

## SECTION TWO

# Excavations at Mile Oak Farm

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### INTRODUCTION

The area investigated at Mile Oak Farm, Portslade, East Sussex, occupied a position on the southern margin of the South Downs, within a two-field strip of pasture to the east of Mile Oak pumping station and to the immediate south-east of Mile Oak Farm between NGR TQ24450795 and TQ25140788 (Figs 1.1 and 2.1). The pasture strip, which covered the lower slopes of a broad ridge and attendant dry valley running southwards from Cockroost Hill (NGR TQ245085), was situated upon the Newhaven Series of the Upper Chalk. Extensive surface deposits of Clay-with-Flints have been recorded to the immediate south and north-west (Young and Lake 1988: 78–82; Gardiner 1990: 133–4).

The site lay in the vicinity of five major zones of identified prehistoric/Romano-British field systems, namely Cockroost Hill, Round Hill, Sweetbrow, Tennant Hill and Thundersbarrow Hill (Holleyman 1935a: pl. 2), and a series of excavated prehistoric and Romano-British settlements at Devils Dyke (Burstow and Wilson 1936), Kingston Buci (E. Curwen 1931), Slonk Hill (Hartridge 1978), Thundersbarrow Hill (Curwen 1933; Rudling forthcoming), and West Blatchington (Norris and Burstow 1948). Unfortunately, little detailed archaeological fieldwork had previously been conducted within the immediate area of Mile Oak, although extensive scatters of Late Neolithic/EBA flint work, including numerous axe fragments, are known to have been unsystematically collected prior to the construction of nearby housing estates (Gardiner 1988, 1990: 134).

Between 1986 and 1987 a surface collection survey conducted by members of the Brighton and Hove and Worthing Archaeological Societies, to the south and east of the Mile Oak site, recovered a series of low density scatters of Iron Age/Roman and Medieval pottery, fire-cracked and worked flint. The published report implies that these scatters may relate more to agricultural practices (manuring), than to actual areas of settlement activity (Hartridge *et al.* 1989: 241).

An undated field bank, recorded by the Ordnance Survey, was known to cross the area of investigation at NGR TQ24480795, and further field banks/lynchets were recorded from the lower, east-facing slopes of Cockroost Hill (Fig. 2.2) during an aerial reconnaissance survey conducted by East Sussex County Council and the Field Archaeology Unit in 1989. It was during the course of this survey that a large, bivallate enclosure was detected upon Cockroost Hill. The enclosure, which seems to predate the field system complex, appeared to have a large number of breaks or 'causeways' within the rampart circuit which may imply an Early Neolithic origin. A detailed surface collec-

tion survey has yet to be conducted across the hill, although the area is known to have produced prolific quantities of Neolithic and Early Bronze Age (EBA) flintwork (Gardiner 1988, 1990).

### THE EXCAVATIONS

#### Excavation methodology

The Mile Oak excavations began in August 1989 as a 20-day project designed to sample and date a series of vaguely defined field lynchets, presumed to be of Iron Age or Romano-British date, preserved within the two-field pasture strip (NGR TQ24450795 – TQ25140788; Fig. 2.2). It was also hoped that the survey and excavation would locate areas of Iron Age or Roman settlement activity associated with the field systems. It had been agreed with English Heritage, prior to the commencement of the project, that the archaeological assessment should take the form of limited ground intervention (sample trenching) and that only 15% of the proposed area of road landtake would be investigated at this time.

Eighteen trenches, lettered A–R and including Trench 'O', a dry valley section (*see* Section 8), were cut down to the natural chalk bedrock by a JCB excavator using a 1.65m-wide toothless (ditching) bucket. Topsoil overburden, except for the dry valley section, measured on average 0.2m. Where possible, trenches were designed to measure 30m in length and c.2m in width. The 17 trenches thus excavated represented a 10% sample of the proposed road corridor, leaving a 5% trenching contingency, equivalent to an area of 800m<sup>2</sup>, should existing trenches require extension, enlargement or general modification.

Once the topsoil had been mechanically removed, the chalk subsoil was cleaned by shovel scraping, trowelling and, if ground conditions were favourable, by brushing. All subsurface archaeological deposits found in this way were excavated by hand. Twenty per cent of all spoil heaps were further sampled – by hand, sieve and metal detector – for any finds overlooked during the initial machine clearance.

Eight poorly preserved lynchets and five additional surface features were initially sampled during August 1989 (Trenches A, F, H, I, J, K, L, M, N and Q; Fig. 2.2). The lynchets, and at least four of the additional surface features, proved archaeologically unrewarding. Trenches K, M and R, however, revealed areas of extensive prehistoric activity. Trench K disturbed part of a low mound (KIII) producing large quantities of Late Bronze Age (LBA) pottery, while a

