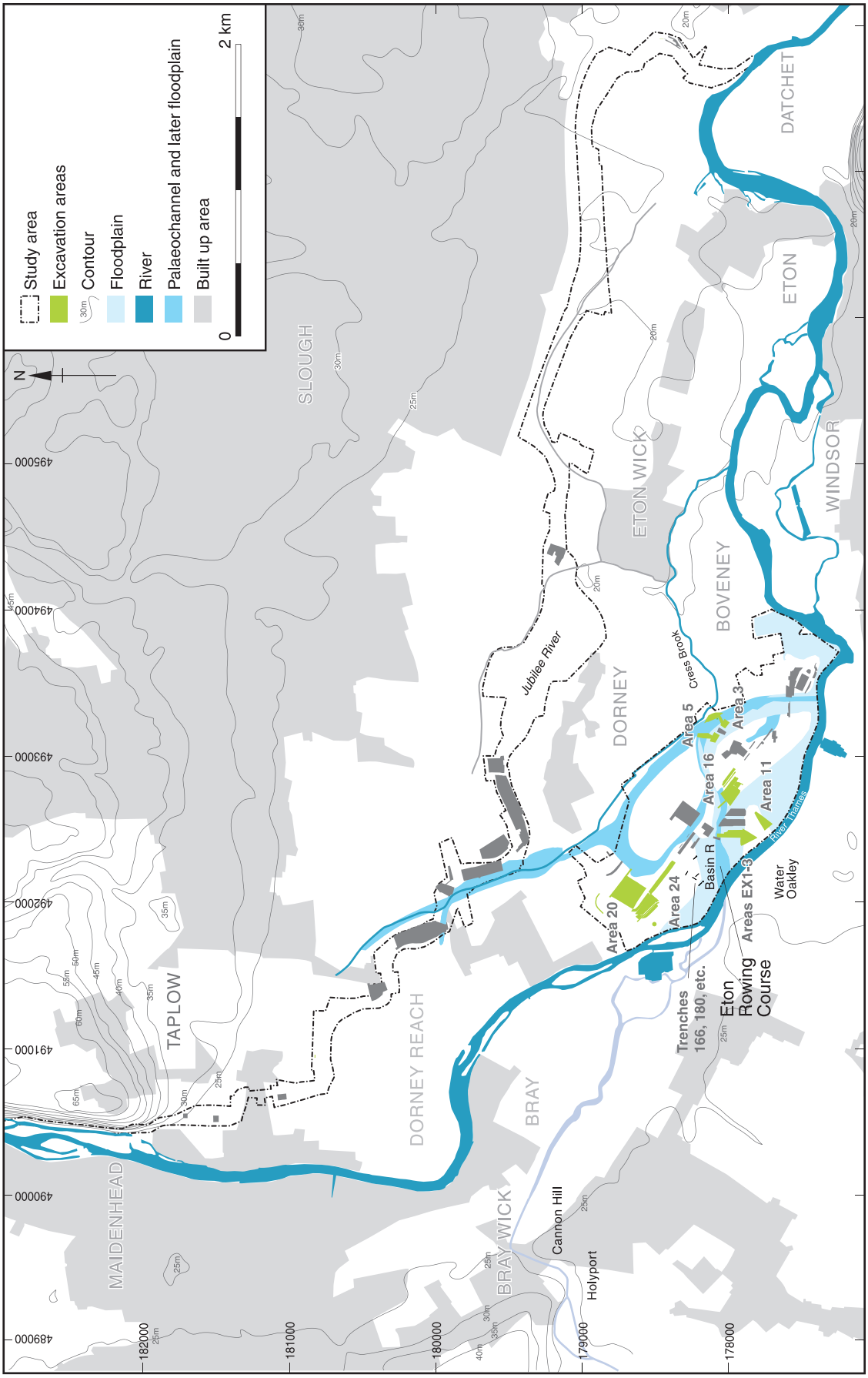

Fig. 4.1 Location of sites discussed in Chapter 4 (Crown copyright 2013 Ordnance Survey 100005569)

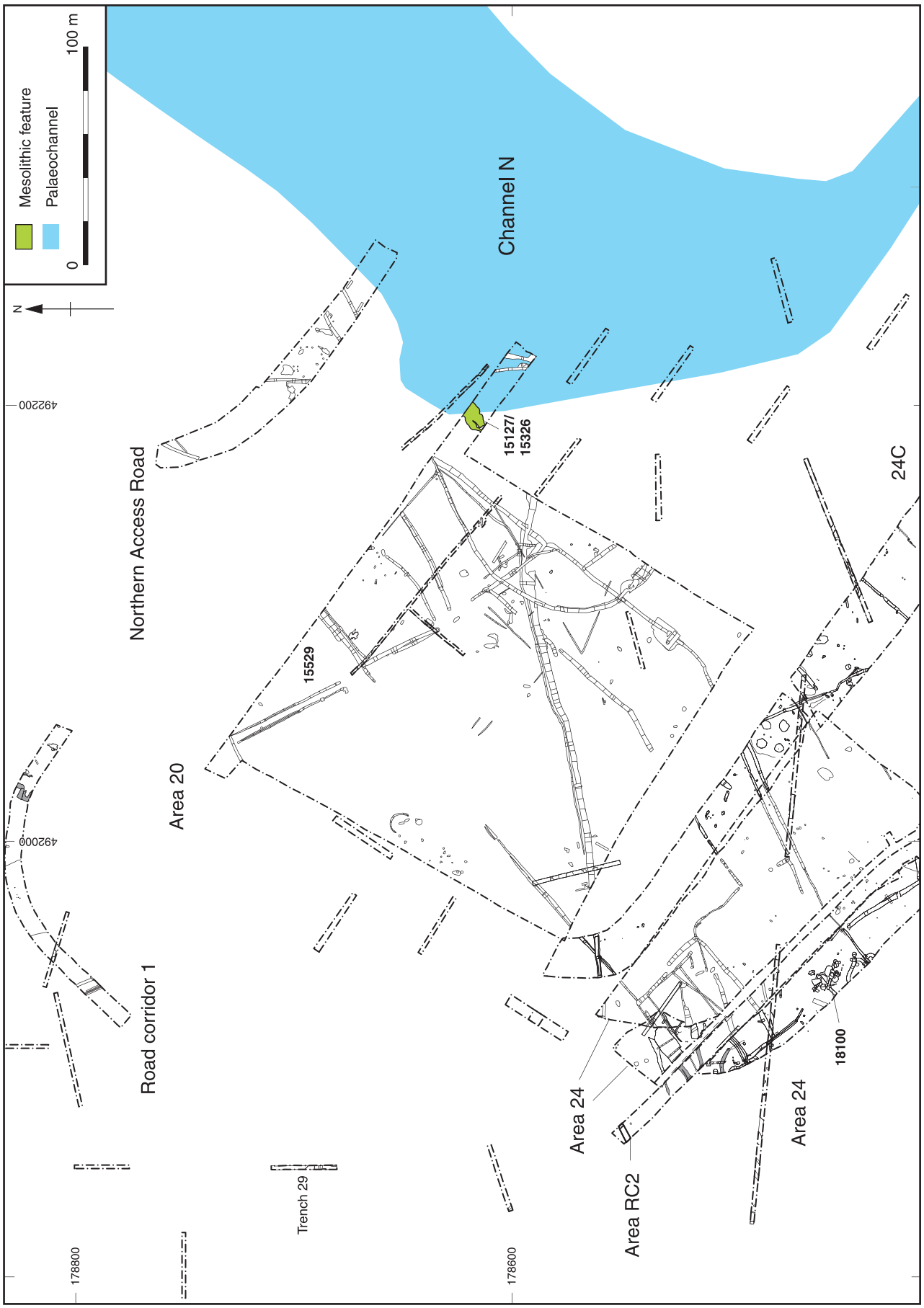

Fig. 4.2 Location of Mesolithic flint in Areas 20 and 24a

across by a middle Bronze Age ditch, and it is uncertain whether the antler and hazel nutshells came from the ditch or the hollow.

Palaeolithic and Mesolithic flint from Areas 20 and 24 *by Hugo Anderson-Whymark*

The Palaeolithic and Mesolithic lithic assemblage from Areas 20 and 24 is composed of 42 flints, 29 of which were recovered from the two alluvial layers in Area 20; the others were residual in Bronze Age features. The alluvial layers 15127 and 15326 represent the only deposits that might have been contemporary with the flintwork. The Palaeolithic and Mesolithic assemblage is shown in Table 4.1.

Upper Palaeolithic/early Mesolithic

A single blade (SF 93035) is thought to date from the Upper Palaeolithic or early Mesolithic. The blade is 104mm in length and exhibits a chipped platform edge, similar to a facetted edge. The blade is corticated and exceptionally rolled and abraded, exhibiting considerable uncorticated edge damage. The blade was recovered from Bronze Age ditch 15529.

Alluvial spreads 15127 and 15326

The alluvial spreads 15127 and 15326 contained 18 and 11 flints respectively. The flintwork formed a coherent assemblage, in a relatively fresh condition (particularly in 15127; a few pieces of later flintwork may be present in 15326). The assemblage was the product of a primarily blade orientated industry. The blades and flakes were relatively large and narrow, exhibited platform edge abrasion, and appeared to have been struck using a soft hammer percussor. A number of retouched flints were identified, including a burin struck on the distal end of a blade and an end and side scraper manufactured on a plunging flake. An earlier Mesolithic date would be appropriate for the assemblage given its general character.

Other Mesolithic flintwork

A further 12 flints are attributed to the Mesolithic on the basis of technological traits. This total includes a small, slightly iron stained tranchet axe (87mm by 38mm) recovered from the topsoil. Despite coming from the topsoil, the axe was in remarkably good condition, exhibiting very little post-depositional edge damage. In the southern extension to Area 24 (Area 24A), a few further Mesolithic flints were identified including a few flakes and blades, a core, a micro-burin and a backed blade.

Spatial distribution

A relatively clear pattern is present in the distribution of Mesolithic flintwork in Areas 20 and 24. The Mesolithic flintwork was concentrated in the south-east, and was clearly related to the extent of the alluvial layers. The flintwork was present both within the layers and had also become incorporated into a number of features cutting these layers.

Catalogue of illustrated flint from Areas 20 and 24 and RC1-2 (Fig. 4.3)

Late upper Palaeolithic and early Mesolithic

1 Ditch 15529, fill 15543. SF 93035. Long blade? A very rolled and abraded blade with extensive edge damage, reminiscent of the products of late Upper Palaeolithic long blade industries.
2 Layer 15127. Flint scatter. SF 93027. Blade, iron stained orange.
3 Layer 15127. Flint scatter. SF 93024. Core, single platform blade core, iron stained orange. Weight 280g.
4 Layer 15127. Flint scatter. SF 93021. Distal burin on retouch, edges also exhibit slight edge retouch. Iron stained orange.
5 Layer 15127. Flint scatter. SF 93018. End and side scraper on flake blank, iron stained orange.
6 Topsoil 15733. SF 93039. Tranchet axe, iron stained orange.

Mesolithic activity around Basin R

Basin R north-west: early Mesolithic lakeside occupation

Introduction

Concentrations of early Mesolithic flint were found in three evaluation trenches (166, 180 and 173) on the north-western edge of Basin R (Fig. 4.4). Two of these trenches (166 and 180) lay close to each other on the south-western corner of Gravel Island F; the third some distance to the east, on the southern edge of the island.

Trenches 166 and 180

The first two trenches, 166, and 180 (Fig. 4.4), lay on a shelf of gravel which was 0.7m lower than the terrace surface to the north-west and north-east. In Trenches 173 and 181 (Fig. 4.4) to the west, the terrace surface dropped off quite steeply to this shelf, and it seems likely that a similar steep incline lay only a few metres to the north-east of Trench 166. To the north-west, the slope down from the terrace may have been more gradual (as it was in Trench 160, where the terrace was only 0.5m higher than the shelf). Towards the channel to the south-west the shelf must have ended just beyond the end of Trench 166, since the channel was at least 1.5m deeper than the shelf in Trench 167 which lay only 30m away. The shelf itself sloped very gradually to the south-east (a drop of 0.4m over 43m), and continued at least as far as Trench 171.

The extent of the flint scatter found in Trenches 166 and 180 can be determined only roughly, by examining the finds from surrounding trenches. Although some flint was found redeposited in later features and in a ploughsoil in Trench 164 to the north, no similar concentrations were found in Trenches 160 (to the west), 161 and 164 (to the north) and 172 (to the east).

The layers containing Mesolithic struck flints were investigated by several hand-excavated

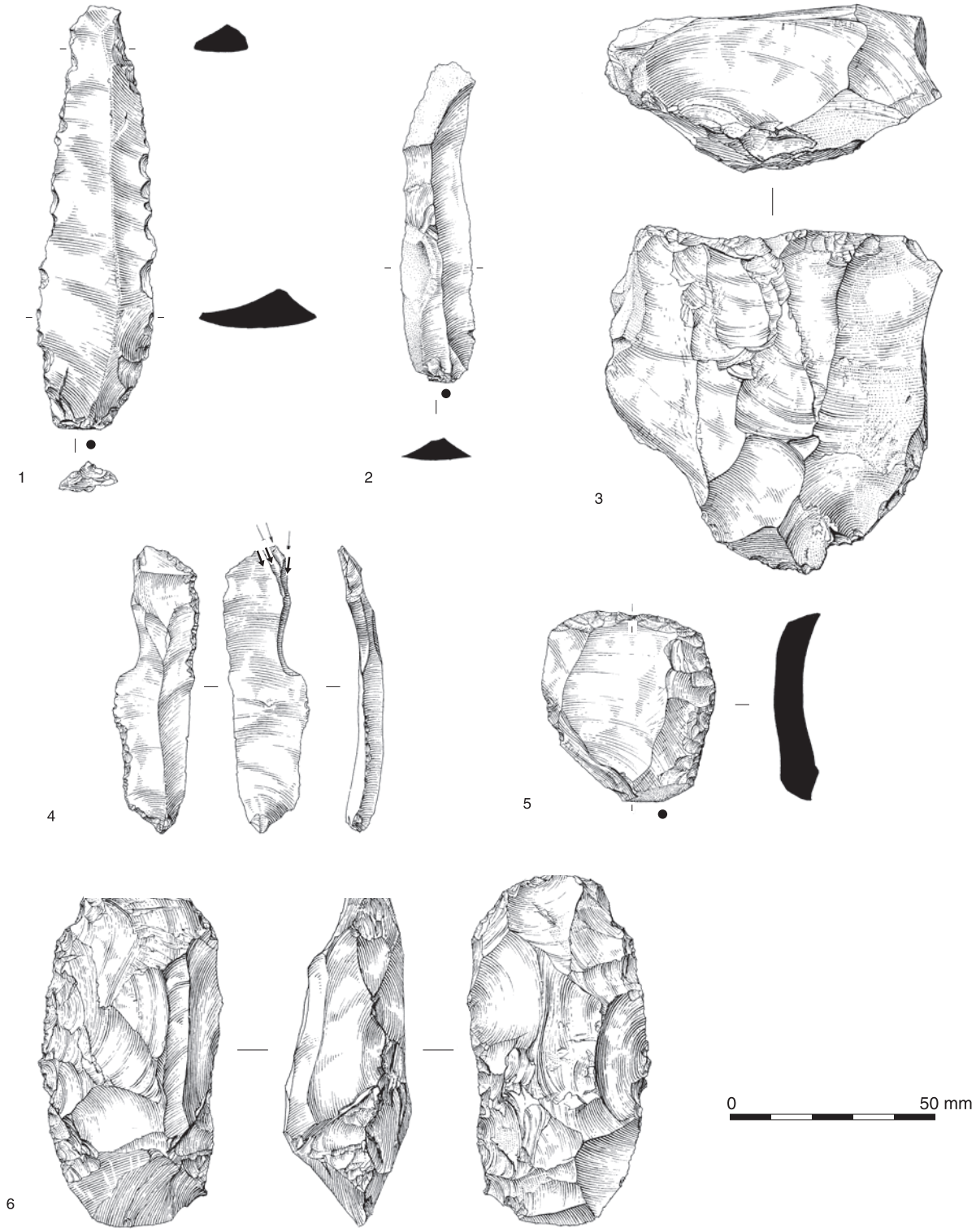

Fig. 4.3 Mesolithic flint from Areas 20 and 24a

sondages in order to establish the depth and character of the deposits, but the intention was to disturb these deposits as little as necessary, and in consequence not all of the stratigraphic relationships in what proved to be a complicated sequence were established (Fig. 4.4). A scatter of struck flint was exposed by machining in Trench 166 at the surface of layer 166/4. It extended throughout the trench, and more material was recovered upon cleaning (SF 200-318). Two 3m lengths of the trench were hand-excavated: 0-3m (SF 319-446) and 13-16m (SF 447-646). In Trench 180 machining generally stopped above the flint-bearing layers, but in the middle of the trench some of these deposits were exposed. Two lengths of trench were selected for hand excavation; 10-12m (SF 1289-99, 1621-7, 1672-8) and 14-18m (SF 1206-1221, 1227-1288, 1600-1620, 1628-1671).