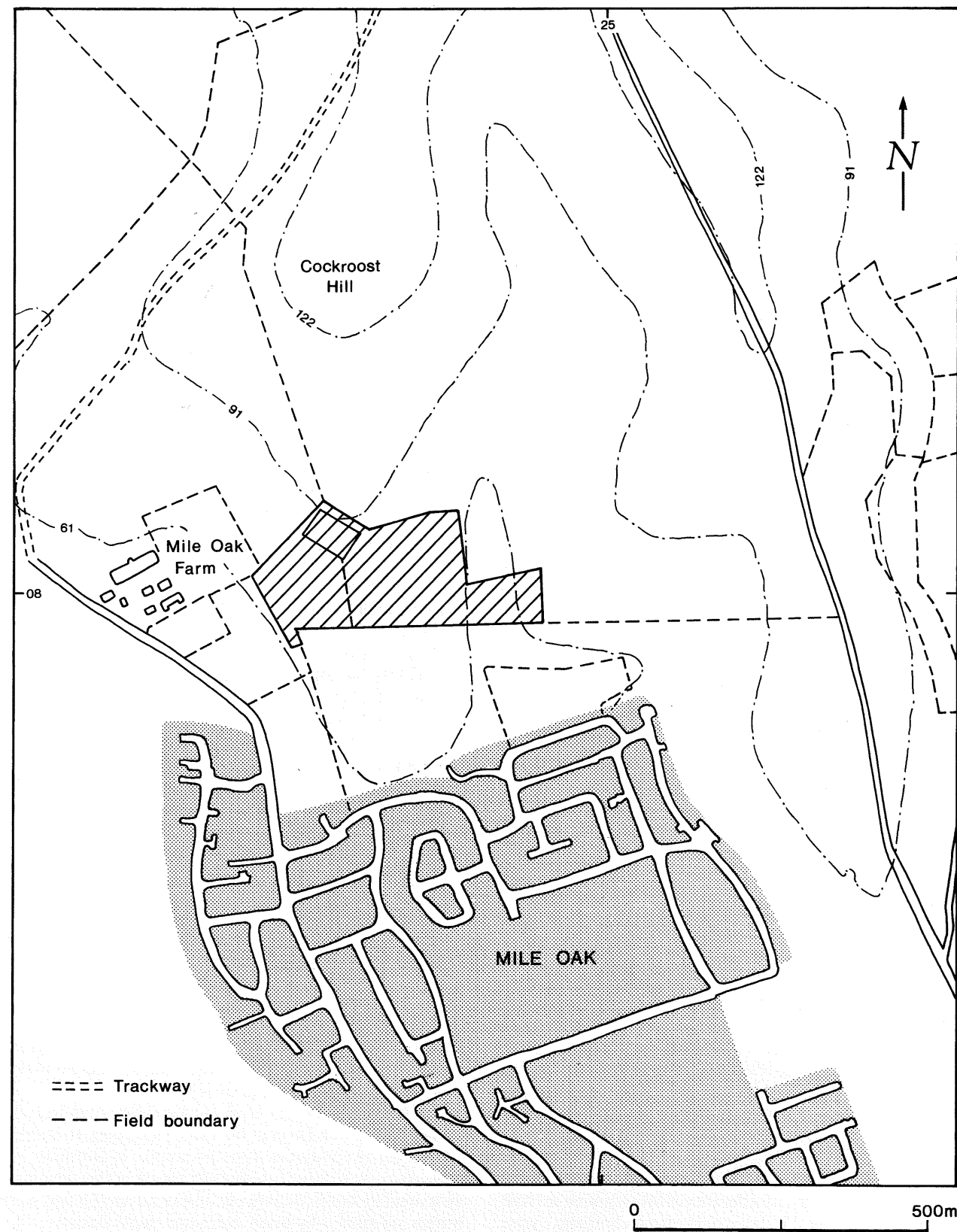


Fig. 2.1 Mile Oak: Location of site (the diagonally shaded area), August 1989.

series of post-structures, apparently predating the mound, were recorded from beneath and around the feature. A second low mound (KII) of similar proportions to the first, was noted to the immediate north-west of the excavated trench. Trench M revealed a series of post-hole features producing Middle

and LBA pottery, while Trench R, the last sample transect placed randomly at the extreme south-eastern edge of the survey area, exposed part of a Middle Bronze Age (MBA) building terrace. This terraced platform appeared to have cut into, and partially removed, an earlier segment of ditch.

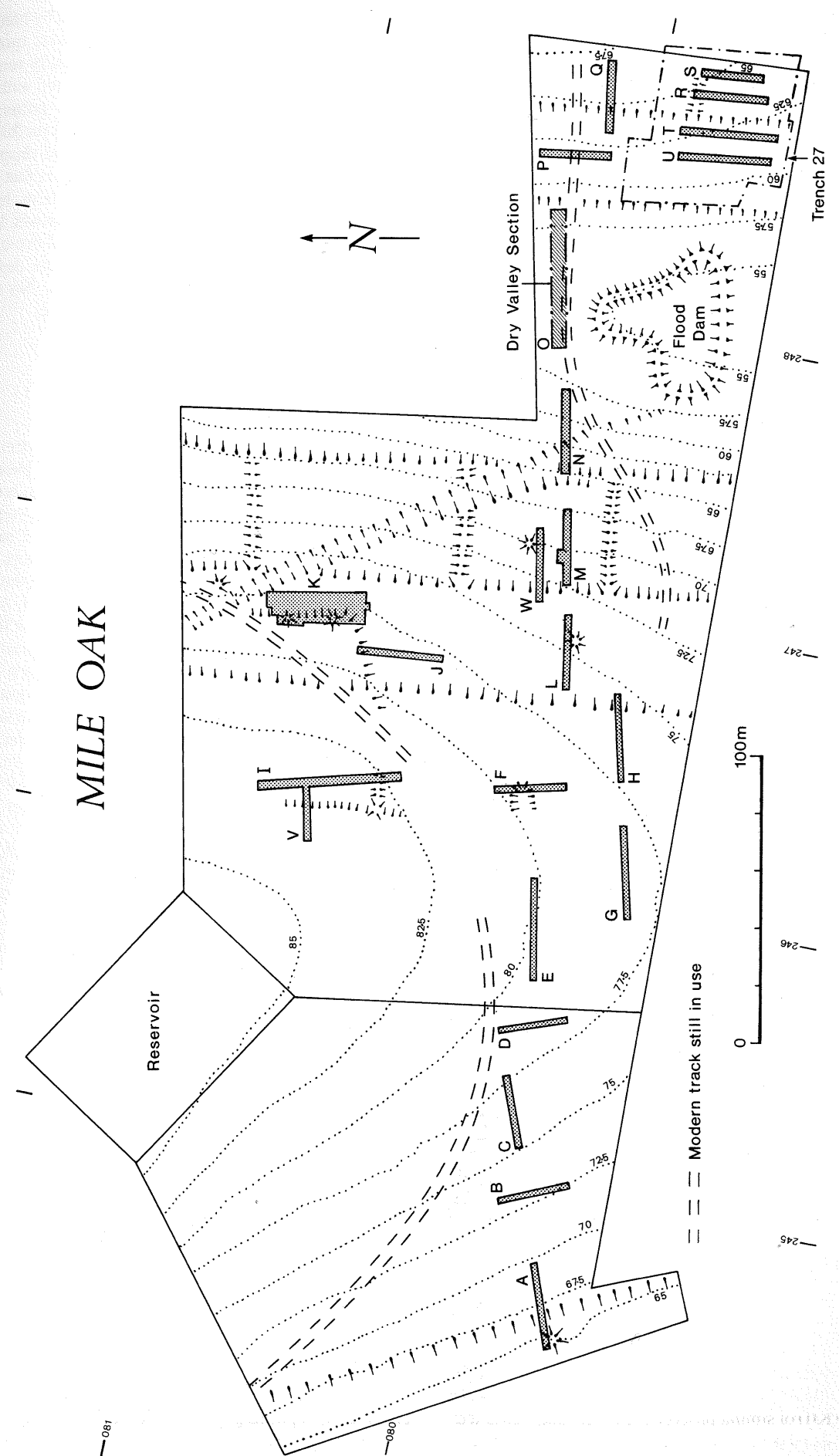


Fig. 2.2 Mile Oak: Trench layout in relation to surface features.



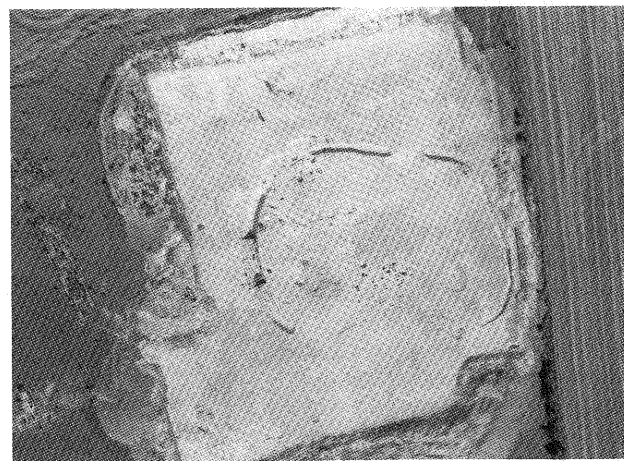
The 5% trenching contingency was at this stage used to extend Trenches K, M and R and excavate the opposing north-west and south-eastern quadrants of Mounds KII and KIII by hand. Supplementary Trenches S, T, U, V and W, which together formed the remaining part of the trenching contingency, were machine-excavated in the hope of recording additional areas of prehistoric subsurface archaeology. At the end of the 20-day project, all sample trenches, with the exception of Trench R, were backfilled.