In Trench 180 the natural gravel was overlain by a loose gravel layer (180/15), which contained no finds (and may have corresponded to layer 166/7). The loose gravel was overlain by a stiff layer of silty sand, dark brown to black in colour, which contained organic wood fragments towards the south-east and had occasional charcoal flecks throughout (180/14 to the south-east and 180/6 to the north-west). This layer contained many struck flints. The surface of the layer was uneven, with pockets of clean sand in places, suggesting that water had flowed over it. It covered the whole of Trench 180, and was probably represented in Trench 166 by layer 166/12, a similar soil but of a greyer colour, which also contained struck flints.

Layer 180/14=6 was overlain by several discrete deposits. Towards the north-west it was covered by clay (180/13), which was probably equivalent to 166/8 and perhaps also 166/4, the main flint-bearing layers in Trench 166. Layer 166/8 was an orange silty clay and 180/13 was distinguished by heavy orange staining, probably the result of oxidisation. Layer 166/4, which was a grey clay, contained frequent flecks of charcoal and small animal bones, including vole. Areas of darker soil such as 166/10 were also evident within 166/4, possibly indicating features, but the limits of one of these (166/9) were difficult to define, and these soilmarks may be due to post-depositional chemical changes. Further south-east, layer 180/29 was probably equivalent to 180/13.

Patches of redeposited gravel were found at the surface of both 180/13=29 and 166/4. These were probably equivalent to layer 180/11, an area of gravel occupying a hollow in the middle of Trench 180, which also contained many early Mesolithic struck flints of fresh appearance. The gravel may have been deposited by high-energy flooding, or may have been dumped from excavation of features in the vicinity. Further south-east a layer of white silty sand, 180/17, containing much calcium carbonate, may have been equivalent. Secondary calcium carbonate, probably the result of evaporation, was clearly visible in the top of layer 166/4. An aurochs sacrum from layer 166/4 gave a radiocarbon date of 9150-8730 cal BC (OxA-14088; 9540 ± 45 BP). This is very similar to the date obtained from the lower peat in the adjacent Trench 167.

Gravel 180/11 and 180/13 were overlain by a thin alluvial clay, 180/10, which also contained some struck flint. This layer was probably the same as 180/16. It was overlain by a thin silt, 180/8, which was localised in a hollow in the middle of the trench.

The Mesolithic layers were sealed by a very dark silty clay layer, 180/5, which was equivalent to the bottom part of layer 166/3. This layer faded out halfway down Trench 180, and was abutted by 180/9, which continued south-east and was numbered 180/18 at the end of the trench. These layers were sterile. More alluvial clay sealed this horizon (the upper part of layer 166/3 and layer 180/19).

Overlying these deposits were a succession of alluvial silty clays, 180/4=166/6, followed by 180/3 = 166/5. These layers only began halfway along Trench 166, deepening as they ran south-east. A scatter of struck flints and animal bones and a patch of charcoal were found on the surface of 180/4, probably indicating Neolithic or Bronze Age activity at this level. Appearing patchily in the top of 180/3 was a dark clay 180/7. This was ill-defined, and may simply indicate clay forming in hollows in the exposed surface after flooding.

The deposits containing the flints appear to have been deposited at the water's edge. Sieving for microdebitage, carried out in Trench 166, suggests that the deposits may have been slightly modified by fluvial action. The material from Trench 180 was fresher, but this trench was not sampled for microdebitage.

The density of the flint scatter in the hand-excavated areas varied from 6 to 40 pieces/m^2 over an area of at least 40m by 40m.

Trench 173

Machine stripping of the ploughsoil at the north-west end of Trench 173 on the terrace edge revealed a further dense concentration of early Mesolithic struck flint. More controlled machine excavation in spits, supplemented by hand-cleaning, further east (closest to the edge of the terrace), recovered hardly any struck flints, suggesting that the activity was concentrated further to the north-west. The terrace edge dropped steeply, and the deposit sequence beyond the edge of the terrace was not bottomed. No further flints were, however, recovered from the layers excavated beyond the edge of the terrace. Only a few struck flints were recovered from Trench 181 which lay to the east of Trench 173, suggesting that the activity lay mainly to the south-west of this trench.

The bulk of lithic material in Trench 173 was recovered from a post-Pleistocene topsoil which had been reworked by ploughing (layer 173/2). At the north-west end of the trench this was removed

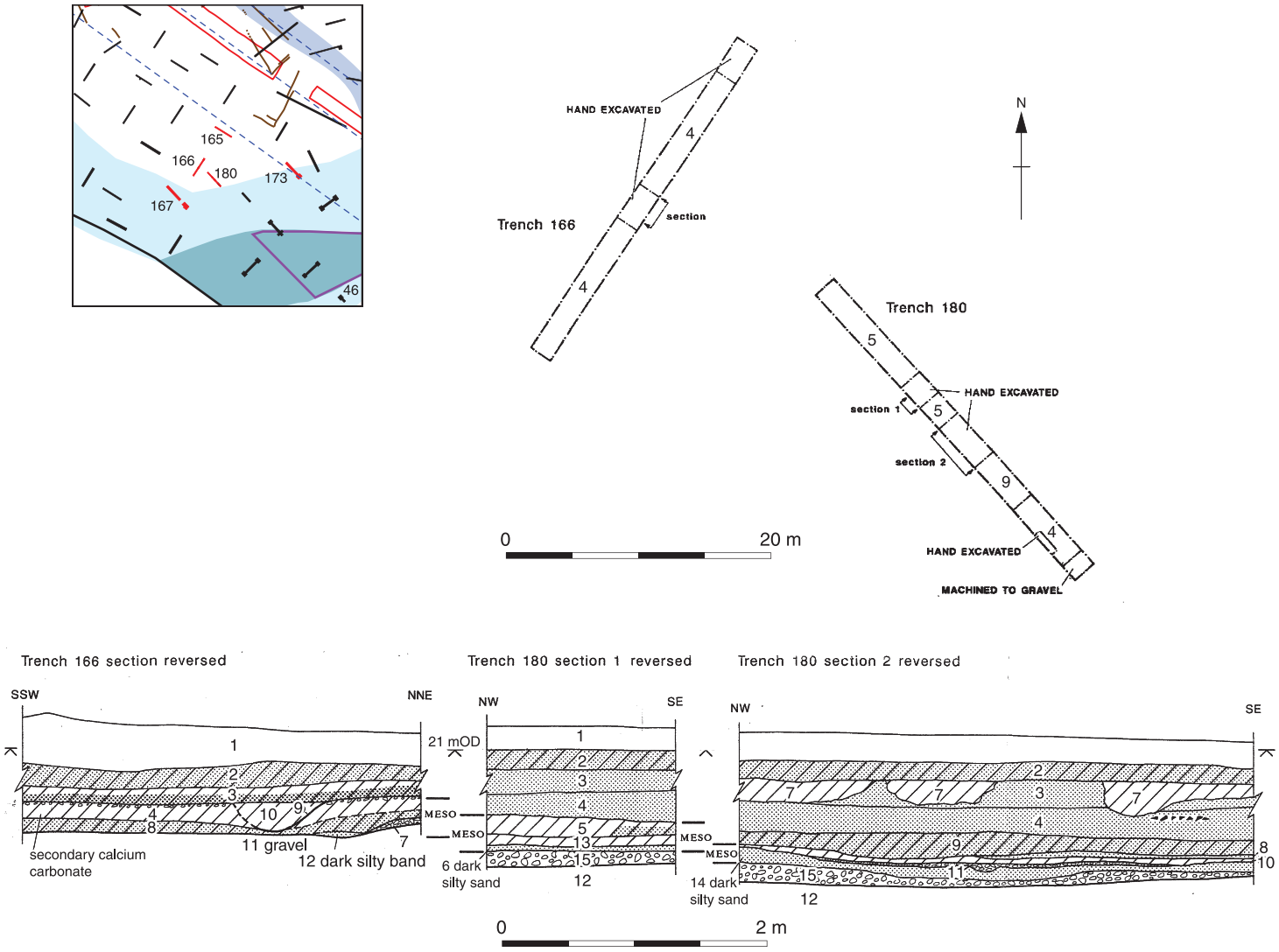

Fig. 4.4 Location plan of Evaluation Trenches 166, 173 and 180 containing early Mesolithic flint on the northern side of Basin R, and of Evaluation Trench 46 on the south, with plans and sections of Trenches 166 and 180

by machine and nearly 400 flint were collected from the spoil by manual sorting (SF nos 1757-2134). Further south-east, the machining stopped on the surface of this layer, and another 70 flints were recovered during cleaning (SF 1427-1499). These 70 flints were mostly of Bronze Age date, and were catalogued but not subject to further analysis. Unstratified material without SF numbers was also catalogued but not examined in more detail.

Struck flint from the early Mesolithic occupation in Basin R *by Hugo Anderson-Whymark*

Introduction

A total of 1111 flints and 49 pieces/1000g of burnt unworked flint was collected from the three evaluation trenches (166, 173 and 180; Table 4.2). The assemblage was assessed and analysed by Dr R N E Barton, who identified it as being predominantly Mesolithic in date, characterised by blades and blade-like flakes, blade cores and microliths, with a small amount of Bronze Age material represented by squat, thick-butted flakes and a number of irregular, multi-platform cores.

As a result of this analysis, the material was catalogued, quantified and examined in order to obtain information regarding the technology used, to confirm the dating of the assemblage, and to provide information on the possible activities related to the scatters.

The lithic material was examined by trench, and basic assemblage characterisation has also been presented to show counts per trench. The results of technological studies have been brought together as a whole in cases where trends are very similar.

The majority of pieces recovered from Trench 166 appear to be Mesolithic, with a background presence of Bronze Age flakes. A total of 455 pieces of flint recovered from this trench were examined in detail. This excluded a small amount of unstratified material which had not been assigned small find numbers. These pieces were catalogued but not subjected to detailed analysis.

Raw material

It is likely that the bulk of flint was collected from the gravel deposits immediately accessible on the site. A smaller proportion may have been collected directly from chalk deposits.

Two main flint types were identified in Trench 166. The first is a grey-black flint of fresh appearance, sometimes with a light speckled cortication. The cortex is thick and white and may have been collected directly from the chalk. The second is a mottled brown or grey-green flint with a thinner, possibly water-rolled cortex. Some pieces bore a speckled cortication. Some of this flint is iron-stained, giving it a honey-coloured appearance. The Bronze Age material was predominantly made on the grey-black flint and was fresh and uncorticated. The mottled brown flint was also encountered in Trench 180, but the honey-coloured staining was not present.

Three main flint types were identified in Trench 173. The first was a creamy or bluish white corticated flint, sometimes more speckly; the interior appeared to be a grey black or brown flint similar to that seen in Trench 166. This flint bore either a thick white chalky cortex or a thinner water-rolled cortex. A brown uncorticated flint was noted. This bore a thick white cortex. A black flint with a shiny surface was also present. Most of the Bronze Age material appeared to utilise this flint.

Table 4.2 The flint assemblage by evaluation trenches in Basin R

	Trench			
CATEGORY TYPE	*166*	*173*	*180*	*Grand total*
Flake	250	259	73	582
Blade	65	64	38	167
Bladelet	1	3		4
Blade-like	77	57	33	167
Irregular waste	8	15	2	25
Chip	3	11		14
Rejuvenation flake core face/edge	1			1
Rejuvenation flake tablet	5	5		10
Rejuvenation flake other	1	3	1	5
Thinning flake	9	1	1	11
Axe sharpening flake	4			4
Core single platform blade core	7	6		13
Bipolar (opposed platform) blade core	5	4		9
Other blade core	1	3		4
Tested nodule/bashed lump	6	11		17
Single platform flake core	2	11	1	14
Multi-platform flake core	1	3		4
Unclassifiable/fragmentary core	4	1		5
Core on a flake		2		2
Obliquely blunted point	2	1	4	7
Microlith (rhombic form?)	1			1
End scraper	5	8	1	13
Side scraper		1		1
Piercer	1		1	2
Serrated flake		1		1
Notch	1	2	1	4
Retouched flake	7	3	4	14
Axe	1	1		2
Burin	2	4		6
Fabricator	1			1
	471	480	160	1111
Burnt unworked flint (g)	210	790	-	1000
No. burnt (%) (exc. chips)	37	21	6	64
	(7.9)	(4.5)	(3.8)	(5.8)
No. broken (%) (exc. chips)	198	177	79	454
	(42.3)	(37.7)	(49.4)	(41.4)
No. retouched (%) (exc. chips)	21	21	11	53
	(4.9)	(4.5)	(6.9)	(4.8)

Debitage

Metrical analyses were not attempted as a high proportion of the flake material was broken. The presence of some later material in the assemblages might also have skewed any observable length/breadth patterning. A visual distinction between blades, blade-like flakes and flakes was made. This, together with observed technological details such as butt type, hammer mode and termination type have allowed general technological trends to be noted.

Blades and blade-like flakes form 36.4%, 32.4% and 49.3% respectively in Trenches 166, 173 and 180. Following Ford's (1987a, 73) guidelines for identifying Mesolithic assemblages by combining flakes with a length:width ratio of 2:1 or greater (blade-like flakes) with blades, only the assemblages from Trench 173 falls slightly short of the 36% which is thought to be indicative of a purely Mesolithic assemblage. Furthermore, 16% of the flakes from Trench 166 bore dorsal blade scars, a percentage which is typical of Mesolithic assemblages (*ibid.*). It should be remembered that the small amount of Bronze Age material in Trenches 166 and 173 will have affected these characteristic percentages. Very little obviously Bronze Age material was noted in Trench 180. The percentage of blade and blade-like material is correspondingly higher at 49.3%.

A study of the hammer mode (Ohnuma and Bergman 1982) employed on all flake material (flakes, blades and blade-like flakes) showed conclusively that a soft hammer was used preferentially over hard hammers. Of the 267 pieces from Trench 166 where hammer mode was discernible, 216 were struck by a soft hammer (80.9%). Similarly, in Trench 173, 244 pieces out of 310 (78.7%) were soft hammer struck. In Trench 180, 91 out of 111 pieces were struck by a soft hammer (82%).

Examination of the proximal ends for platform abrasion and butt types was possible for a mean of 65% of all of the flake material. Bearing this in mind, 49.1% of flake material in Trench 166 was abraded, 38.2% in Trench 173 and 33.33% in Trench 180. Abrasion appeared to be commonest on blades. Platform abrasion was carried out to remove projections or overhangs caused by previous removals, and serves to strengthen the platform edge (Barton 1992, 270).

Seven basic butt types (Tixier *et al.* 1980) were recorded: plain prepared, linear, punctiform, dihedral, cortical, wing-shaped, and faceted. The proportions of different types from each trench were much the same. Plain and punctiform butts were the most common at a mean of 37.8% and 28.2% respectively, with linear butts also present in substantial numbers (16.3%). Even plain butts tended to be quite small and narrow. Cortical/unprepared butts were less common and confined almost exclusively to flakes rather than blades or blade-like flakes. Other butt types were present in very small numbers.

The termination types of flake material were also examined and divided into 5 categories: feather, hinge, step, plunged and thick. Survival rates of distal ends amounted to 69.5% in Trenches 166 and 173, though the survival rate in Trench 180 was lower at 59.7%. In all three trenches, feather terminations were by far the most common, ranging from 62.9% of all terminations in Trench 173 to 70.9% in Trench 166. Hinged terminations were the next most frequent, though the percentages are considerably lower (between 15.1% in Trench 166 and 18.4% in Trench 173). The frequencies of other terminations were very low, though the presence of plunged flakes and blades from all of the trenches indicates that the shaping and maintenance of cores was taking place.

Flakes and blades from all stages of the reduction sequence were present. Flake material was subdivided into the reduction sequence proposed by Harding (1990), which consists of cortical preparation flakes, side and distal trimming flakes (cortex present on the side or distal end of flakes), miscellaneous trimming flakes (little or no cortex) and blanks. Blanks are difficult to discern from the miscellaneous category and are most obvious in the form of parallel-sided blades. This latter category may be under-estimated, and represents only 1-2% of the flake assemblage. Cortical flakes are not common (between 3.4% in Trench 166 and 11.4% in Trench 173). Side trimming flakes are more common (13.7-17.6%), indicating that the early stages of knapping were carried out on the site, although distal trimmings are less frequent. Three crested flakes and blades were found in Trench 173 and one in Trench 166, also demonstrating the early stages of core preparation, although cresting can also be used to rejuvenate a core face. Miscellaneous trimming flakes were the most common at between 64.6% in Trench 166 and 71.6% in Trench 180. Trench 180 appears to contain the least Bronze Age material and the lowest percentage of cortical flakes and highest percentage of miscellaneous trimming flakes; this patterning may, therefore, relate more closely to the Mesolithic assemblage.