Following the cessation of work on 1 September 1989, consultation, regarding the possibility of extending the sample area, took place between English Heritage and the Department of Transport. The nature and quality of the archaeological deposits recorded from Mile Oak were sufficient to justify three 20-day extensions to the project over the period up to mid-August 1990. Strategies for more complete excavation and recording were agreed for Trenches K, R, S, T and U and the project recommenced on 3 November 1989, following the completion of work at Eastwick Barn (see Section 6).

During November, Trenches R, S, T and U were reopened and enlarged to form a single, open area excavation (Trench 27; Fig. 2.2; Plate 2.1). The full extent of the MBA round-house originally recorded from Trench R (Area A), was exposed and a further five areas of prehistoric activity (Areas B, C, D, E and F; Figs 2.3 and 2.4) were identified. All topsoil overburden was removed by a 360-degree excavator using a 1.65m-wide ditching bucket.

During March 1990 the project concentrated upon the ditch segment which had previously been exposed within Trench R. This was revealed to have originally formed part of an oval enclosure, measuring approximately 35m in diameter, with two entrances aligned west-north-west to east-south-east. Provisional theories concerning the function of the ditch included its having formed part of a causewayed barrow, or having been a Bronze Age settlement enclosure (contemporary with the round-houses), a stock corral or a Class II henge monument.

Throughout mid-July 1990 the oval enclosure ditch was completely excavated by hand and sections were drawn at 1m intervals. The upper ditch fill contained midden deposits associated with the MBA settlement area (Areas A–F). Evidence recorded from ditch fills and differential chalk erosion suggested that the enclosure had originally been surrounded by an external bank. On the opposing hill,



**Plate 2.1** Mile Oak, Trench 27: Aerial photograph taken from a kite. Viewed from the west. (Photo: Derek Kennet)

Trench K was reopened and partially extended by hand (Fig. 2.2). The remaining north-east and south-west quadrants belonging to Mounds KII and III were carefully removed, and an additional series of post-holes, associated with EBA, Later Bronze Age, Iron Age and Roman pottery was recorded (Plate 2.7). The discovery of LBA crucible fragments together with pieces of metalwork and droplets of molten lead and copper alloy, not only suggests that metalworking was one of the activities conducted here, but also may help to explain the origins of the two mounds, both of which contained large amounts of charcoal and fire-cracked flint. The areas of excavation at Mile Oak were destroyed between September 1993 and January 1994. No further archaeological work was conducted at this time.

### Report structure

The report presented here has, to a large degree, been structured in the traditional way, i.e. introduction, basic field data, finds reports and conclusion. In one respect, however, it differs from most archaeological excavation reports in that, wherever possible, *objective description* of archaeological contexts (i.e. what was found) has been kept rigidly separate from *subjective interpretation* (i.e. what the author thinks about what was found: cf. Reece 1990: 6). A major reason for presenting the data in this way is that, at the time of excavation, the conclusions of the excavation team, especially regarding the ditched enclosure from Trench 27 (i.e. as a henge monument), were considered by some to be controversial. By publishing the raw field data in a way free of subjective bias (for example the words 'cut' and 'layer' are used outside of the interpretative sections in preference to 'pit', 'post-hole' or 'floor-level'), it is hoped that later researchers, coming to the material afresh, will not have to disentangle archaeological fact from the author's work of interpretative fiction, and will therefore be able to challenge successfully part or all of the conclusions presented here.

The bulk of this report was written between 1991 and 1992, with substantial rewrites being conducted in 1994, 1995, 1996 and 1998. Consequently, although every effort has been made to keep the work 'up-to-date', some theories, research and articles published after 1992 may inadvertently have been omitted.

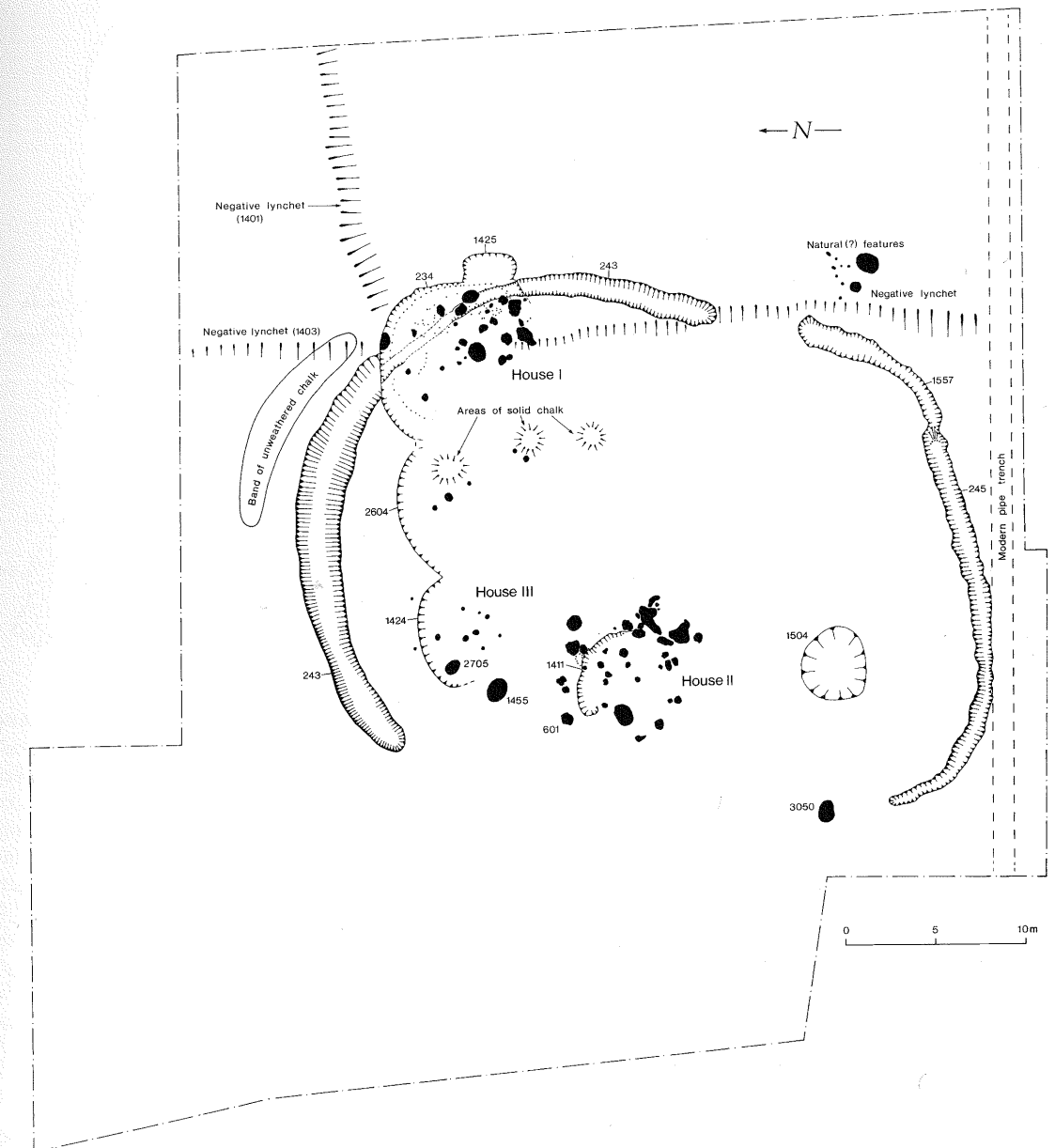
### Results, Trench 27 (Fig. 2.3; Plate 2.1)