The favoured method of core rejuvenation is represented by core tablets, found in all three trenches. Other rejuvenations of the core face may also of course be present within the category of miscellaneous trimmings. Trenches 166 and 173 each contained five core rejuvenation tablets.

Flakes resulting from axe production are also present in the assemblage. These are characterised by broad flakes with feathered edges and dorsal scars from previous removals in a variety of directions. A number of these flakes are very thin and curved and suggest the later stages of axe-thinning. Nine possible axe production flakes were found in Trench 166, and single flakes from Trench 180 and 173. A broken tranchet axe was recovered from Trench 166, along with four tranchet axe sharpening flakes. A second axe fragment was found in Trench 173 (Plate 4.1).

Plate 4.1 Early Mesolithic heavy tools from Trenches 166, 180 and 173

Blade cores form 50% of all core material in Trench 166 and 33.3% in Trench 173. The two cores on flakes in Trench 173 are also typical of the Mesolithic period. All of the flake cores in Trench 166 showed signs of platform abrasion and also some narrow flake removals, which suggests that they may also belong to the Mesolithic along with the blade cores. In Trench 173, four of the single platform flake cores and one of the multi-platform had abraded platforms. Most of these cores also bore narrow flake scars. It is strange that Trench 180 possessed only one flake core as considerable amounts of blade debitage was present.

Retouched material

A total of 8 microliths were found: three in Trench 166, one in Trench 173 and four in Trench 180 (Plate 4.2). All are of the simple obliquely blunted point variety, with the exception of a possible rhombic form (Jacobi 1978, 16) in Trench 166. The blunted point from Trench 173 was broken and rolled, the others were complete and in a fresh condition. All have the bulbar end removed. One of the obliquely blunted points (SF 1285) is notable due to its large size (72.5mm x 20mm). No micro-burins indicating microlith manufacture were found. However, a significant proportion of the flake material was broken, perhaps indicating the deliberate snapping of flakes.

Other retouched forms include six burins, two from Trench 166 and four from Trench 173. SF 1907 and 1802 from Trench 173 are good examples of burins made on concave truncations, a type known from early Mesolithic sites such as Star Carr (Clark 1954). A total of 14 end scrapers and one side scraper were found. One was made on the end of a blade, several have dorsal blade scars and abraded platforms, and one appears to have been made on a core tablet. This suggests a Mesolithic date for the majority, if not all of the scrapers. The remaining retouched material consisted of miscellaneous retouched flakes, including one possible serrated blade. Also recovered was a possible fabricator, and a notched flake which had the appearance of being an unfinished form (SF 1287). Two axe fragments were found and have been discussed above.

Dating and site function

The vast bulk of the assemblage collected from the three trenches is Mesolithic in date, and is a sample of material from lithic scatters which may have formed part of a broader area of activity on the edge of the gravel terrace. This is indicated by diagnostic debitage and retouched forms. The examination of the flake material above has shown a relatively high proportion of blades and blade-like flakes, and also flakes bearing dorsal blade scars. The proportions indicate a Mesolithic assemblage. Cores are predom-

Plate 4.2 Mesolithic microliths from Trenches 166, 180 and 173 (upper row) and Trench 46 (lower row)

inantly aimed at blade production. Even the flake cores often bear narrow flake scars and indications of platform abrasion.

Platform abrasion was also noted on a considerable proportion of the flake material. Soft hammer flaking was dominant and butts tended to be small and narrow, with quite high proportions of punctiform and linear types, attributes which are typical of the Mesolithic. Feathered terminations were also the most common, with very low proportions of errors such as step and hinge fractures. This level of skill is again typical of earlier industries.

All stages of the reduction sequence are represented in the assemblage. The flake population from Trench 180 seems more skewed towards miscellaneous trimming (inner) flakes rather than

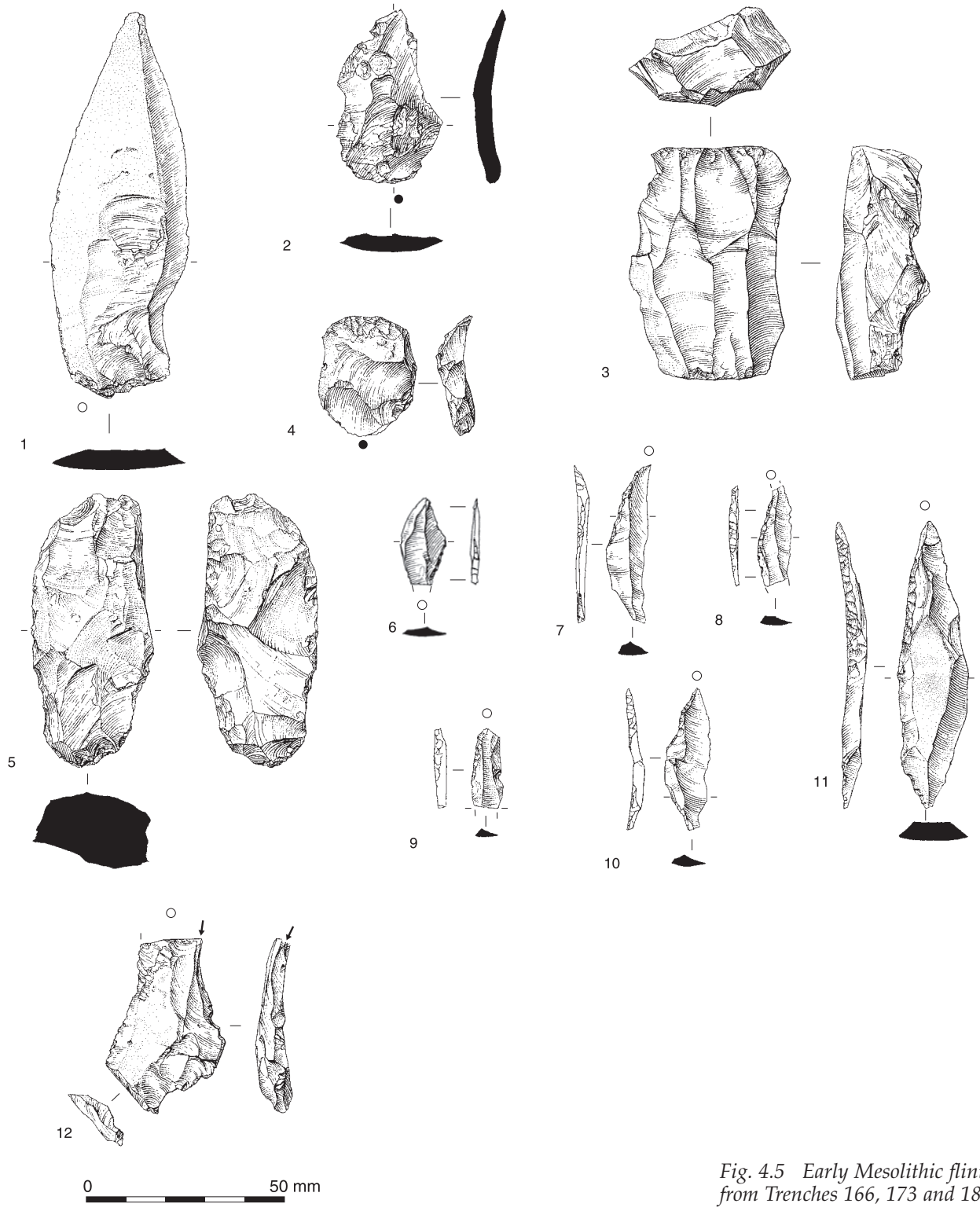

Fig. 4.5 Early Mesolithic flint from Trenches 166, 173 and 180

cortical material, and it is suggested that this may be more typical of a Mesolithic assemblage as no obvious Bronze Age material was recovered from this trench. This need not suggest that the early stages of knapping took place elsewhere. A possible explanation is that skill levels were higher in this period and primary reduction was more efficient in removing cortex in fewer, thinner flakes. Cores were maintained and repaired on the site; this is represented by the presence of core tablets, plunging flakes and other trimmings removing hinge fractures or maintaining the angle of the flaking surfaces.

A number of the burins provide a clear early Mesolithic date for the assemblage, as discussed above. The microliths are also all early Mesolithic types. The tranchet axe and axe sharpening flakes also provide a broad Mesolithic date. No evidence was found to show that microliths were made on site, as no microburins were recovered, although a bulk sample from Trench 166 was examined by Dr Barton for microdebitage. It should be remembered, however, that the trenches are only a sample of a wider area of activity. Axe manufacturing appears to have taken place on the site, and is represented by a number of axe shaping and thinning flakes. Owing to the fresh condition of the flint and the fact that smaller flakes were well represented within the bulk sample, it is likely that the flint scatters are *in situ*.

The presence of a wide range of debitage, and also a variety of retouched artefacts, suggest that this was a site with a broad variety of functions, both domestic and more specialised. Tool manufacture is indicated by axe production flakes, while the presence of microliths and scrapers suggests exploitation of animal products and possible hide preparation. Burins and axes may indicate the exploitation of plant material and wood. The

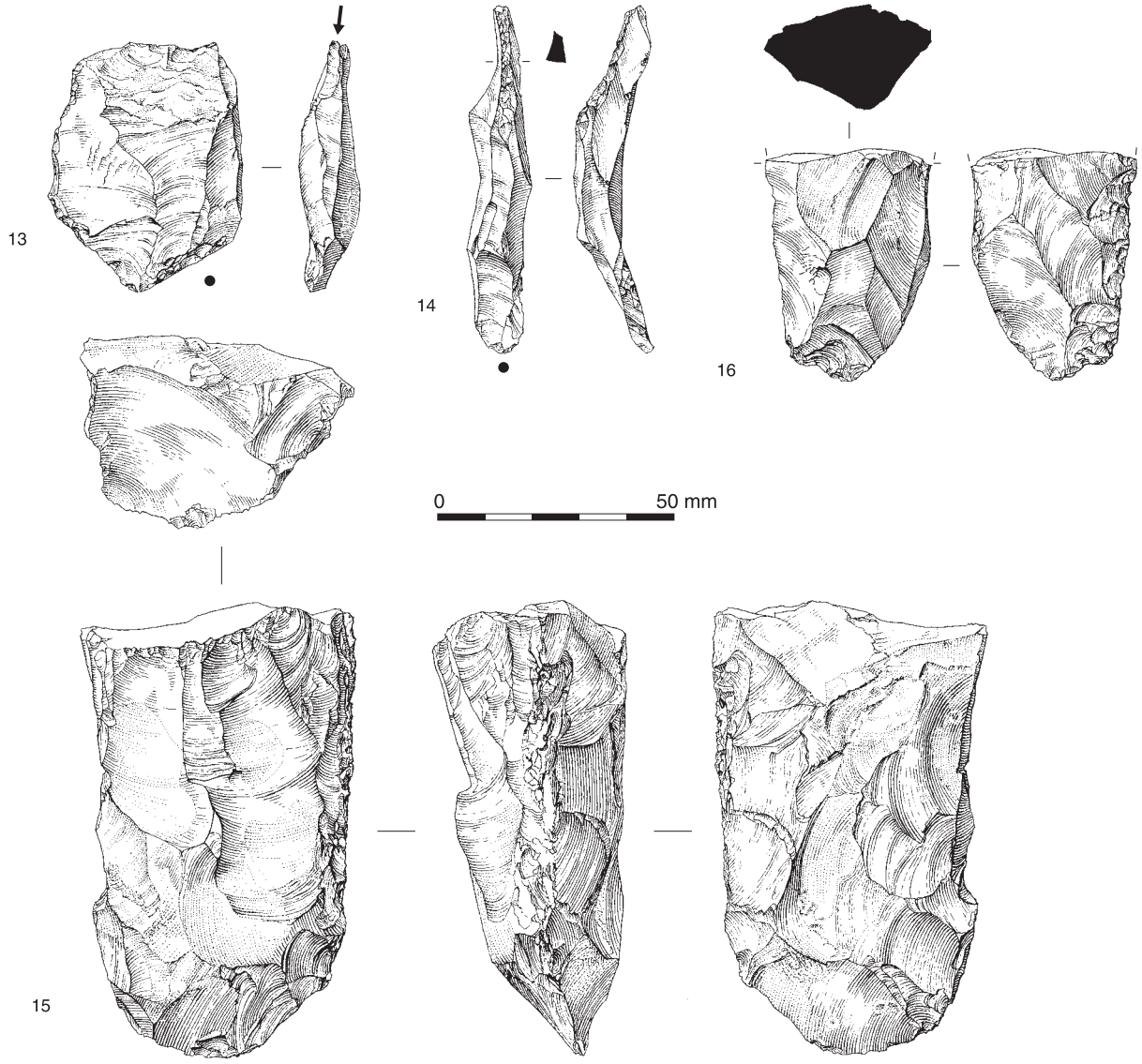

Fig. 4.6 Early Mesolithic flint from Trenches 166, 173 and 180

location of the site next to fresh water, on an easily accessible flint source, would have made it an ideal area for settlement.

The location and the variety of artefacts are comparable to Mellars' 'Type B' or 'balanced' assemblages, which he has suggested could in some instances represent larger settlements which came into being in the winter months in favourable locations (Mellars 1976, 389-394). Whether the finds indeed represent a large settlement or repeated visits to a favourable location (particularly in the winter months) it is, however, impossible to tell.

The Middle Thames is known for its concentration of Mesolithic finds: bone and antler tools have been dredged from the river between Windsor and London in considerable quantities, and findspots of Mesolithic material are known from the immediate area (Wymer 1977, 4-5, 9; Barnes and Cleal 1995).

Catalogue of illustrated flint from Basin R (Fig. 4.5-6)

1 Trench 180/5. SF 1205. Blade.
2 Trench 166/4. SF 252. Thinning flake, burnt.
3 Trench 166/4. SF 241. Opposed platform blade core.
4 Trench 166/4. SF 266. End scraper manufactured on a core tablet.
5 Trench 166/4. SF 240. Fabricator.
6 Trench 166/4. SF 573. Microlith – obliquely blunted point.
7 Trench 166/4, 13-16m. Microlith – obliquely blunted point.
8 Trench 180/11, 10-12m. SF 1299. Microlith – obliquely blunted point.
9 Trench 180/11, 14-18m. SF 1600. Microlith – obliquely blunted point.
10 Trench 180/13, 10-12m. SF 1622. Microlith – obliquely blunted point.
11 Trench 180/11, 14-18m. SF 1285. Microlith – oblique blunted point.
12 Trench 165/13. Burin.
13 Trench 173/2. SF 1907. Burin on concave truncation, abrupt retouch also present on left hand side (other category).
14 Trench 180/12, 14-18m. SF 1659. Retouched flake, abrupt distal retouch. This blade was removed shortly after the removal of a crested blade.
15 Trench 166/4. SF 212. Tranchet axe, broken and re-used as a blade core.
16 Trench 173/2. SF 1767. Tranchet axe, fragmentary.

Gravel Island X (Areas Ex1 and 11) and the floodplain to the north (Trench 46; Basin R south): late Mesolithic finds from tree-throw holes

The gravel island

A large number of features were found cut into the surface of Gravel Island X. Although a large number of these features were excavated, only a small number of them can be dated. They are described as a whole, regardless of date, in Chapter 6. Here it is worth noting that the only features dated to the Mesolithic were four tree-throw holes: two (399 and 566) dated on the basis of large flint assemblages, and two, more speculatively, which contained single flint axes (21 and 545; Table 6.1; Fig. 4.7). Residual Mesolithic flint was, however, also recovered from a number of other tree-throw holes.

The flood plain

Excavations in Areas Ex1-3 and in various evaluation trenches revealed the sequence of deposits making up the floodplain on the southern side of the main palaeochannel of the Thames. A number of flint scatters were found on the flood plain, most of which appear to date from the Neolithic. However, a radiocarbon date associated with a group of flint recovered from Evaluation Trench 46 (Fig. 3.6; Plate 3.8), situated in the floodplain, on the southern side of Basin R, suggests that the flint, although not diagnostically Mesolithic, dates from that period.
The flint was recovered from the fill (46/8) of a probable tree-throw hole (although this is not certain as only a very small section of the feature was exposed within the trench). Water-logged seeds from an underlying fill of this tree-throw hole – a black peat deposit (46/11) containing organic material such as twigs, leaves and seeds – produced a radiocarbon date of 5230-4940 cal BC (98% confidence level; 6130±45BP; OxA-9412), indicating a late Mesolithic date. The flint was characterised by knapping debris, including a large quantity of microdebitage (from sieving).

Late Mesolithic struck flint from tree-throw holes on Gravel Island X and the floodplain to the north (Areas Ex1-3 and 11 and Trench 46)
by Hugo Anderson-Whymark

Late Mesolithic activity on the gravel terrace was represented by the presence of two deposits of flintwork within two tree-throw holes (399 and 566) and through an element of residual material in tree-throw holes 102, 261, 605 and 1013 (Fig. 4.7). Tree-throw holes 545 and 21 each contained a tranchet axe, although in both cases they were the sole find, making it difficult to establish if the finds were contemporary with the feature. No refitting flakes were found in tree-throw holes 399 and 566, although two broken flakes conjoined on an ancient break. A single microlith was present in each of the tree-throw holes (399 and 566). The latter tree-throw hole also contained debitage from microlith manufacture including a distal micro-burin, a snapped retouched blade and several snapped blades. Other retouched pieces included two scrapers and a piercer (Table 4.3).

The residual Mesolithic flintwork in tree-throw holes 261, 605 and 1013 consisted primarily of a small quantity of blades, blade cores and crested blades. In addition, rod microliths were present in tree-throw holes 102 and 605.

On the floodplain a cluster of 32 struck flints was recovered from the fill (46/8) of a probable tree-throw hole whose lower fill (46/11) was dated by radiocarbon to 5220-4940 cal BC (OxA-9412; 6130 ± 45 BP). The group was not diagnostically Mesolithic,

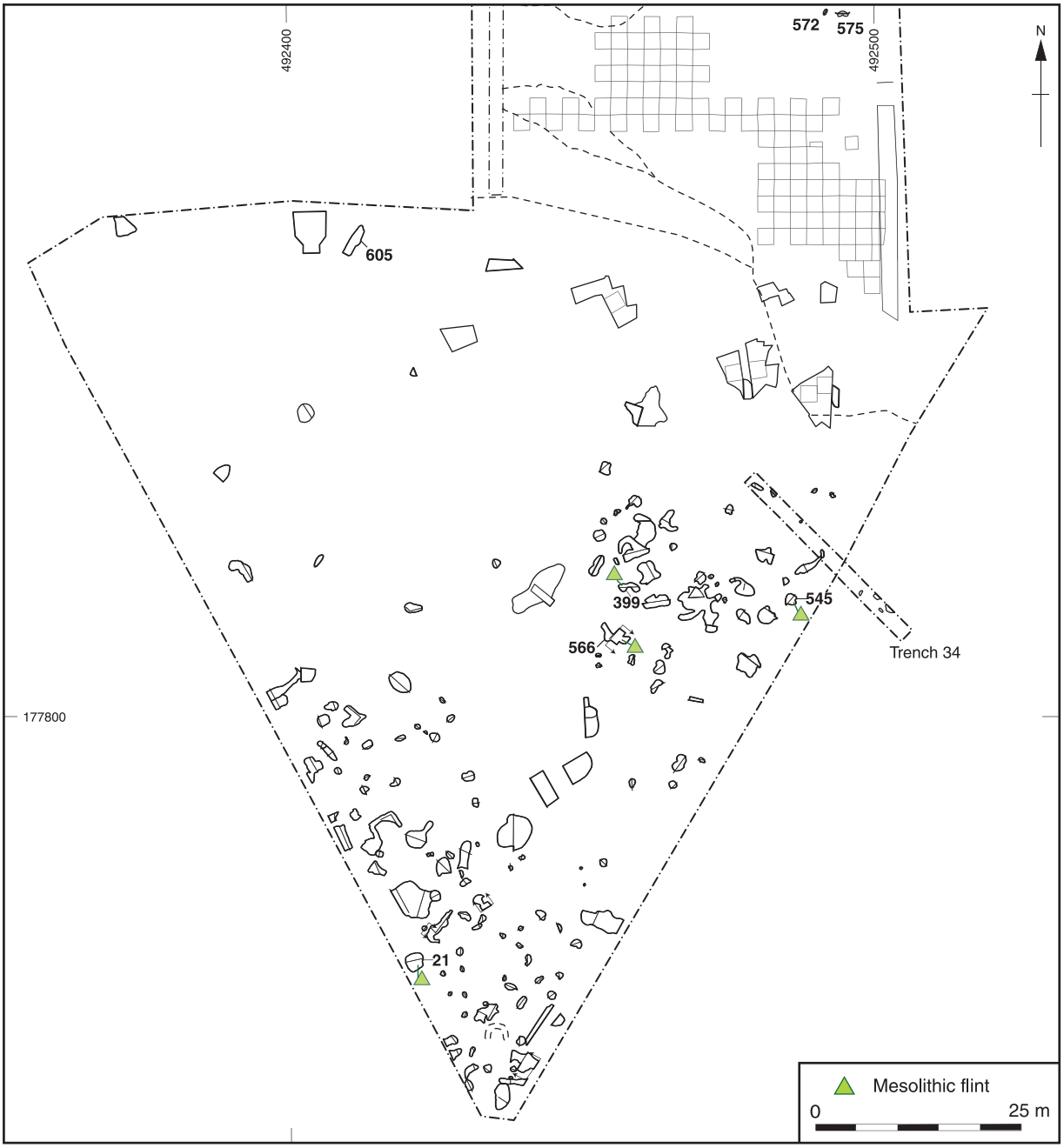

Fig. 4.7 Tree-throw holes with Mesolithic flint in Area Ex1

containing 11 flakes, 4 blades or bladelets, 4 pieces of irregular waste and 11 chips, although proximal butt abrasion was noted on several broken ends. Sieving revealed a considerable quantity of fresh microdebitage, thirty flakes larger than 10mm and over 100 less than 10mm long.

A total of 21 rod and geometric microliths were also found on the flood plain. The microliths were generally only located during the hand excavation of Neolithic flint scatters (including 12 amongst scatter 10010). The sampling of the deposit through the excavation of 2m squares using a mattock recovered only a single microlith, and it is quite apparent that this sampling strategy was not well suited to the recovery of microliths. It is therefore likely that the number of microliths recovered from the areas of Neolithic flint scatters excavated by hand probably represent the true density of Mesolithic flintwork present across the site. The microliths recovered indicate some late Mesolithic presence on the floodplain, although the absence of large scatters is noteworthy.

No early Mesolithic flintwork was found on Gravel Terrace Site X despite its proximity to the large early Mesolithic site on the northern side of Basin R. The absence of material from the floodplain is unsurprising, as this would have been underwater until the later Mesolithic.

Table 4.3 The Mesolithic flint assemblage from Areas Ex1-3

CATEGORY TYPE	*Tree-hole 399*	*Tree-hole 566*	*Grand Total*
Flake	18	97	115
Blade	1	9	10
Bladelet		2	2
Blade-like	2	11	13
Irregular waste		2	2
Chip		3	3
Micro burin		1	1
Rejuvenation flake other		2	2
Tested nodule/bashed lump		2	2
Single platform flake core		2	2
Multiplatform flake core	1	2	3
Core on a flake	1		1
Microlith	1	1	2
End scraper	1		1
Piercer	1		1
Retouched flake		2	2
Grand Total	26	136	162
Burnt unworked flint (g)	85	3747	-
Burnt no. (%) (exc. chips)	0	13 (9.7)	-
Broken no. (%) (exc. chips)	5 (19.2)	67 (50.4)	-
Retouched no. (%) (exc. chips)	3 (11.5)	3 (3.3)	-
No of flints forming knapping refits & (con-joins)	0	0 (2)	0 (2)

A pattern can be observed in the late Mesolithic activity. On the floodplain, the spread of microliths, associated with few other artefacts and only one probable concentration of material, indicates that the area was certainly exploited during the late Mesolithic although it does not represent an intensive activity area. Discrete scatters or evidence of production or habitation were not present. This area may therefore represent a hunting ground or a source of plant materials. The presence of larger concentrations of late Mesolithic flintwork within tree-throw holes on the gravel terrace certainly indicates a more intensive use of that area than of the floodplain. This location may have been used on occasion as a campsite, where toolkits were replenished and daily tasks performed. It is possible that the deposits in tree-throw holes result from brief stays at, or within the close vicinity of, the fallen tree.

Catalogue of illustrated flint from Areas Ex1-3 (Fig. 4.8)

1 Tree-throw hole 566, fill 569. SF 10377. Rod microlith.
2 Tree-throw hole 566, fill 569. SF 10435. Distal microburin.
3 Tree-throw hole 566, fill 569. SF 10322. Retouched and snapped blade from microlith manufacture.
4 Scatter 10010. SF 61042. Rod microlith.
5 Tree- throw hole 21, fill 47. SF 4067. Tranchet axe, broken.
6 Tree-throw hole 537, fill 545. SF 10179. Tranchet axe, broken.

An antler-beam mattock from Area Ex3
by Tim Allen

A near-complete antler-beam mattock (SF 62039) was recovered from the excavations on the floodplain in Ex3. The object was formed from the lower beam of a red deer antler (Fig. 4.9). At the upper end where the beam widens for the trez tine, both beam and trez tine are broken off. At this point a roughly circular hole approximately 25mm in diameter has been cut through the antler. At the lower end the bez tine has been cut off and polished flat. The base of the antler and the brow tine are missing, but were presumably also cut off to form the point of the mattock. The surviving piece is 320mm long and has an oval cross-section.

The object was found in a deposit on the levee adjacent to the earliest surviving phase of the former Thames channel, which was early Neolithic. A group of microliths was recovered from just behind the levee only 30m away, overlain by an early Neolithic struck flint scatter. A sample from the mattock was sent for radiocarbon dating, but failed due to low collagen yield. The dating of this objects is not therefore very secure, but such dating evidence as there is, however, fits with the typological framework suggested by AMS dating of antler mattocks in the late 1980s. The dating of 10 antler mattocks (Smith and Bonsall 1990, table 3), mostly from southern Britain, found that this sample of mattocks fell into two distinct groups; the antler beam mattocks were earlier, and dated to the

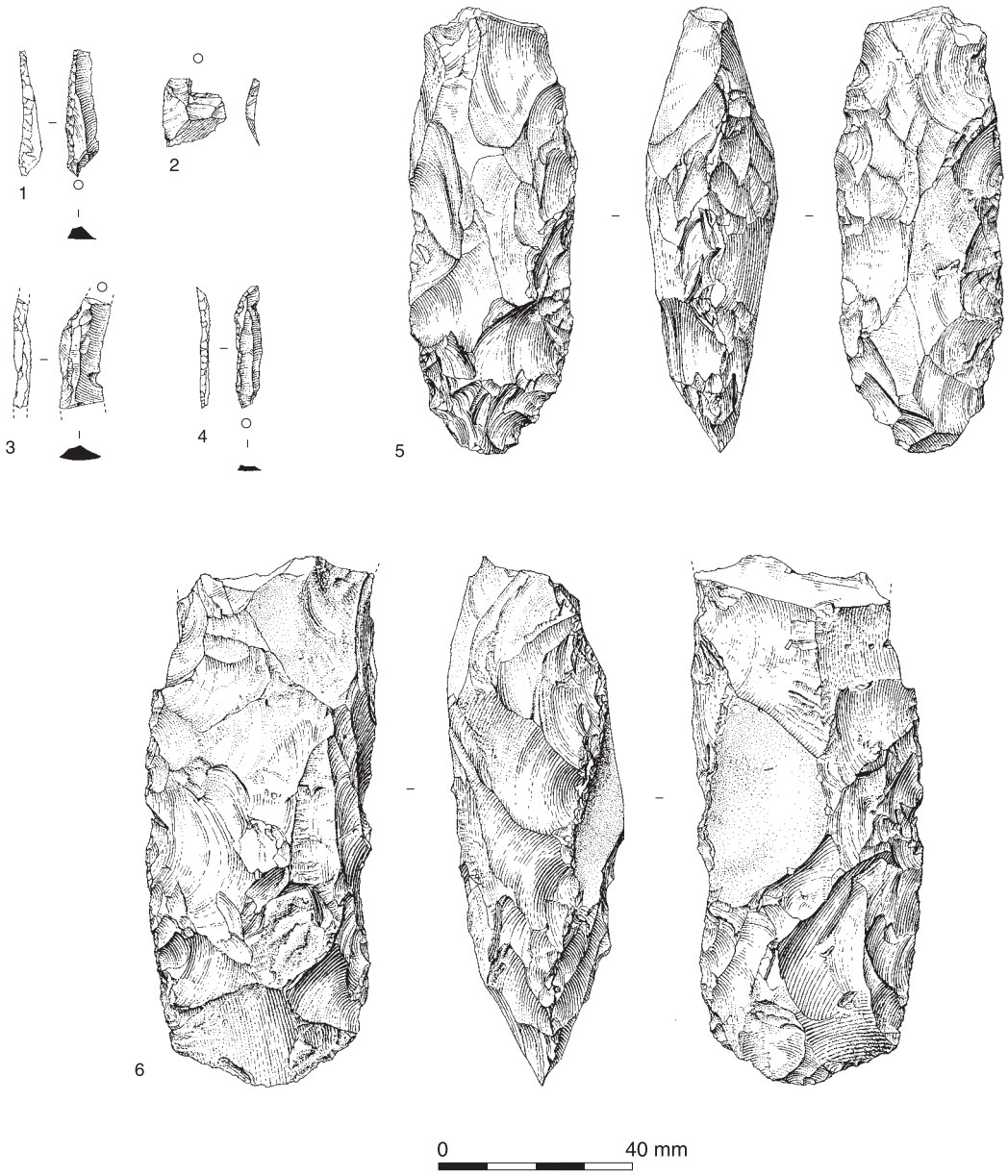

Fig. 4.8 Mesolithic flint from Areas Ex1-3

Mesolithic, while antler-base mattocks all belonged in the late Neolithic or early Bronze Age. The latest of the antler-beam types, from Staines, was dated 5350 ± 100 BP, suggesting that this type survived to the very end of the Mesolithic, and possibly into the earliest Neolithic.

The antler mattock was presumably attached to a roundwood haft, and may have been used for a variety of purposes on the site, such as digging out roots and tubers or excavating flint from the river bank.

Mesolithic animal bones from the floodplain in Areas Ex2 and Ex3 by Gillian Jones

A small number of bones were found in layers (10105 and 10107) above degraded early Mesolithic peat on the floodplain in Areas Ex2 and Ex3, and are likely to date from the later Mesolithic. Layers 10105 and 10107 formed a horizon below layers containing an early Neolithic flint scatter, but were not themselves dated, so may possibly not have been sealed before the start of the early Neolithic. They may therefore include some early Neolithic material. As with much of the bone of Neolithic date from the floodplain, the state of preservation was very poor. Each bone, often broken into thirty or more fragments, was retrieved and bagged individually, and given a small finds number. Animal remains (Table 4.4) were mainly from red deer (all antler except for one metatarsal). Three bones were of cattle, and one of pig. The greatest quantity of bone was unidentifiable, mostly of red deer/cattle size.

Of the three cattle bones, one was part of a first phalanx from layer (10244). The other two were from layers 10105 and 10107. The bone from 10105 was an astragalus which, although quite eroded, was well enough preserved to measure (GLl 68, Bd 38, DL 38mm, accurate to 2mm). It is smaller than any of the aurochs cows in the Danish collection (Dergerbøl 1970), and only 83% of the size of the Ullerslev 'standard' aurochs cow (see Area 6, early Neolithic section; log ratio -0.083 using GLl). As mentioned above, however, its dating is somewhat uncertain, and it could conceivably be domestic cattle not aurochs. The cattle bone from 10107 was a much-broken pelvis fragment.