*Note:* The features recorded within Trench 27 have been grouped into distinct activity loci (Areas A–F), as represented in Fig. 2.4. The details concerning Area G, a group of apparently natural features, have been archived.

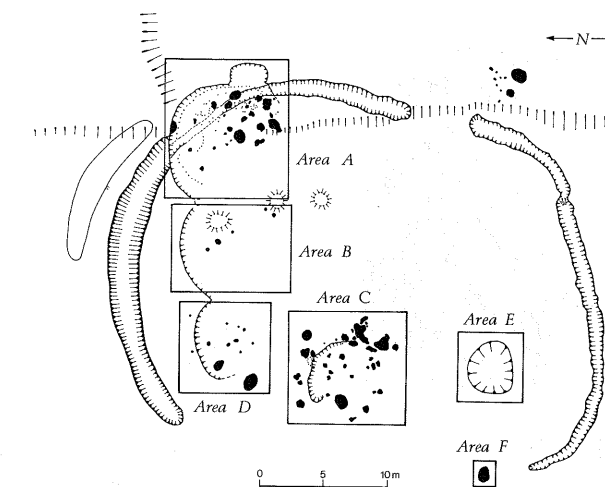
#### Area A (Figs 2.4, 2.5 and 2.6; Plate 2.2)

Area A consisted of two, roughly oval, terraced platforms measuring c.9m x 8.7m (Context 234) and 3m x 1.9m (Context 1425) in width. The nature of archaeological deposits recovered from within Contexts 234 and 1425 suggested a broadly contemporary date for the two features. Both terraces cut into, and almost completely erased, a 9m length of enclosure ditch 243.

## MILE OAK



**Fig. 2.3** Mile Oak, Trench 27: Main features as recorded from the central area of the trench.



**Fig. 2.4** Mile Oak, Trench 27: Area locations.

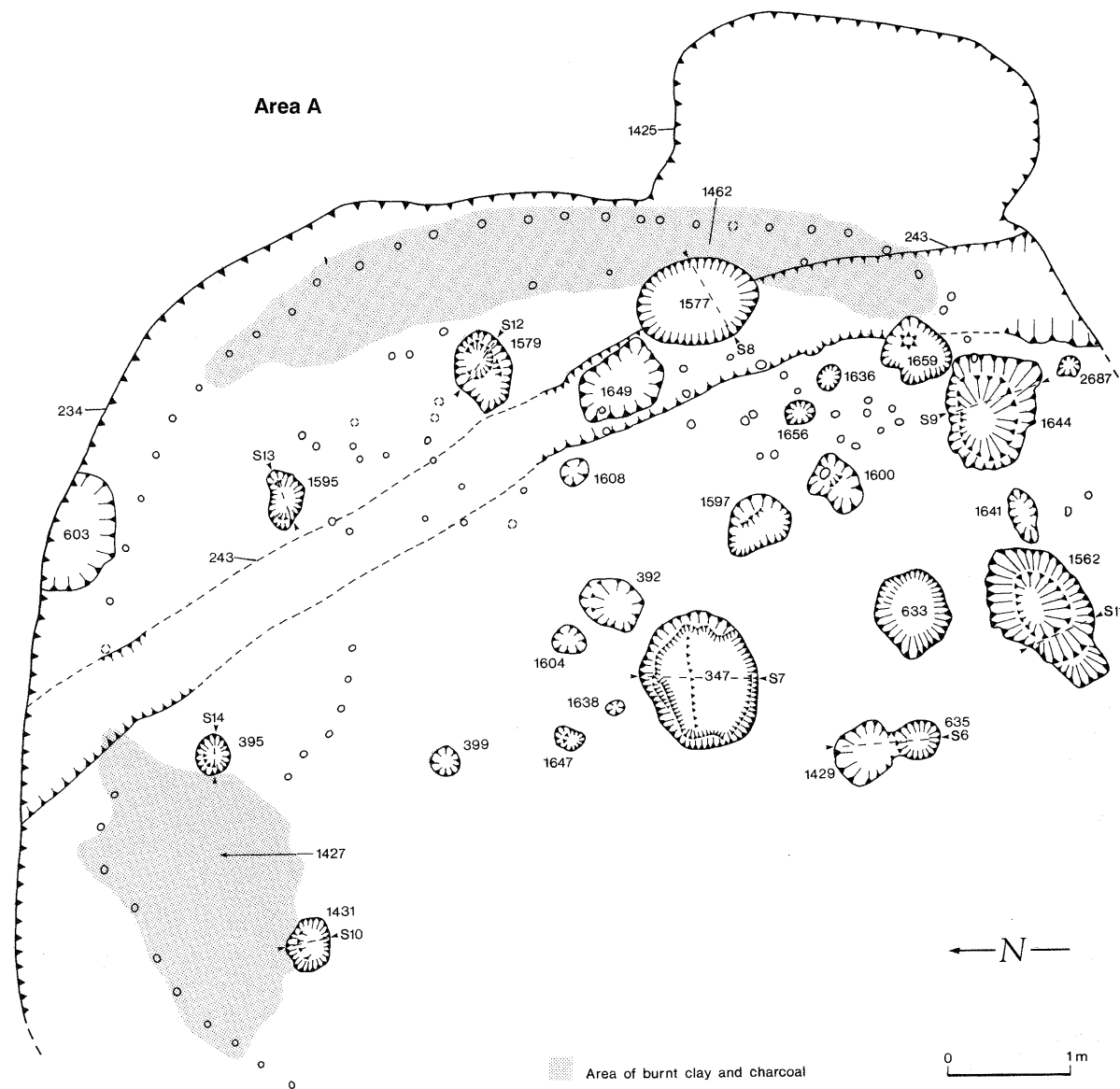


Fig. 2.5 Mile Oak, Trench 27: Area A: Plan.