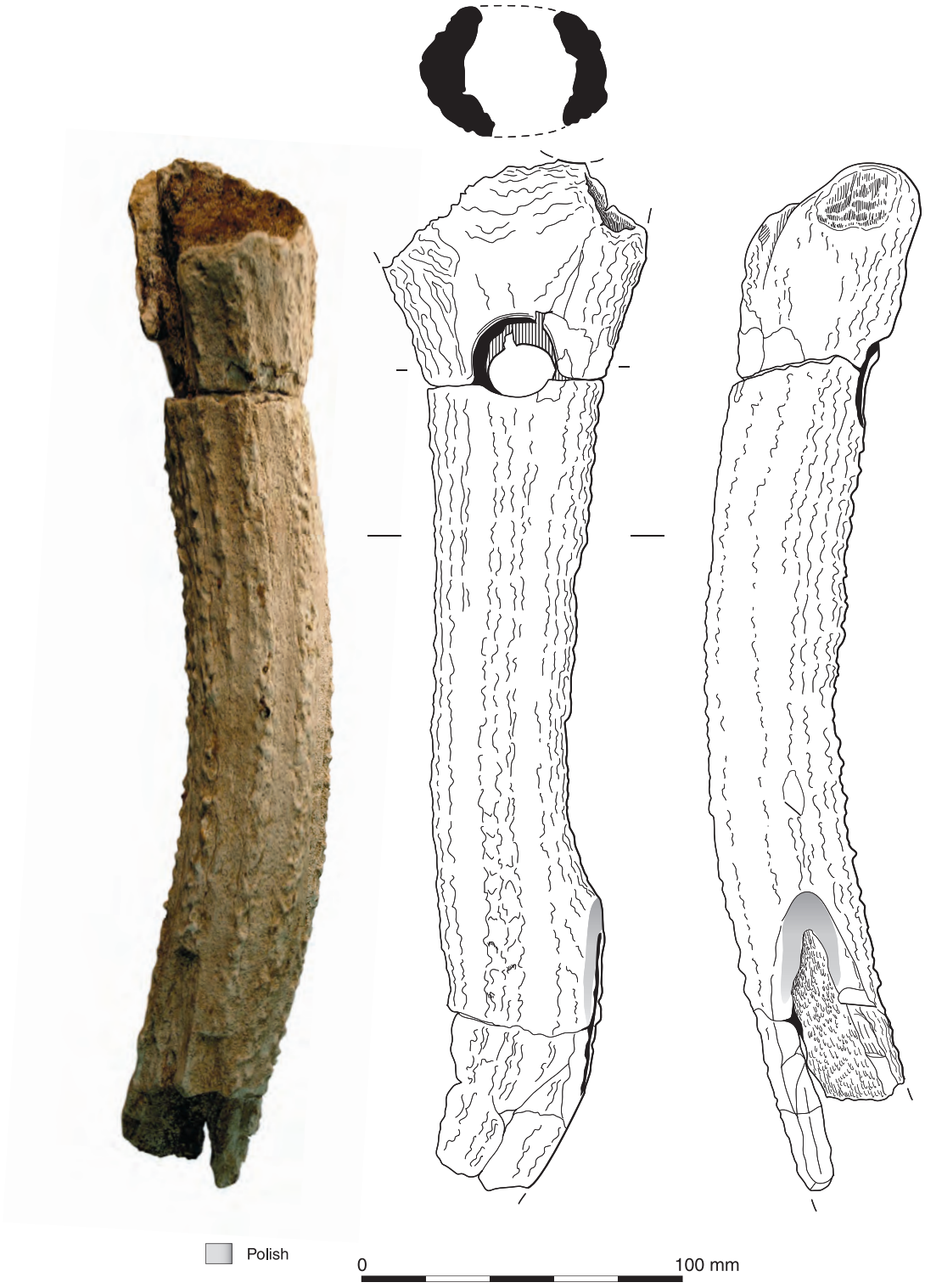

Fig. 4.9 Antler-beam mattock from Area Ex3

Table 4.4 Animal bone of Mesolithic or probably Mesolithic date from Areas Ex2-3

Area	*Context*	*Date*	*Feature type*	*Cattle*	*Pig*	*Red deer*	*Identified*	*Large mam.*	*Med. mam.*	*Mammal*	*Total*
EX2	952	Meso	levee					1			1
EX3	10101	Meso	layer					1	1		2
EX3	10102	Meso	layer			1+4a	5	4	1	5	15
EX3	10105	Meso	layer	1			1	3			4
EX3	10107	Meso	layer	1		4a	5	2			7
EX3	10160	Meso	layer			1a	1				1
EX3	10166	Meso	treehole					3			3
EX3	10176	Meso	treehole			2a	2				2
EX3	10244	Meso?	layer	1	1		2				2
Total				3	1	12	16	14	2	5	37

'a' – antler

The only pig bone identified is from the probable Mesolithic layer 10244 (a fragmentary distal femur).

Red deer remains included a moderately well-preserved worked antler mattock (see above). It consists of the lower beam, 290mm long, with at each end the widening for brow (or bey) and trey tines. The minimum circumference of the lower beam was 136mm (International System: de Nahlik 1959).

Other antler remains were more fragmentary, typically eroded and with many fresh breaks, and surviving as tines or sections of beam 30 to 50mm long, with no cut marks. The only bone (as opposed to antler) from red deer was the lower lateral section of a metatarsal (Dil, Depth of the internal part of the lateral condyle, 25.8mm).

The antlers were not directly associated with concentrations of Mesolithic struck flints, although material of this date was recovered from the adjacent floodplain and from the gravel terrace to the south. Some of these may therefore have been shed naturally, though antler was clearly being gathered and utilised, as the mattock demonstrates.

A possibly comparable site in the region is the deposit at Stratford's Row, Chesham, where 78 bones considered to be Mesolithic were from aurochs, red deer, roe deer and wild boar (24, 18, 9 and 19 respectively, and 8 cattle or red deer; Grigson 1989).

Macroscopic plant and invertebrate remains from Mesolithic organic sediments in Basin R

by Mark Robinson

Introduction

As part of the investigation of the early Holocene environmental sequence at Dorney, the backswamp peat and organic alluvial sediments which accumulated in the abandoned bed in Basin R were analysed for macroscopic plant and invertebrate remains. Well-preserved organic remains were only found in samples from the bottom of the sequence where this was deepest, some 50m south of the lakeside flint scatters in Trenches 166, 180 and 173. These samples belonged to the early Mesolithic. However, organic sediment was also sampled from a tree-throw hole which cut the alluvial sediments further south, enabling evidence to be obtained for the late Mesolithic.

Methods and results

A backswamp sequence was obtained from Trench 167/40 (Fig. 3.6) and comprised Samples 16 (bottom), 15, 14 and 12. Trench 167 was dug to a depth of 2.65m. At the bottom of the trench, 0.8m of peat of early Holocene date (167/40) which also contained charred plant remains, was found. This deposit was overlain by clays into the top of which a tree-throw hole was visible. The change from peat to clay was probably due to the decay of organic material in the upper deposits, as these lay above the level of permanent waterlogging. The tree-throw hole indicates the later development of alder carr. A similar tree-throw hole was found on the south side of the basin in Trench 46/11. Peat from it was taken in Sample 10. A radiocarbon date of 9220-8740 cal BC (OxA-9411: 9560±55BP) was obtained on *Schoenoplectus* seeds from Sample 16 and a radiocarbon date of 5220-4940 cal BC (OxA-9412: 6130±45BP, 5230-4940) was obtained on *Alnus* seeds from Sample 10.

Subsamples of 250g were analysed for the full range of remains from all the samples. Additional subsamples of 3.75kg were analysed for insect remains only from Samples 16 and 10. Full results are given in Tables 4.5-9.

Interpretation

The plant and insect remains from Sample 16, the earliest part of the backswamp sequence, are almost entirely reedswamp species. The abundance of seeds of *Schoenoplectus lacustris* (true bulrush) and the beetle *Donacia impressa*, which is restricted to feeding on *S. lacustris*, suggest that this plant predominated. It has unbranched leafless stems which grow up to 3m in height, and occurs in stagnant or slowly moving water up to 1m deep. It

often grows as almost pure dense stands. Other reedswamp or marginal plants represented by seeds included *Ranunculus* cf *lingua* (greater spearwort), *Rumex hydrolapathum* (great water dock), *Menyanthes trifoliata* (bogbean) and *Mentha* cf *aquatica* (water mint). The last two species are smaller plants likely to have grown in areas where the tall reedswamp was less dense. Most of the other phytophagous insects (for example *Notaris bimaculatus* or *scirpi*, *Thryogenes* cf *festucae* and *Limnebius pilistriata)* feed on reedswamp vegetation including *S. lacustris*. The various water beetles that were present – for example *Hydraena* cf *riparia* – would readily have lived in the water between the stems of the emergent vegetation. Other reedswamp insects included the characteristic *Odacantha melanura*, a predator which climbs the vegetation, and *Corylophus cassidoides*, which occurs in accumulations of decaying reedswamp vegetation.

There was only a single seed from a floating-leaved aquatic plant: *Potamogeton* sp. (pondweed). Remains of fully terrestrial plants were also sparse. There were single seeds of *Atriplex* sp. (orache) and *Rumex acetosella* (sheep's sorrel), both of which require open conditions. There was also a single seed of *Betula pendula* or *pubescens* (birch). The occurrence of the beetle *Chalcoides* sp., which feeds on the leaves of *Populus* spp. (poplar) and *Salix* spp. (willow) gives evidence for another tree or shrub. The radiocarbon date of 9220-8740 cal BC (OxA-

Table 4.5 Waterlogged seeds from Mesolithic Basin R

	Trench	*167/40*				*46/11*
	Sample	*16*	*15*	*14*	*12*	*10*
Ranunculus cf. *lingua* L.	greater spearwort	3	5	-	-	-
Rorippa cf. *palustris* (L.) Bes.	marsh yellow-cress	1	-	-	-	-
Moehringia trinervia (L.) Clairv.	three-nerved sandwort	-	-	-	-	1
Atriplex sp.	orache	1	-	-	-	-
Cornus sanguinea L.	dogwood	-	1	-	-	-
Cicuta virosa L.	cowbane	1	-	-	-	-
Rumex acetosella agg.	sheep's sorrel	1	-	-	-	-
R. hydrolapathum Huds.	great water dock	10	-	-	-	-
Urtica dioica L.	stinging nettle	3	2	-	-	1
Betula pendula Roth. or *pubescens* Ehr.	birch	1	-	-	-	-
Alnus glutinosa (L.) Gaert.	alder	-	-	-	-	46
Corylus avellana L.	hazel	-	-	-	1	-
Menyanthes trifoliata L.	bogbean	4	-	1	-	-
Solanum dulcamara L.	woody nightshade	-	-	-	-	1
Mentha cf. *aquatica* L.	water mint	58	37	29	-	1
Lycopus europaeus L.	gipsywort	1	2	2	-	-
Stachys cf. *palustris* L.	marsh woundwort	-	2	-	-	-
Ajuga reptans L.	bugle	-	-	-	-	1
Sambucus nigra L.	elder	-	-	-	-	3
Valeriana sp.	valerian	1	-	-	-	-
Eupatorium cannabinum L.	hemp agrimony	-	-	-	4	1
Potamogeton sp.	pondweed	1	-	-	-	-
Juncus sp.	rush	10	-	-	-	-
Schoenoplectus lacustris (L.) Pal.	bulrush	239	17	-	-	-
Carex sp.	sedge	1	-	-	-	1
Total		336	66	32	5	56

Table 4.6 Other plant remains from Mesolithic Basin R (waterlogged unless stated)

	Trench	*167/40*	*46/11*
	Sample	*16*	*10*
Alnus glutinosa (L.) Gaert.	alder - female catkin	-	3
A. glutinosa (L.) Gaert.	alder - bud scale	-	1
A. glutinosa (L.) Gaert.	alder - twig	-	4
Chara sp.	stonewort - oospore	10	-
Schoenoplectus lacustris (L.) Pal.	bulrush - charred seed	1	-
S. lacustris (L.) Pal.	bulrush - charred stem fragment	3	-

Table 4.7 Coleoptera from Mesolithic Basin R

Trench		*167/40*			*46/11*	
Sample	*16*	*15*	*14*	*12*	*10*	*Species Group*
Dyschirius globosus (Hbst.)	-	-	-	-	2	
Bembidion assimile Gyl.	3	1	-	-	-	
B. biguttatum (F.)	1	-	-	-	-	
B. guttula (F.)	-	-	-	-	1	
Pterostichus minor (Gyl.)	-	-	-	-	1	
P. nigrita (Pk.)	-	-	-	-	1	
Agonum livens (Gyl.)	-	-	-	-	1	
A. puellum Dej.	3	-	-	-	-	
Odacantha melanura (L.)	2	-	-	-	-	
Haliplus sp.	1	-	-	-	-	1
Hygrotus sp.	1	-	-	-	-	1
Agabus bipustulatus (L.)	-	-	-	-	1	1
Gyrinus sp.	2	-	-	-	-	1
Helophorus cf. *obscurus* Muls.	2	-	-	-	-	1
Helophorus sp. (*brevipalpis* size)	-	-	-	-	1	1
Cercyon cf. *convexiusculus* Step.	4	1	-	-	-	7
Megasternum obscurum (Marsh.)	-	-	-	-	1	7
Hydrobius fuscipes (L.)	1	-	-	-	-	1
Anacaena globulus (Pk.)	-	-	-	-	2	1
Ochthebius cf. *minimus* (F.)	6	-	-	-	-	1
Hydraena cf. *riparia* Kug.	11	-	-	-	1	1
Ptenidium sp.	-	-	-	-	1	
Choleva or *Catops* sp.	-	-	-	-	1	
Silpha atrata L.	-	-	-	-	1	
Olophrum sp.	1	-	-	-	-	
Lesteva punctata Er.	-	-	-	-	2	
Carpelimus bilineatus (Step.)	-	-	-	-	1	
Anotylus cf. *insecatus* (Grav.)	1	-	-	-	-	
A. rugosus (F.)	-	-	-	-	1	7
Stenus sp.	2	-	-	-	1	
Lathrobium sp.	1	-	-	-	-	
Philonthus sp.	-	-	-	-	1	
Aleocharinae indet.	-	-	-	-	2	
Bryaxis sp.	-	-	-	-	1	
cf. *Cyphon* sp.	-	-	-	-	1	
Dryops sp.	4	-	-	-	1	1
Melanotus erythropus (Gml.)	-	-	-	-	1	4
Atomaria sp.	-	-	-	-	1	
Phalacrus caricis Sturm	2	-	-	-	-	
Corylophus cassidoides (Marsh.)	5	-	-	-	-	
Corticariinae indet.	1	-	-	-	-	
Donacia impressa Payk.	8	-	-	-	-	5
Donacia or *Plateumaris* sp.	2	2	1	1	-	5
Chrysolina polita (L.)	-	-	-	-	1	
Agelastica alni (L.)	-	-	-	-	1	4
Longitarsus sp.	1	-	-	-	-	
Chalcoides sp.	1	-	-	-	-	4
Otiorhynchus ovatus (L.)	1	-	-	-	-	
Phyllobius sp.	-	-	-	-	1	
Bagous sp.	1	-	-	-	-	5
Notaris bimaculatus (F.) or *scirpi* (F.)	1	-	-	-	-	5
Thryogenes cf. *festucae* (Hbst.)	1	-	-	-	-	5
Limnobaris pilistriata (Step.)	1	-	-	-	-	5
Rhynchaenus quercus L.	-	-	-	-	1	4
Total	71	4	1	1	32	

Table 4.8 Other insects from Mesolithic Basin R

	Trench	*167/40*	*46/11*
	Sample	*16*	*10*
Trichoptera indet	larva	1	2
Diptera indet.	puparium	-	1
Diptera indet.	adult	1	-

Table 4.9 Mollusca from Mesolithic Basin R

	Trench	*46/11*
	Sample	*10*
Valvata cristata		1
Lymnaea palustris		1
Pisidium sp.		1

9411: 9560±55BP) for this sample showed that the deposit belonged to the early part of Flandrian Vegetation Zone 1, when vegetational succession was occurring following the climatic amelioration after the end of the late Devensian. The terrestrial plant remains confirm that tree cover was by no means complete, and the trees – birch and poplar or willow – are pioneer species.

Some charred stem fragments and a charred seed of *Schoenoplectus lacustris* (bulrush) were present. Charred early Flandrian reed (*Phragmites*) fragments from Star Carr were interpreted as evidence of Mesolithic burning of reedbeds. Stands of bulrush burn vigorously in winter once the stems have been killed by frost and they have dried. The early Mesolithic lakeside settlement was only 50m away, and an aurochs bone from the settlement gave a radiocarbon date very similar to that from Sample 16, suggesting that they were contemporaneous. It is, therefore, possible that the reedswamp had been deliberately fired. However, dead bulrushes could also have been ignited by lightning strike.

The preservation of organic remains declines up the sequence but it is possible that the absence of *S. lacustris* seeds from Sample 14 while *Mentha aquatica* (water mint) is still present, is the result of there no longer having been standing water in the backswamp. Preservation was very poor in Sample 12. However, the occurrence of seeds of *Eupatorium cannabinum* (hemp agrimony) and *Corylus avellana* (hazel) raises the possibility that fen woodland (carr) had become established over the backswamp.