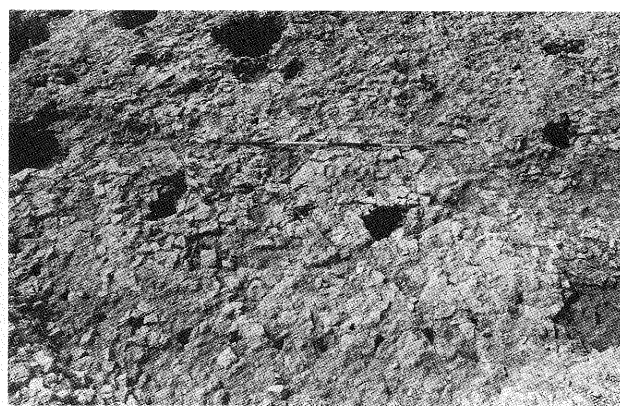


Plate 2.2 Mile Oak, Trench 27: Round-house I. Eastern edge of stake-wall (see foreground). Scale 2m.

A total of 118 features, comprising 13 small, roughly circular cuts measuring 0.15–0.35m in diameter (395, 399, 635, 1431, 1579, 1595, 1604, 1608, 1636, 1638, 1647, 1656 and 2687), 11 large oval cuts measuring 0.45–1.2m in diameter (347, 392, 633, 1429, 1562, 1577, 1597, 1644, 1649 and 1659), one irregular-shaped cut (1641) and 92 small, circular stake-holes measuring between 0.05m and 0.08m in diameter were recovered from the base of terrace 234 (Fig. 2.5). Chemical and plough erosion had seriously affected the south-western edge of the terrace and it is probable that, here at least, the feature plan is incomplete. No features were recorded from the base of terrace 1425.

Six of the small, roughly circular cuts (1431, 395, 1595, 1579, 1656 and 635) lay on the edge of a circle measuring approximately 5.6m in diameter. Out of the 92 recorded stake-driven holes, 39 formed an incomplete oval (Plate 2.2), which terminated, at its southernmost point, with cuts 1644, 1562 and 1641. With the exception of cut 603 at the extreme northern edge of terrace 234, all recorded features

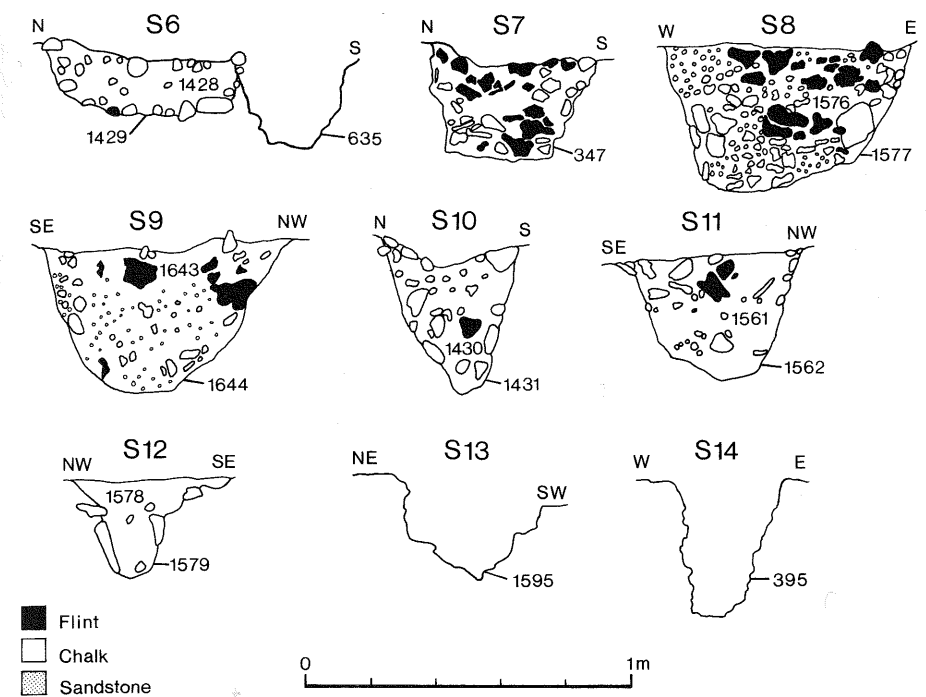
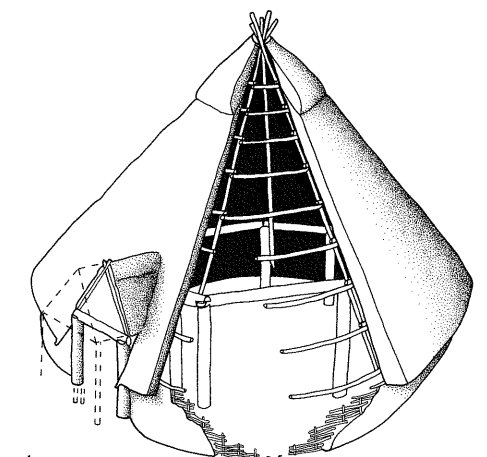


Fig. 2.6 Mile Oak, Trench 27: Area A: Selected feature sections.

were contained within the area defined by the oval line of the stake-driven holes. Two 0.07m-thick deposits of charcoal, baked clay and poorly fired daub (1427 and 1642) were recorded from the base of the terrace fill, partially overlying this oval line. Other finds recovered from the base of Area A consisted of MBA pottery, fragments of clay loomweights, worked/shaped sandstone, fire-cracked and worked flint, marine shell and animal bone (see relevant specialist reports, below).

A fragment of cattle radius, retrieved from the fill of cut 1579, was submitted to the Ancient Monuments Laboratory for radiocarbon dating (see Section 9) and a date of 3260 ± 65 BP (1740–1410 cal BC: OxA-5107) was produced.



**Interpretation**

Area A, by analogy with similar sites recorded from the Sussex chalkland (e.g. Burstow and Holleyman 1957; Drewett 1982b), can best be interpreted as representing the remains of an MBA round-house (Fig. 2.7). In this interpretation, cuts 1431, 395, 1595, 1579, 1656 and 635 would appear to represent the remains of an internal ring of roof-support posts. More roof-support posts presumably existed at the south-western edge of the area, and had since been removed by a combination of chemical and plough erosion (Fig. 2.7). The 8.6m, oval, stake-hole line presumably represents the external wall of the round-house, suggesting that the structure may originally have enclosed an area of around 7.9m in diameter. Paired features 1644 and 1562 appear to represent the original point of entrance, while cuts 1641 and 2687 and the accompanying two stake-holes may possibly indicate the former presence of a porch (see reconstruction drawing: Fig. 2.7). In this interpretation, cut 603 appears to lie outside and beyond the living area of the MBA round-house and may not, therefore, be contemporary with its main period of occupation.

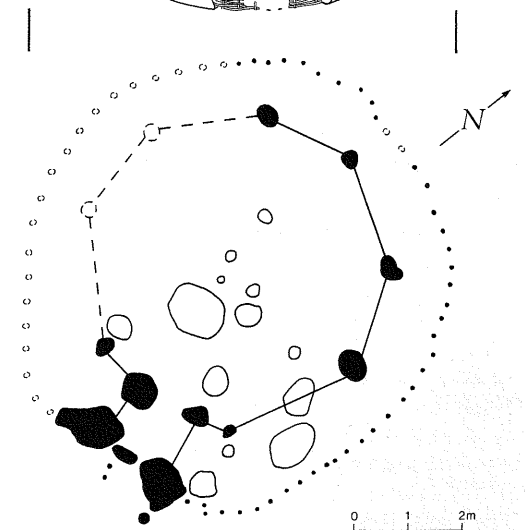


Fig. 2.7 Mile Oak, Trench 27: Round-house I. Suggested reconstruction (M. Russell).



The 52 remaining stake-holes of Round-house I presumably mark the position of a series of internal partition walls, while features 347, 392, 1577, 1597 and 1649 may best be interpreted as storage pits. The remaining post-holes, as they do not appear to contribute to the structural integrity of the round-house, may represent internal furnishings (*cf.* Drewett 1982b: 328), or a more permanent form of internal division.

In plan, Round-house I would appear to represent a basic eight-post ring, with six posts located in the rear half of the structure (Fig. 2.7). This type of MBA round-house construction has been dubbed the 'Sussex-style' (Guilbert 1982) due to the large number of similar sites recorded from the South Downs. In terms of size, Round-house I can be closely compared with structures recorded from the MBA settlements of Itford Hill (e.g. Hut D: Burstow and Holleyman 1957; Musson 1970: 258) and Black Patch (e.g. Hut 3, Platform 4: Drewett 1982b).

The external wall line of Round-house I, as represented by the outer circle of stake-holes (Plate 2.2), is an important find, for it is rare that the full internal diameter of a Bronze Age house can be measured. Exact parallels for this type of outer wall are few, possibly because earlier excavations failed to recover the full feature plan preserved within terraced hut platforms (*cf.* Musson 1970), although additional examples have now been identified in Sussex from Downsview (*see* Section 7) and Patcham Fawcett (*see* Section 14). The discovery of charcoal and large fragments of partially baked clay daub overlying the stake wall-line of Round-house I, not only helps to reconstruct the appearance of the wall (*see* below), but also appears to suggest that the structure as a whole was destroyed by fire (*cf.* Bankoff and Winter 1979; Coles 1973: 68; Reynolds 1982: 188; Russell 1990: 87, 110). The experimental firing of thatched timber houses has demonstrated that full incendiary destruction can be frighteningly swift (a Danish full-scale reconstruction Iron Age longhouse took only 35 minutes to be completely destroyed by fire in 1964: Nielsen 1966; Coles 1973: 63-8), a fact which may explain the large amounts of Bronze Age pottery apparently left *in situ* within the area of Round-house I (*see* Hamilton, below).

The finds assemblage recorded from the base of terrace 234, if contemporary with the main use or swift abandonment of Round-house I (*see* final conclusions for a discussion on the nature of discard material), would appear to indicate that a whole range of activities, including weaving, flint knapping, food preparation/processing and storage, were originally conducted within the area enclosed by the round-house structure. A date for the construction or destruction of Round-house I from the charcoal samples was not possible at the time of report writing as the material was unavailable for study (*see* Section 9). Given the loss of the charcoal samples, a fragment of cattle radius, thought initially to be probable packing material, from the outer edge of the fill of post-hole 1579 (one of the main roof-supports for Round-house I) was submitted for radiocarbon determination. The resultant date, 1740-1410 cal BC (OxA-5107), when combined with the location of the feature (cut through the fill of earlier ditch 243), may suggest that the bone is a residual find from disrupted ditch fill (*see* cut 243/245/1557 discussion, below).

The interpretation of terrace 1425 is unclear, although, as noted above, artefactual and depositional evidence appeared to suggest that it was broadly contemporary with terrace 234. It is possible that, as the terraced area lay close to, and was

immediately accessible from, the south-eastern entrance of Round-house I, it may originally have functioned as an externally separated storage or containment zone.

#### Area B (Figs 2.3 and 2.4)

Area B consisted of an apparently well-rounded, flat-bottomed terrace cut (2604) measuring c. 7m in diameter and lying to the immediate west of Area A. Terrace fill largely consisted of chalk rubble. No datable finds were recovered. Five potential cut features were recorded during the removal of the terrace fill (full details are archived), although only two, 2605 and 2607, at the extreme south-western edge of the area, appeared to penetrate the chalk subsoil.

#### Interpretation

Little can be said regarding the nature of Area B. It is possible that terrace 2604 had originally been cut to contain a round-house, but was never used, or that the area was originally occupied by a type of building or temporary structure, which has left little trace in the archaeological record. An alternative suggestion, if it is assumed that the terrace was contemporary with one or more of the MBA settlement units, is that it may have functioned as a working area or animal containment zone, close to Round-house I (Area A).

#### Area C (Figs 2.4, 2.8, 2.9 and 2.10; Plates 2.3 and 2.4)

Area C consisted of a terrace cut (1411), 0.35m deep and 6m in diameter which had been partially removed, at its south-western edge, through a combination of plough disturbance and chemical erosion (*cf.* Area A). The surviving areas of terrace fill were unfortunately further disturbed by a JCB excavator during the initial clearance of the site in November 1989.

Twenty-four features were contained within the area of terrace 1411, while a further 23 were located to the immediate north and west. Of the features recorded, at least 17 (1458, 1460, 1462, 1468, 1470, 1472, 1474, 1485, 1501, 1511, 1524, 1528, 1542, 1544, 1565 and 1579) consisted of roughly circular cuts measuring between 0.1m and 0.2m in diameter. The south-western edge of 1511 appeared to have



Plate 2.3 Mile Oak, Trench 27: Round-house II. Viewed from the east. Scale 2m.