Mineral alluviation had sealed the organic sediments in the backswamp by the late Mesolithic (possibly very much sooner). On the opposite (south) side of the Thames palaeochannel, remains preserved in a tree-throw hole cutting from the level of inorganic alluvium were dated to 5220-4940 cal BC (OxA-9412: 6130±45 BP; Sample 10) suggested that it supported alder carr woodland. The majority of the seeds are from *Alnus glutinosa* (alder). Alder catkins, bud scales and twigs are also present along with an example of *Agelastica alni* (alder leaf beetle). *A. alni* is now extinct in Britain but was widespread in the alder woodlands which once prevailed in many river valleys during the late Mesolithic and Neolithic. The occurrence of *Rhynchaenus quercus* (oak leaf weevil) suggests that some *Quercus* sp. (oak) trees were also present, perhaps on slightly better drained areas of the site.

The tree-throw hole itself probably had the character of a small, temporary pond, and provided a suitable habitat for the water beetles *Agabus bipustulatus* and *Anacaena globulus*. The shell of a flowing water snail,*Valvata cristata,* had perhaps been introduced with floodwater. However, there is no evidence for reedswamp vegetation. Both seeds and insects are characteristic of the shaded floor of a damp woodland. Seeds of herbaceous plants included *Moehringia trinervia* (three-nerved sandwort), *Ajuga reptans* (bugle) and *Eupatorium cannabinum* (hemp agrimony). The beetle *Agonum livens* is characteristic of marshy alder woodland, occurring in leaf litter. Another beetle, *Agrypnus murinus*, occurs in very rotten fallen branches and tree trunks. There was no evidence for human activity in the woodland.

Areas 3 and 5: late Mesolithic/early Neolithic flint scatters and other remains

The floodplain in Area 5: Mesolithic and early Neolithic flint scatters and tree-throw holes

In Area 5, three scatters of Mesolithic and early Neolithic flint were recovered from alluvial clay silt deposits which had accumulated behind a levee on the south bank of Palaeochannel V. These deposits were cut by a number of tree-throw holes which also contained late Mesolithic or early Neolithic flint, as well as burnt flint, animal bone and charcoal.

Whilst the north bank of Palaeochannel V was defined by gravel terrace, the southern side of the channel cut into the flood plain. In Area 5, the flood plain consisted of a series of alluvial layers. The uppermost of these layers (3514) increased in thickness towards the edge of the palaeochannel forming a levee which was cut by the edge of the channel (3515). Behind this levee a series of clay silts (3505, 3504 and 3503) had formed (which were covered by subsoil). The human activity on the site was mainly located on these clay silts (3503 and 3504), which are dated by this activity to the Mesolithic.

Three surface scatters of flint were found on these deposits (Fig. 4.10). The first, 3600, consisted of around 20 flints. This scatter may have been related to a nearby scatter, 3601, which comprised one blade, one core and eighteen flakes and some microdebitage. A more isolated flint scatter, 3609, consisted of numerous flakes and blades. It is possible that these scatters are the remains of *in situ* knapping, though the majority of the functional

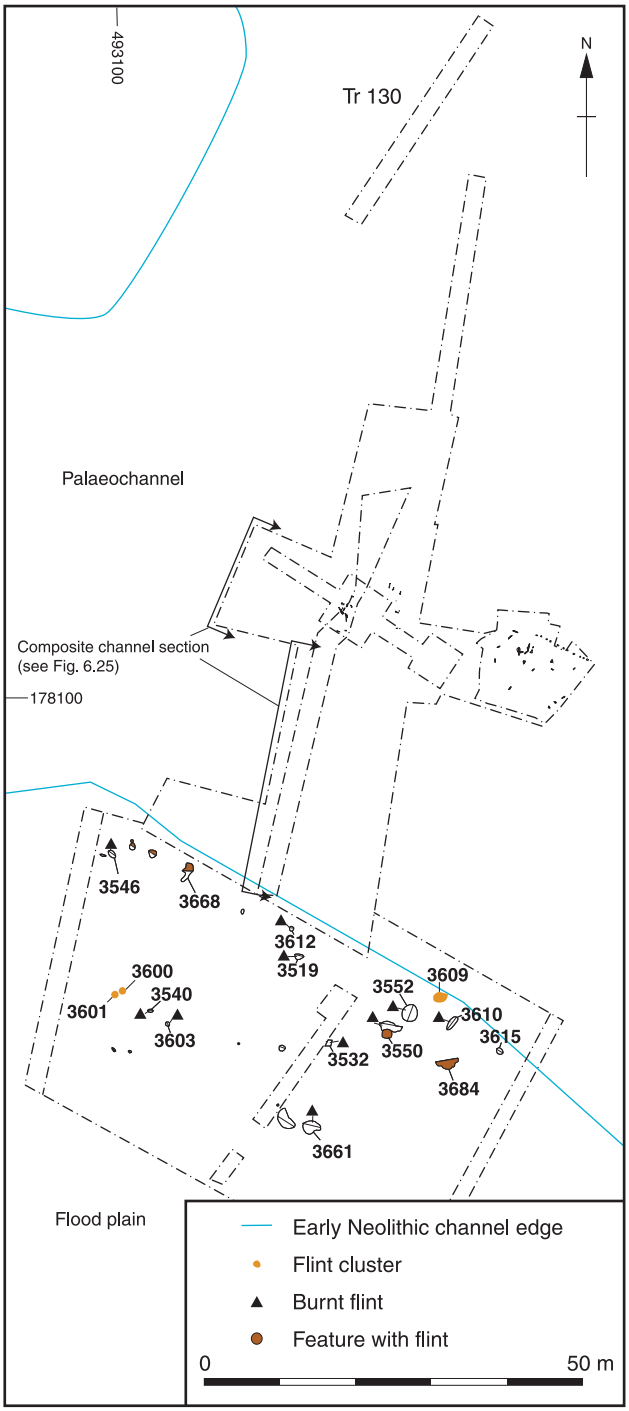

Fig. 4.10 Location of flint scatters and tree-throw holes containing Mesolithic flint in Area 5

pieces seem to have been removed; only a single utilised piece was recovered.

A wider spread of worked flint (3602) was found on the machined surface of the subsoil and was probably residual. As well as containing Mesolithic flint this scatter also contained a small early Neolithic element, and may have derived from transitory activity on the edge of the palaeochannel.

The alluvial layers (3504 and 3503) behind the levee were cut by a number of tree-throw holes and associated root holes. Although natural in origin, many of these features contained evidence of human activity in their fills. Late Mesolithic/early Neolithic flint was found in several of them (3524, 3550, 3610, 3612, 3615 and 3668) and burnt flint was found in others (3519, 3532, 3534, 3540, 3546, 3550, 3552, 3603, 3610, 3612, 3615 and 3661; Fig. 4.10). Other finds include occasional animal bone (from 3615 and 3661) and fragments of charcoal (in the fills of 3550 and 3524).

Mesolithic and early Neolithic struck flint from Area 5 by Hugo Anderson-Whymark and Theresa Durden

Introduction

A total of 492 flints and 69kg of burnt unworked flint was recovered from Area 5 (Table 4.10). The majority of the flint was recovered from the three discrete surface scatters and from a number of small tree-throw holes. The flintwork appeared to late Mesolithic in date, although a small early Neolithic element was also present in the flint from layer 3602, which sealed the scatters and tree-throw holes. The late Mesolithic material offered an opportunity to examine assemblage variability between two distinct contexts types and allowed a functional interpretation of the scatters using refitting and low power use-wear analysis. The burnt unworked flint was recovered in significant quantities from tree-throw holes.

Condition and raw material

The material was in fairly fresh condition with varying levels of cortication from very light white speckling to a heavy white cortication (the latter notably in contexts 3502 and 3602). The raw material is a good quality grey to brown gravel flint. The cortex varies, although it is usually thin and creamy, and occasionally pitted. The general quality of this flint suggests that the raw materials were carefully selected. A total of 147 pieces (35.2%) were broken and 43 pieces (10.3%) burnt. Retouched pieces formed 3.8% (16 flints) of the assemblage.

The assemblage

Because of the limited size of the assemblages from particular contexts, and the similar nature of the material, the assemblage will be discussed as a whole. The cores were a mixture of single and multi-platformed varieties, with both flake and blade cores being represented. Tested nodules were also present. Some of the flake cores also bore the scars of narrow removals. Platform abrasion was noted on many of the flake cores as well as on the blade cores. Platform abrasion was carried out to remove projections or overhangs caused by previous removals, and serves to strengthen the platform edge (Barton 1992, 270). This practice is commonly found in early industries producing blade material.

Table 4.10 The assemblage from Area 5 by key context

	Flint scatters			*Tree-throw holes*					*Spread*	*Other*	*Grand*
CATEGORY TYPE	*3600*	*3601*	*3609*	*3550*	*3610*	*3615*	*3668*	*3684*	*3602*	*contexts*	*total*
Flake	4	16	8	55	4	11	13	29	42	90	272
Blade	1	1				1	2	11	4	20	
Bladelet							3		1	4	
Blade-like	4	5	2	4	2	5	5	6	13	20	66
Irregular waste	1	1	4					3	4	13	
Chip	4	20	15	15		4	5	1		7	71
Sieved chips 10-4 mm									3	3	
Rejuvenation flake core face/edge			2							2	
Rejuvenation flake tablet									1	1	
Rejuvenation flake other			1					1	1	3	
Thinning flake									1	1	
Core single platform blade core								1		1	
Other blade core								3		3	
Tested nodule/bashed lump	1				1			2	1	5	
Single platform flake core	1							1		2	
Multiplatform flake core	1		1					1		3	
Unclassifiable/fragmentary core		1	2					1	2	6	
Laurel leaf								1		1	
Backed blade							1			1	
Microlith			1							1	
End scraper							1			1	
Side scraper									1	1	
Other scraper								1		1	
Spurred piece									1	1	
Notch							2		1	3	
Retouched flake			1		1			1		2	5
Misc. retouch								1		1	
Grand Total	17	44	26	85	7	21	24	46	82	140	492
Burnt unworked flint (g)	-	-	-112	1250	961	2082	3318	19	61260	69002	
No. burnt (%) (exc. chips)	1(7.7)	-	2 (18.2)	8 (11.4)	1	4 (23.5)	4 (21.1)	5 (11.1)	2 (2.4)	16 (12.3)	43 (10.3)
No. broken (%) (exc. chips)	5 (38.5)	11 (45.8)	6 (54.6)	33 (47.1)	3	5 (29.4)	5 (26.3)	18(40)	18 (22)	43 (25.4)	147 (35.2)
No. retouched (%) (exc. chips)	-	-	1(9.1)	1(1.4)	1	-	-	5 (11.1)	3 (3.7)	5 (3.9)	16 (3.8)

Flake material consisted of a mixture of broad flakes, blade-like flakes and blades. The broader flakes were generally regular in form, often with minimal butts, which suggests that the majority were the result of the same knapping activities and technology that produced the more blade-like material. A mixture of soft and hard hammers was used.

Retouched material was limited, comprising a small number of simple retouched flakes, points and notches. The only closely datable pieces are a laurel leaf from context 3602 (SF 46000), a backed blade and a microlith. The laurel leaf is manufactured on a large flake; the retouch is crude and slightly invasive. The rough manufacturing of this object leaves an unfinished appearance, although this is common amongst this class of artefacts. The microlith is small (12mm long) and is slightly atypical in form, but bears most similarity to Jacobi's Type 5 (1978, 16). The backed bladelet is small and fragmentary, but exhibits slight abrupt edge retouch along one side. The latter two artefacts date from the late Mesolithic and the former from the early Neolithic.

Refitting

A total of 352 flints from nine contexts were selected for refitting. The contexts included the surface scatters 3600, 3601 and 3609, tree-throw holes 3550, 3684, 3610, 3615 and 3668, and spread 3602. The contexts chosen for the refitting exercise were intended to represent a cross section of assemblage types present in Area 5.

The refitting exercise was of limited success. A single knapping refit was made between two flakes in tree-throw hole 3684. A number of similar cortices were noted within 3602 and between 3600 and 3601, although no refits were made. It is, however, entirely possible that surface scatters 3600, 3601 and 3609 do represent *in situ* knapping deposits, but that their limited size, and the apparent removal of the majority of 'functional' pieces from the scatter, resulted in the negative refitting results.

Low power use-wear analysis

A total of 177 flints from ten surface scatter and tree-throw hole contexts were examined for evidence of use-wear. The majority of the flintwork was in a fresh condition, with little evidence for post-depositional edge damage. A total of 13 flints (7.4%) bore evidence of use, and these 13 flints exhibited 41 utilised edges, which amounts to 3.2 utilised edges per flint, a higher than average proportion. The overall proportion of utilised pieces in the assemblage is low, probably due to the presence of knapping debris both in the surface scatters and in the tree-throw holes. It is notable that only a single utilised piece was recovered from the surface scatters 3600, 3601 and 3609 (35 flints analysed). While this shows that the majority of utilised pieces were deposited within tree-throw holes rather than within the surface scatters, the sample size (restricted by the size of the scatters) is too limited to allow any firm conclusions to be drawn. Despite their small numbers, the presence of utilised pieces does, however, indicate that some activities other than knapping were being performed in the vicinity of these deposits.

Conclusions

The high proportion of regular flakes and blade material, the use of both soft and hard hammers, the presence of platform abrasion on many of the cores, and two broken microliths suggest a late Mesolithic date for this assemblage. Context 3602 contained a number of flints which appear contemporary with the Mesolithic material, although it also contained a crude laurel leaf, which is diagnostic of the early Neolithic.

The surface scatters appear to represent small deposits of knapping debitage, with the majority of useable flints removed (thus limiting the refitting results). A single utilised flint was found in the three scatters, and a total of four flints were burnt. No burnt unworked flint was present in the assemblage.

The deposits of flint in tree-throw hole fills were of a slightly different character. An element of knapping material was again present, and a knapping refit was found in tree-throw hole 3554. A

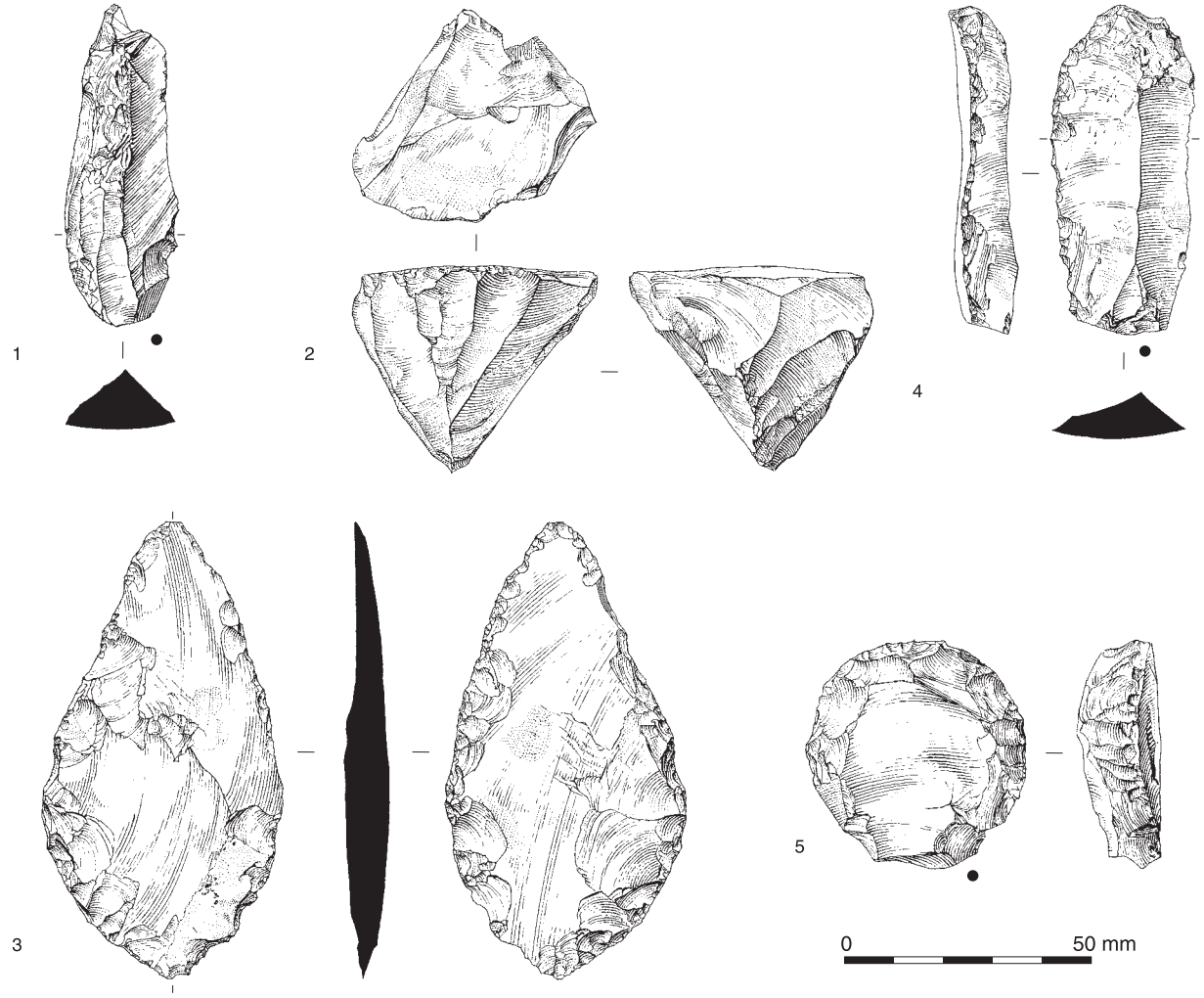

Fig. 4.11 Flint from Area 5

total of 12 utilised flints (8.5% of the assessed assemblage) were identified, suggesting that either utilised flints were deposited in the scatter from elsewhere, or that flint from the knapping event was utilised before disposal. These deposits may therefore be characterised as deposits from activity areas, where both knapping and other activities were performed.