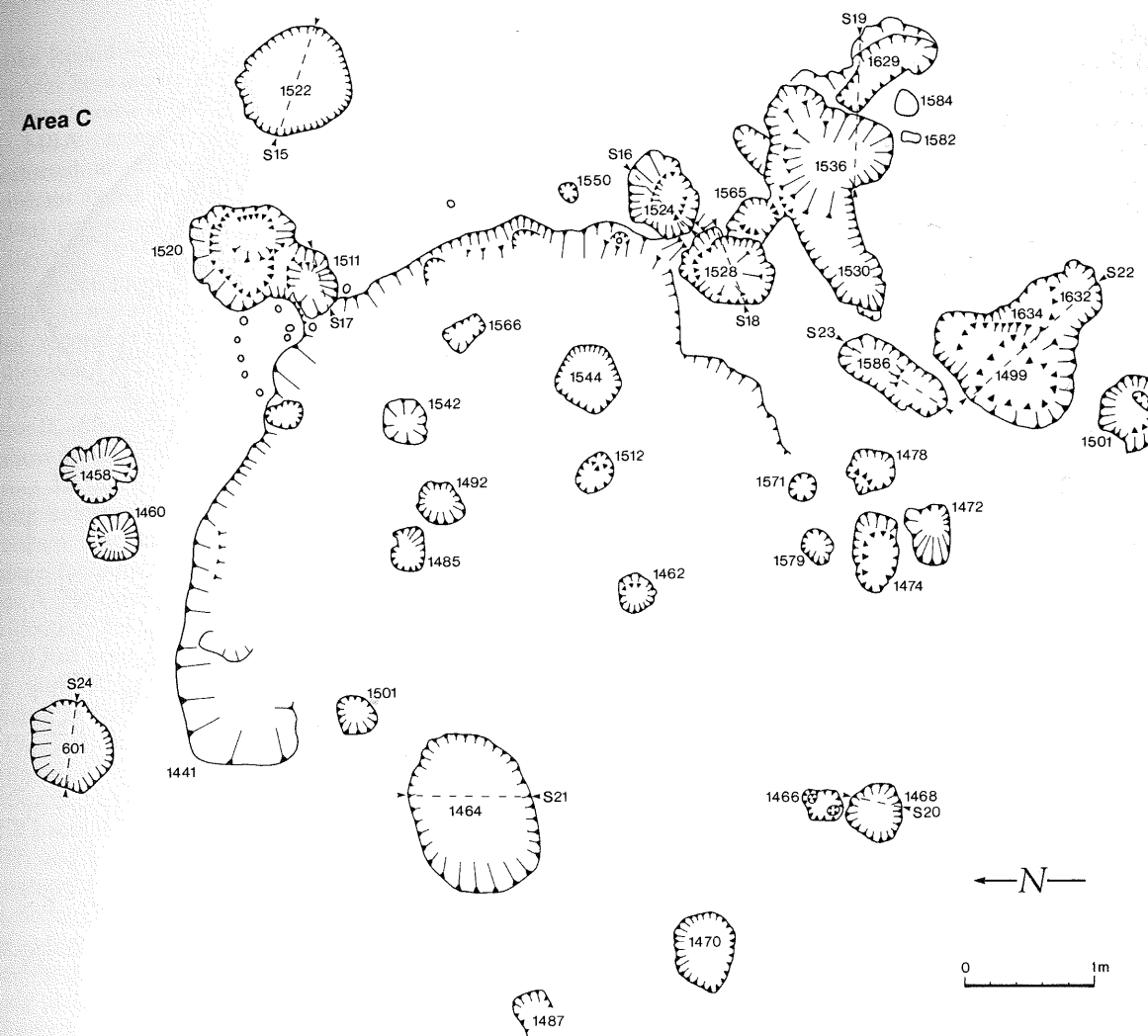


Fig. 2.8 Mile Oak, Trench 27: Area C: Plan.

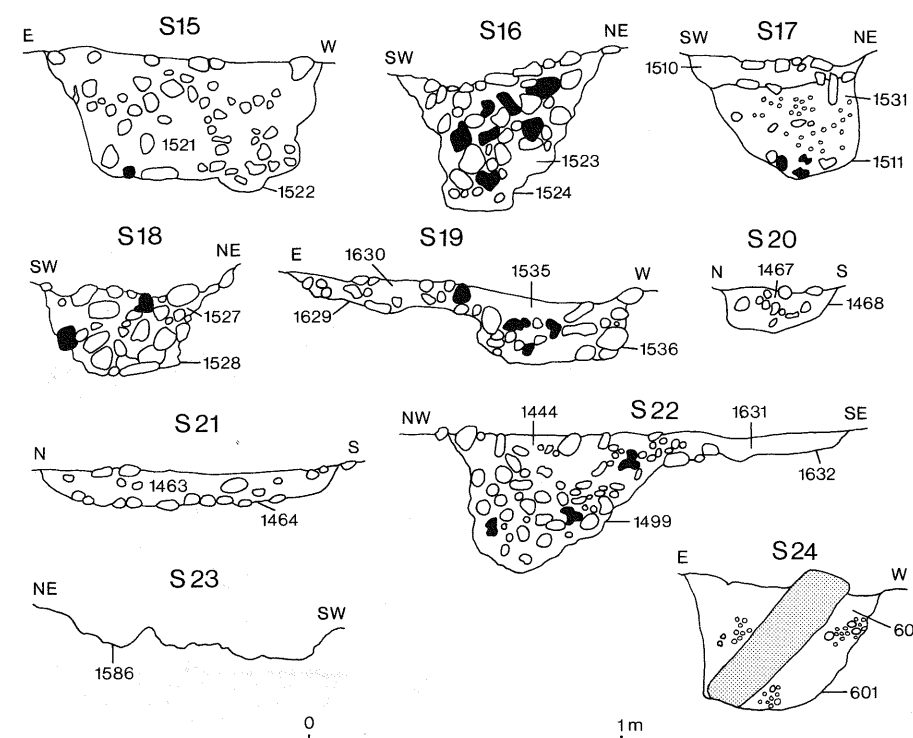


Fig. 2.9 Mile Oak, Trench 27: Area C: Selected feature sections.





**Plate 2.4** Mile Oak, Trench 27: Area C. Sarsen stone and stone-hole 601 facing south-west. Scale 50cm.

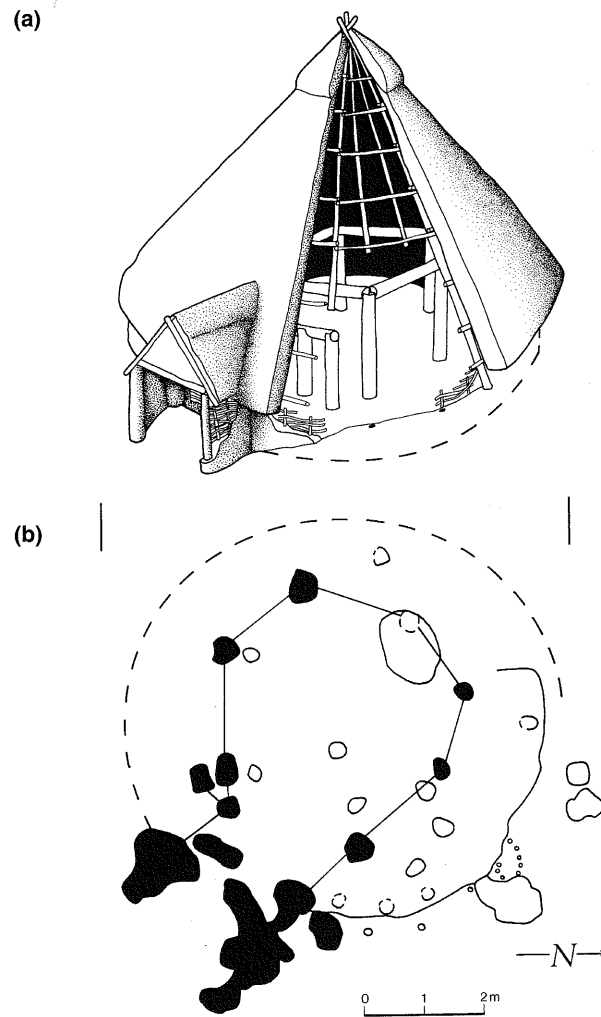
originally been cut at an angle of 55 degrees. Eight extremely shallow (0.03m–0.08m deep) cuts (1447, 1448, 1478, 1481, 1490, 1512, 1566, and 2608) were also recorded from the base of the terrace, while two further cuts (1466 and 1492) appear to represent natural solifluction or root disturbance hollows. Six oval-shaped cuts (601, 1464, 1499, 1520, 1522 and 1536), four irregularly shaped features (1530, 1586, 1629 and 1632) and a series of 15 stake-driven holes were also recorded. Finds recovered from within the terraced area consisted of MBA pottery, fire-cracked and worked flint, marine shell and animal bone.