Catalogue of illustrated flint from Area 5 (Fig. 4.11)

1 Feature 3550, fill 3551. SF 46299. Crested flake (rejuvenation flake other category).
2 Layer 3602. SF 46041. Other blade core. Weight 53g.
3 Layer 3602. SF 46000. Laurel leaf. The flint exhibits the form of a laurel-leaf point but is not completely bifacially retouched, probably as the flake was too thin.
4 Feature 3684, fill 3554. SF 46383. End scraper manufactured on a long flake.
5 Layer 3602. SF 46079. Other scraper, finely flaked horseshoe form.

Late Mesolithic/early Neolithic animal bone from Area 5 *by Gillian Jones*

A few bones, none identifiable, were found in a tree-throw hole (3615) and a pit or tree-throw hole (3665) in Area 5, both accompanied by small assemblages of struck flint. They were of large or medium mammal size (3 large, 4 medium, 2 indeterminate mammal). Two, from 3665, were burnt.

The floodplain in Area 3: late Mesolithic and early Neolithic flint scatters

To the south-east of Area 5 further floodplain activity of very similar character to that in Area 5 was uncovered in Area 3, to the south of the former course of the Thames. Two areas of the floodplain were stripped, and in the more westerly a number of small pit-like features were found (3149, 3304, 3370, 3327, 3329; Fig. 4.12). Some of these, such as 3329, may have been tree-throw holes, but others contained evidence of burning, and may have been deliberately cut pits. Pit 3370 contained a fill comprising up to 70% burnt mollusc shells, as well as fragments of burnt flint and charcoal. Amongst these small features were at least two flint scatters. Scatter 3152 contained over 150 flint fragments, amongst which the only diagnostic artefact was a late Mesolithic scalene triangle microlith. The composition of the rest of the assemblage suggests that the entire scatter dates from that period. The presence of preparation flakes suggests that cores were prepared at or near the scatter, though the lack of trimming flakes implies that most such flakes were removed. The lack of refits and the presence of broken and utilised pieces suggest that the assemblage does not represent *in situ* knapping. This contrasts with the nearby scatter 3324, which, although of similar character, contained conjoined fragments and irregular waste and three cores.

The Mesolithic/early Neolithic assemblage from Area 3 *by Hugo Anderson-Whymark and Theresa Durden*

The two flint scatters, 3324 and 3152, have been dated broadly to the late Mesolithic or early Neolithic on the basis of their technological traits. The presence of a fragmentary microlith in scatter 3324 and of a scalene micro-triangle in scatter 3152 indicates that the date is probably late Mesolithic, but it has to be borne in mind that the technological traits are inconclusive.

Scatter 3152

A total of 169 flints were recovered from Scatter 3152. The only diagnostic artefact recovered is a scalene micro-triangle microlith of late Mesolithic date. The assemblage appeared to be coherent, both in assemblage content and cortication (which was a heavy white colour throughout). Technological analysis was undertaken on all of the complete flakes (69 in total) and refitting was attempted on the entire assemblage. The assemblage is shown in Table 4.11.

In the scatter, 20.8% (15 flints) of the flakes were blade-like, which equates to an early Neolithic date using Ford's criteria (1987a, 79). However, the number of blades in the assemblage appeared to be under-represented, while cortical and side trimming flakes are over-represented, at 18.8% (13 flints) and 24.6% (17 flints) respectively. This suggests that useable blades may have been removed for use elsewhere. It is therefore likely that the assemblage is contemporary with the microlith and dates to the late Mesolithic.

Preparation flakes formed 18.9% (13 flints) of the material, representing a high proportion of the total, indicating that the initial preparation of cores was carried out within the immediate area of the scatter. A further 24.6% (17 flints) were side trimming flakes, and 2.9% distal trimming, making a total of 46.4% (32 flakes) of cortical or partially cortical flakes. The remaining 53.6% of flakes were non cortical; these flakes appear under-represented in the assemblage. Considering the lack of refits (see below), this would suggest that the majority of flakes and blades were removed from the assemblage for use or further adaptation elsewhere.

Simple platform preparation techniques dominated the assemblage: 60.9% of butts were plain and a further 10.1% exhibited one or more removals. Core preparation is represented through the presence of 11.6% of flakes with cortical butts. A further 8.7% of butts were punctiform and 8.7% linear, traits generally associated with blade-like industries (Tixier *et al.* 1980, 105).

A total of 71% of terminations were feathered, suggesting a relatively accurate removal of flakes. A further 10.4% of terminations were hinged, 2.8% stepped and 2.8% plunging. The precision of removals was aided by the use of platform edge abrasion, which 29% (20 flints) of the assemblage exhibited.

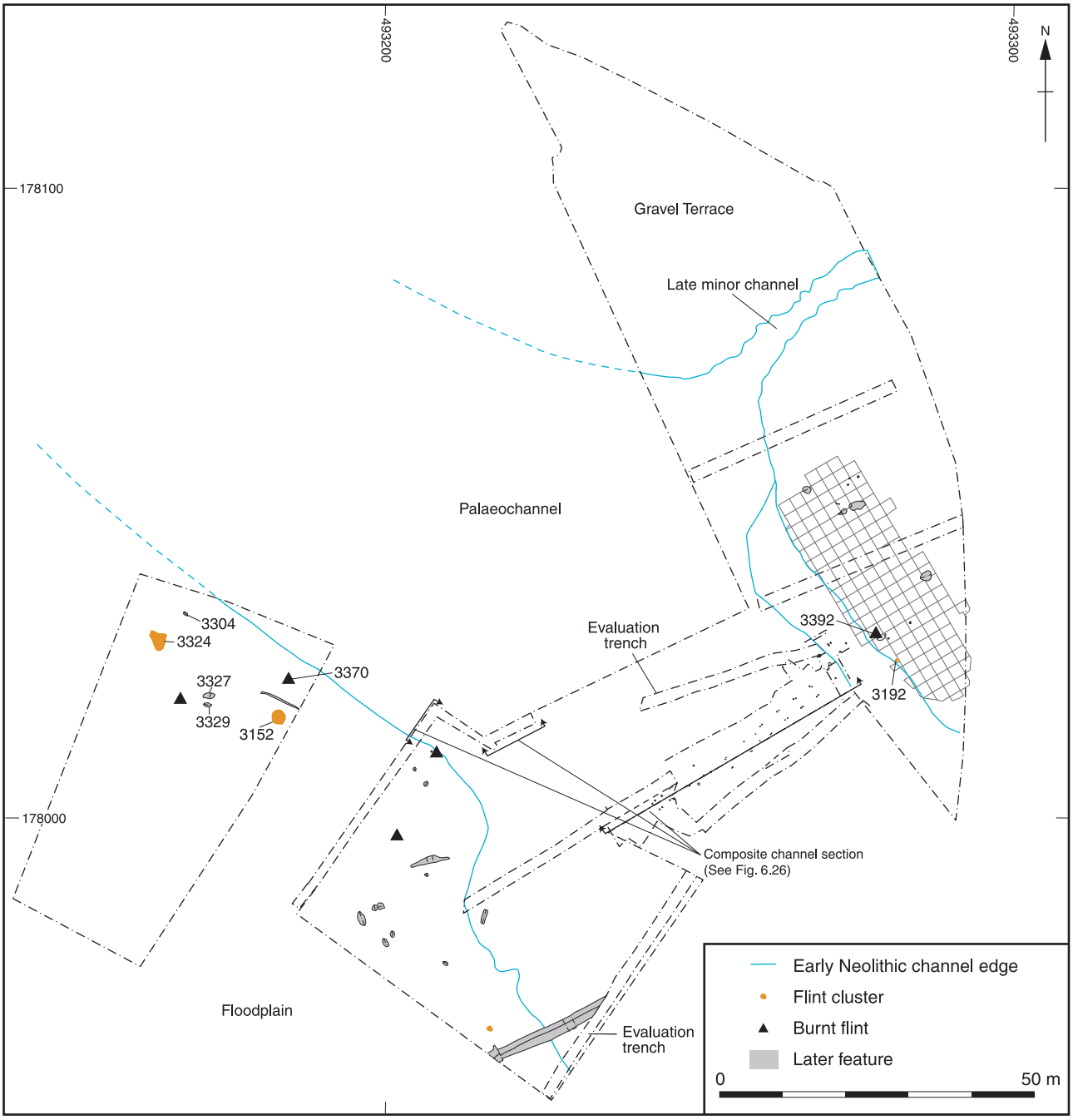

Fig. 4.12 Location of flint scatters and features in Area 3

The hammer mode was determined through the identification of several diagnostic traits on the ventral surface (Ohnuma and Bergman 1982). Where it was possible to identify the hammer mode, soft hammer percussion was dominant, with only five flakes noted as having being struck by a hard hammer.

No refits were found in Scatter 3152. However, a group of eight cortical trimming flakes appeared to have derived from the same core – a gravel flint nodule with a thin creamy abraded cortex (Flint Type 52).

The presence of significant proportions of burning and breakage (11.7% (18 flints) and 31.2 % (48 flints) respectively), alongside several utilised flakes, and 531g of burnt unworked flint, suggest that this scatter should not be interpreted solely as the product of production, but as an activity area or dump of material from such an area.

Scatter 3324

Although consisting of a smaller assemblage of 57 flints, Scatter 3324 is of a similar character to 3152. The majority of the flints are burnt and a number of

Table 4.11 The flint assemblage from Area 3

CATEGORY TYPE	*Flint Scatter 3324*	*Flint Scatter 3152*	*Flint Scatter 3181*	*Flint Scatter 3192*	*Layer 3021*	*Other contexts*	*Grand total*
Flake	42	107	178	90	906	231	1554
Blade	4	12	6	1	41	8	72
Bladelet		3	3		1	1	8
Blade-like	3	13	18	8	50	19	111
Irregular waste	3	5	12	15	22	6	63
Chip		4	22	5	1	3	35
Sieved chips 10-4 mm		10					10
Rejuvenation flake core face/edge			2	1	4		7
Rejuvenation flake tablet					1	1	2
Rejuvenation flake other					3	1	4
Janus flake (= thinning)					1		1
Core single platform blade core		1			1		2
Bipolar (opposed platform) blade core		1					1
Other blade core		2	1		3		6
Tested nodule/bashed lump	1	5	3	3	20	2	34
Single platform flake core	2		1	4	12	1	20
Multiplatform flake core	1				8	6	15
Keeled non-discoidal flake core					2	1	3
Levallois/other discoidal flake core						2	2
Unclassifiable/fragmentary core		3	3		13	5	24
Core on a flake		2					2
Microlith	1	1			1		3
Leaf arrowhead						1	1
Barbed and tanged arrowhead					1		1
End scraper					1		1
Side scraper						1	1
End and side scraper					1	1	2
Scraper on a non-flake blank					1		1
Other scraper					1		1
Awl					1	1	2
Piercer					6	1	7
Spurred piece					4	1	5
Serrated flake					2	1	3
Denticulate					1		1
Notch					7		7
Backed knife					1		1
Retouched flake					10	3	13
Other - Burin?					1		1
Hammerstone			1			1	2
Grand Total	57	169	250	127	1128	298	2029
Burnt unworked flint (g)	1207	531	-	-	57898	22325	81961
No. burnt (%) (exc. chips)	28 (49.1)	17 (11)	-	-	27 (2.4)	12 (4.1)	84 (4.2)
No. broken (%) (exc. chips)	24 (42.1)	47 (30.3)	49 (21.5)	20 (16.4)	328 (29.1)	63 (21.4)	531 (26.8)
No. r0etouched (%) (exc. chips)	1 (1.8)	1 (0.7)	-	-	39 (3.5)	10 (3.4)	51 (2.6)

pieces are also broken. In addition, 1207g of burnt unworked flint was recovered from the scatter. A few pieces of irregular waste and three cores, two of which conjoined (one of which was burnt), suggest a knapping element to the scatter, but no knapping refits were found. Again, the majority of usable flakes appear to have been removed from the scatter. The characteristics of this scatter suggest either an activity area or dump of utilised material, depending on how the knapping element is interpreted. The assemblage is shown in Table 4.11.

Discussion

Both of the Mesolithic scatters in this area, and those in Area 5 have similar traits. This applies both to scatters on the surface and within tree-throw holes (although there are some slight differences in character). The assemblages are

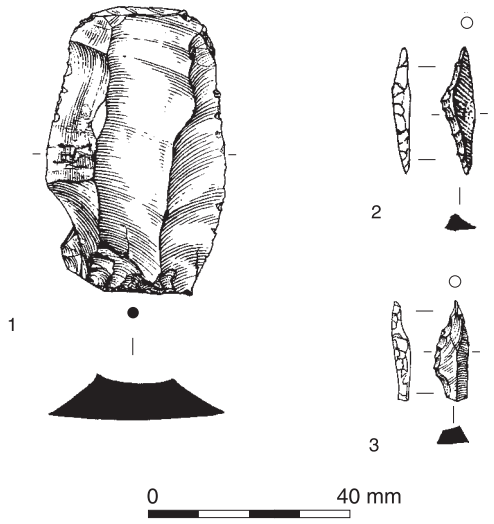

Fig. 4.13 Mesolithic flint from Area 3

usually of a limited size (between 10 and 160 flints), and contain a mixture of knapping and utilised pieces. The knapping debris rarely has more than the occasional refit, although judging by the cortex, it often appears to have derived from the same core. It therefore appears that the majority of usable pieces (virtually all of the assemblage due to good knapping skills), have been removed from the scatter, presumably for use or further adaptation elsewhere. The number of small scatters present along the edge of the Thames suggests a pattern of activity, such as a brief habitation, that only results in small scatters of material – rubbish – which incorporate many aspects of everyday prehistoric life (manufacture (ie knapping debris), use, and disposal (ie utilised and broken pieces), the use of fire, and possibly cooking (ie burnt flint). The composition and scale of these scatters is also comparable to the early Neolithic scatters in Areas Ex1-3, and perhaps indicates similarities in the use of the floodplain in the Mesolithic and earlier Neolithic.

Catalogue of illustrated flint from Area 3 (Fig. 4.13)

1 Context 3131. SF 13376. Flake.
2 Layer 3152. SF 13903. Microlith – scalene micro-triangle.
3 Layer 3021, square 3926. SF 13034. Microlith – scalene micro-triangle? broken.

Waterlogged macroscopic plant remains and molluscs from Mesolithic backswamp sediments in Area 3 by Mark Robinson

Introduction

The late Glacial narrowing and incursion of channels of the Thames at Dorney left areas of floodplain which developed into backswamps in the early Mesolithic. These areas subsequently received fine mineral sedimentation perhaps continuing into the early Mesolithic. A sequence of these sediments was investigated in Area 3, where the Thames channel had cut back into the deposits during the Neolithic. A sequence of samples was taken from these sediments for analysis of macroscopic plant remains and molluscs. Badly preserved macroscopic plant remains were found from Sample 671 (bottom of sequence) up to Sample 667. Mollusc shells were present from Sample 670 up to Sample 649 (top of sequence).

Methods and results

Samples of 0.25kg were washed over onto a 0.2mm mesh and the residues were sieved to 0.5mm. The flots were sorted under a binocular microscope in water where plant remains were present and sorted dry if they were absent. The residues were identified using the reference collections of the Oxford University Museum of Natural History. The results are listed in Tables 4.12-13, which give the minimum number of individuals represented by the fragment of each species in each sample. Nomenclature follows Clapham *et al.* (1987) for plants and Kerney (1999) for molluscs.

Table 4.12 Mesolithic waterlogged plant remains (seeds unless stated) from Area 3

	Sample	*671*	*670*	*668*	*667*
Chara sp. - oospore	stonewort	-	19	-	-
Urtica dioica L.	stinging nettle	-	-	6	23
Solanum dulcamara L.	woody nightshade	2	7	-	-
Mentha cf. *aquatica* L.	water mint	3	-	-	1
Stachys palustris L.	marsh woundwort	2	-	-	-
Valeriana sp.	valerian	3	-	-	-
Eupatorium cannabinum L.	hemp agrimony	-	-	-	1
Alisma sp.	water plantain	1	-	-	-
Potamogeton sp.	pondweed	1	-	-	-
Typha sp.	reedmace	13	-	-	-
Schoenoplectus lacustris (L.) Pal.	bulrush	7	-	-	-
Carex sp.	sedge	8	-	-	-

Table 4.13 Mesolithic mollusca from Area 3

	Minimum no. of individuals																
Sample	*670*	*669*	*668*	*667*	*666*	*665*	*662*	*661*	*660*	*659*	*655*	*654*	*653*	*652*	*651*	*650*	*649*
GASTROPODA																	
Valvata cristata Müll.	1	1	9	12	-	8	3	6	4	1	1	-	-	-	-	1	-
V. piscinalis (Müll.)	-	-	-	-	-	-	-	1	4	2	-	-	-	-	-	-	1
Bithynia tentaculata (L.)	-	-	-	-	-	1	1	1	3	-	-	-	-	-	-	-	-
B. leachii (Shep.)	-	-	-	-	-	-	-	1	2	1	-	-	-	-	-	-	-
Bithynia spp.	1	1	1	1	-	1	2	7	16	4	1	1	-	-	-	2	3
Carychium sp.	7	28	3	7	17	16	36	14	22	52	4	6	2	-	2	-	-
Physa fontinalis (L.)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Lymnaea truncatula (Müll.)	13	12	1	2	5	20	13	8	11	9	3	1	-	-	-	-	-
L. palustris (Müll.)	3	-	-	-	4	5	4	1	2	-	-	-	-	-	-	-	
L. peregra (Müll.)	3	-	-	2	1	5	2	3	6	-	-	-	-	-	-	-	-
Planorbis planorbis (L.)	1	-	-	-	-	3	1	1	-	-	-	1	-	-	-	-	-
Anisus leucostoma (Mill.)	-	2	6	6	12	8	3	4	-	-	-	-	-	-	-	-	-
Bathyomphalus contortus (L.)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Gyraulus albus (Müll.)	-	-	-	-	-	-	1	-	1	-	-	-	1	-	-	-	-
Armiger crista (L.)	-	-	-	-	-	-	-	1	2	6	-	-	-	-	-	-	1
Ancylus fluviatilis Müll.	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Succinea or *Oxyloma* sp.	5	5	-	-	-	1	2	1	1	2	-	1	-	-	-	-	-
Cochlicopa sp.	-	1	-	-	2	2	15	1	11	11	-	4	-	1	-	-	-
Vallonia costata (Müll.)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-
V. pulchella (Müll.)	-	-	-	-	-	-	-	-	3	1	-	2	2	-	-	-	-
V. excentrica Sterki	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Vallonia sp.	-	-	-	1	-	1	1	-	-	2	-	-	1	1	1	1	2
Punctum pygmaeum (Drap.)	-	-	-	-	-	-	3	-	-	-	-	1	-	-	-	-	-
Discus rotundatus (Müll.)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	2
Nesovitrea hammonis (Ström)	-	-	-	-	-	-	-	-	-	-	1	1	-	1	1	1	-
Aegopinella nitidula (Drap.)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zonitoides nitidus (Müll.)	2	11	-	1	9	23	17	7	18	9	1	2	2	2	-	-	-
Limax or *Deroceras* sp.	-	-	-	-	-	-	1	3	-	2	1	2	-	2	-	9	2
Euconulus cf. *alderi* (Gray)	1	-	-	-	-	1	1	-	1	1	1	-	-	-	-	-	-
Clausilia bidentata (Ström)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Trichia plebeia (Drap.) or *hispida* (L.)	-	-	-	-	-	-	1	-	-	-	1	-	-	2	3	-	3
Arianta arbustorum (L.)	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1
Cepaea sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
BIVALVIA																	
Sphaerium sp.	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
Pisidium spp.	5	3	2	2	4	10	16	14	17	6	-	-	-	-	-	-	-
Total	43	65	22	34	54	105	123	74	126	109	14	22	9	11	12	18	17

The origins of the assemblages

Although the sequence was of alluvial sediment, shells of riverine molluscs were sparse in most of the samples. However, over 20% of the shells in Samples 661 and 660 were likely to have been from the Thames, mostly *Bithynia* spp. Otherwise both the seeds and the shells seem largely to have been derived from the local vegetation and fauna.

The environment

The seeds from Sample 671 suggested shallow water with tall emergent vegetation of *Typha* sp (reedmace) and *Schoenoplectus lacustris* (true bulrush). Marsh vegetation including *Mentha* cf *aquatica* (water mint), *Stachys palustris* (marsh woundwort), *Valeriana* sp. (valerian) and *Carex* sp. (sedge) probably grew on seasonally exposed ground at the margin of the water.

The majority of the molluscs from Sample 670 were species of stagnant water, particularly members of the genus *Lymnaea*. They can tolerate episodes of the water drying out and some, such as *Lymnaea truncatula* and *L. palustris*, are amphibious. The other molluscs were species of marsh vegetation such as *Carychium* sp. and *Succinea* or *Oxyloma* sp. The preservation of seeds in this sample was very poor but *Chara* sp. (stonewort) would be consistent with stagnant water and *Solanum dulcamara* (woody nightshade) sometimes grows in fens. The preservation of organic remains was too poor to gain any indication as to whether any woodland had become established beyond the marshy area.

The molluscs from Sample 669 to Sample 662 suggested similar conditions persisted. There were some changes in the snail fauna. *Anisus leucostoma*, another species of stagnant and temporary bodies of water, made its first appearance in Sample 669 and by Sample 666 had risen to 20% of the fauna. Numbers of the snail *Zonitoides nitidus*, which is characteristic of marshy habitats, fluctuated but in Sample 665 it comprised almost a quarter of the fauna.

As has been noted, there was a much higher proportion of riverine molluscs in Samples 661 and 660. This was possibly the result of a high-energy flood event scouring shells from the river bed and depositing them in the backswamp. Otherwise, however, there was no change to the fauna.

In those samples above Sample 659, there was a rapid decline in the presence of aquatic and marsh species. There was also a substantial decline in the concentration of shells in the samples. The fauna became one of damp relatively open conditions, possibly grassland, with the snails *Vallonia* sp. including *V. pulchella* and *Trichia plebeia* or *hispida* along with slugs of the genera *Limax* or *Deroceras*. The occurrence of *Discus rotundatus*, however, showed that shaded habitats were also present.

Discussion

The sequence shows the silting of a backswamp which began with shallow water, progressed through marsh with temporary pools of water to finish with damp ground. The agency of silting was alluviation from the Thames and one flood event of greater intensity than usual was noted in the sequence. The sequence began with reedswamp vegetation which was replaced by marsh plants and areas of bare mud, culminating in damp grassland. The degree to which there was a background presence of woodland unfortunately remains unknown. It is possible that the open areas suggested by the molluscs from the upper part of the sequence were very limited. The lower part of the sequence could be placed firmly in the Mesolithic but the dating of the upper part was less certain. The possibility cannot be excluded that the open conditions were related to early Neolithic activity.

Area 16: a Mesolithic tree-throw hole *by Tim Allen, Anne Marie Cromarty, David Petts and Ken Welsh*

An irregular curving feature, 13409 (Fig. 4.14), was found in Area 16C on the Site G gravel island. It appeared to have been cut by a possible posthole (13366), from the fill (13408) of which came an assemblage of 18 struck flints including a diagnostically later Mesolithic trihedral blade. Feature 13409 was probably a tree-throw hole, and it was unclear during the excavation whether 13366 was really a later posthole or simply different fills in a depression within the tree-throw hole. Whether redeposited from the tree-throw hole or *in situ*, the flint forms a coherent assemblage. Although adjacent features in this area were dated to the early or middle Neolithic by pottery, and it is possible that the flint assemblage also dates to the early Neolithic, the diagnostic flint suggests that a Mesolithic date is more likely. No other features or deposits definitely associated with the Mesolithic period were identified in this area, but a number of worked flints of Mesolithic type were recovered as residual finds from features in Area 16.

Mesolithic flint from Area 16 *by Hugo Anderson-Whymark*

A reasonable proportion of the flint assemblage from Area 16 dates from the Mesolithic, although this assemblage is difficult to quantify as almost all the material is redeposited and mixed with Neolithic and Bronze Age flintwork. A small number of diagnostic flints were identified, including a small, 77mm tranchet axe, three microliths, and a trihedral pointed blade (Inizan *et al.* 1992, 69, fig. 4b). Two of the

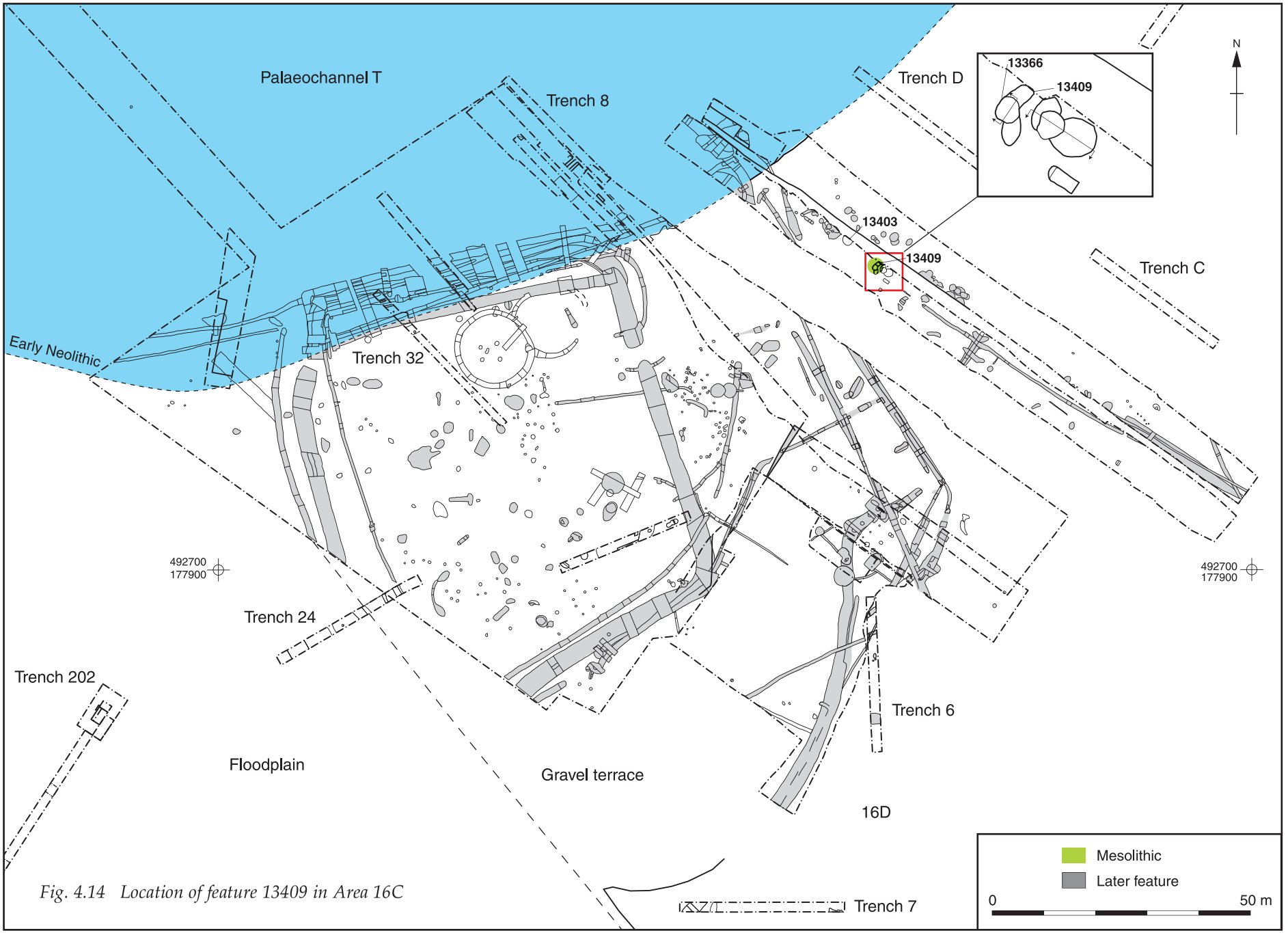

Fig. 4.14 Location of feature 13409 in Area 16C

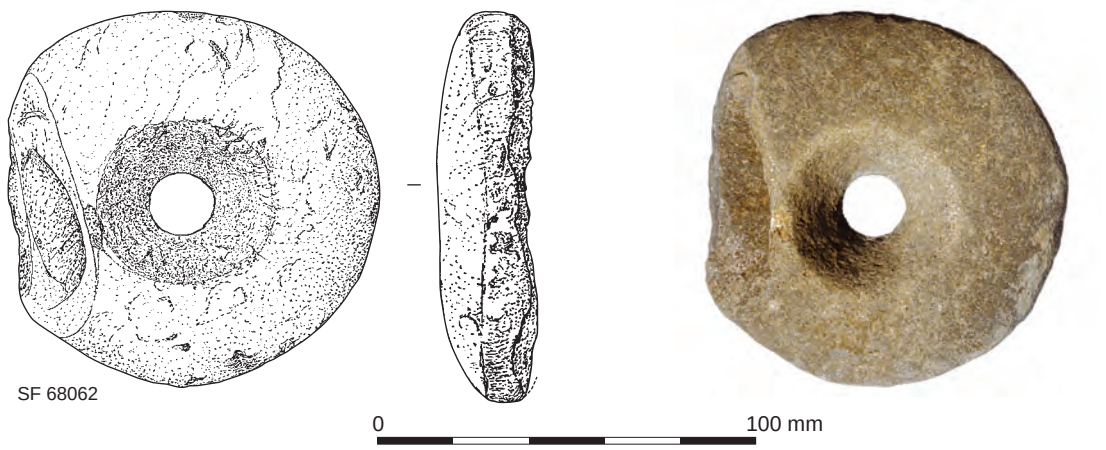

Fig. 4.15 Unstratified Mesolithic pebble hammer

microliths were classifiable using Jacobi's scheme, representing scalene micro-triangles of forms 7 and 7a, respectively (Jacobi 1978). The third microlith was fragmentary and unclassifiable. The microlith forms both belong to later Mesolithic industries.

There is also a fine parallel-sided blade snapped at both proximal and distal ends (SF 59051) and a 79mm blade, with numerous blade scars, struck from a single platform blade core to remove a fault on the core's face (SF 59052). Both these flints were recovered from the surface of the site (layer 13081). In addition, a snapped blade in a similar raw material to SF 59051 was recovered, and exhibits parallel sides and ridges and is probably Mesolithic. Several blades with proximal notches are also present; these pieces possibly represent unsnapped pieces destined for the micro-burin blow technique.

A group of 18 similarly corticated flints was recovered from tree-throw hole 13409 (fill 13408), including the trihedral pointed blade. This small group included 8 blades, and in the absence of any diagnostic later finds, may be a coherent Mesolithic assemblage, although it lay adjacent to two middle Neolithic tree-throw holes. A number of other flakes, blades and cores probably belong to Mesolithic industries, as many pieces are carefully prepared, displaying platform edge abrasion, and were struck using soft hammer percussors, producing narrow or punctiform butts.

Area 14: A Mesolithic pebble-hammer *by Fiona Roe*

Part of a pebble-hammer (12129, SF 68062, Fig 4.1) was found in the bank of the former Thames channel during the watching brief in Area 14, but the precise stratigraphic location is uncertain. It came either from the first phase channel cut, which is likely to have been Neolithic, or the deposits behind that, which were Mesolithic. The implement was originally almost circular and had a markedly hour-glass hole, narrowing to 15mm in the centre. It is made from a quartzite pebble which was probably collected from the local Thames gravels.

Shafthole implements of this particular variety have been difficult to date because of a lack of secure associations, but they are known both from Mesolithic and later contexts. One was found at the nearby Staines causewayed enclosure, where it was found unstratified but assumed to be of Neolithic date (Robertson-Mackay 1987, 119 and fig. 73, S 16). However, evidence for Mesolithic examples from southern England has been accumulating (Mellars and Reinhardt 1978, 274; Woodcock *et al.* 1988, 30), so that a Mesolithic date would not be out of the question for the example from Eton.

Catalogue

Fig. 4.15: Half pebble-hammer, fairly large example, circular shape originally, split lengthways; hour-glass hole, pecked out, narrow in centre; part of edge worn flat; L 100, B 97, D now 22mm, diameter of hole max 44, min 15mm. Quartzite, coarse-grained, with some pink quartz grains