A fragment of cow mandible, retrieved from the fill of cut 1522, to the immediate north-east of the terrace cut, was submitted for radiocarbon dating (see Section 9) and a date of  $2975 \pm 50$  BP (1400–1030 cal BC: OxA-5109) was produced.

Cut 601, to the immediate north of terrace 1411, contained a roughly rectangular (0.63m  $\times$  0.32m  $\times$  0.24m) block of sandstone (Fig. 2.9; Plate 2.4). The stone had been partially dressed along its south-eastern face and its base had been crudely rounded. The block had been displaced towards the north-west and, when recovered, was lying at an angle of 46 degrees. Its upper section had been removed and the remaining stump defaced, possibly as a result of later plough activity. In its original position the sandstone block had presumably rested directly against the flat, south-eastern edge of cut 601. No dating evidence was retrieved from the feature.

#### Interpretation

As with Area A, Area C appears to represent the remains of an MBA round-house constructed upon a flat terrace (Fig. 2.10: Round-house II; Plate 2.3). In this respect the 25 recorded cut features may all legitimately be described as post-holes, although no evidence of post-pipes or post-packing was recorded. The shape of cut 1511 may indicate the former presence of a sloping timber. Paired pit/post-holes 1499 and 1536 presumably indicate the original south-east facing point of entrance, with irregularly shaped plank/post-slots 1629, 1632, 1530 and 1586 representing the



**Fig. 2.10** Mile Oak, Trench 27: Round-house II: Suggested reconstruction by M. Russell. (Drawn by J. Russell.)

outline of a porch structure. Two groups of apparently paired post-holes to the rear of this entrance structure (1524, 1528 and 1478, 1472) may indicate the position of internal porch or roof-supports.

The exact form taken by Round-house II is unclear and it is indeed possible, considering the angle at which the entrance structure 1536/1499 appears to join the main body of the round-house (Fig. 2.10b), that more than one phase of construction is represented here (it is also possible that 1528, 1524 and 1565 represent a second, non-contemporary phase of door structure). Using Guilbert's observations concerning the layout of MBA house structures (1982: 209–12) it may be possible to suggest that post-holes 1474, 1468, 1470, 1501, 1485 and 1544 originally represented internal roof-supports (see reconstruction drawing: Fig. 2.10a), although it must be admitted that no evidence was found to suggest the presence of a seventh post-hole within cut/pit 1464 (cf. Guilbert 1982: Figs 7i, ii, iii, iv, v, vii). Diagonal roof timbers may originally have been bedded into post-holes 1511 and 1458/1460 (although the latter did not possess noticeably sloped sides), situated on the upper lip of the terrace cut. No evidence of an external wall-line was recovered from the base of the terrace cut (the stake-holes recorded from the upper lip of the terrace cut (Fig. 2.8) may relate more to the roof structure) and it is possible that,

unlike Round-house I (Area A), the whole of the terraced area was here incorporated within the building.

Round-house II is closely comparable in size to a number of MBA round-houses recorded from excavations conducted at Amberley Mount (e.g. Hut II: Ratcliffe-Densham 1966), New Barn Down (cutting VIII: Curwen 1934a) and Itford Hill (Huts C, M and N: Burstow and Holleyman 1957), although the elaborate design of the porched entrance, bearing in mind the possible phase of rebuild, is more in tune with the larger 'residential' structures recorded from Itford (e.g. Hut D: Burstow and Holleyman 1957; Guilbert 1982) and elsewhere.

Few 'activity-related' finds were recorded from Round-house II, although, as explained above, this may relate to the shallow nature of the terrace fill and the disturbance suffered during the initial machine clearance. Owing to the lack of dating evidence recovered from cut/pit 1462, it remains uncertain whether the round-house originally possessed storage facilities comparable to those of Round-house I, Area A. No evidence, in the way of extensive quantities of accidentally baked wall daub, was recovered to suggest that Hut II had been destroyed by fire (although for an alternative viewpoint, based upon the charcoal evidence, see Berzins, below).

Pit 1522 and stone-hole 601, to the immediate north and north-east of terrace 1411, do not appear to relate to the structural integrity of the proposed round-house structure, but a Later Bronze Age radiocarbon determination (OxA-5109) and a single sherd of MBA pottery have both been recorded from the upper fill (1523) of pit 1524 (see Hamilton, below). The possibility that stone-hole 601 may represent a feature not contemporary with the main phase of round-house occupation, cannot be discussed at this stage, owing to the lack of adequate dating evidence.

Large numbers of naturally occurring sandstone (sarsen) boulders, such as that recorded from cut 601, have been noted within the Brighton area of the South Downs (Mantell 1833: 59–60; Toms 1927; Summerfield and Goudie 1980; Young and Lake 1988: 71; Ullyot 1989, 9), as testified by local place-names such as 'Old Steine', 'Stanmer', 'Rocky Clump' and 'Black Rock' (Mead 1989: 15). Such stones have, in comparatively recent years, been utilised for a variety of purposes including incorporation into gateposts, seats, marker or boundary posts and traffic bollards. Locally occurring sarsen/sandstone material was utilised in prehistory for querns and grinding stones (see Laughlin *et al.* below), although two larger examples have been recorded within the region from EBA funerary contexts, at Church Hill, Brighton (Mantell 1833: 60; Grinsell 1931: 65) and Ditchling Road, Brighton (Holleyman and Yeates 1960: 135).

#### Area D (Figs 2.4, 2.11 and 2.12; Plate 2.5)

Area D consisted of a well-faced, roughly oval flat-bottomed terrace cut (1424), measuring c.6.3m in diameter, adjoining Area B and to the immediate north of Area C. The terrace fill (1421), which survived to a maximum depth of 0.2m, consisted of a dense deposit of silt and chalk rubble. Large quantities of MBA pottery (just under 3kg), animal bones, carbonised plant remains, charcoal, fire-cracked and worked flint were recovered from the base of this deposit, together with the remains of at least three baked clay loomweights.

Twelve cut features were recorded from the base of terrace 1424, while a further two were noted to the north, on the upper lip of the terrace itself. Seven of the recorded cuts (1439, 2613, 2615, 2616, 2645, 2758 and 2764), measuring between 0.16m and 0.24m in diameter, possessed irregular edges and bases and closely resembled, although on an appreciably larger scale, the stake-driven holes of Round-house I, Area A and Round-house II, Area C. Of the remaining features, three (2619, 2620 and 2623) consisted of shallow, fairly circular-shaped cuts measuring between 0.34m and 0.44m in diameter, while two (1455 and 2705) consisted of larger, oval cut features.

Feature 2705, a cut 1.16m wide  $\times$  1.71m long, appeared to have been partially truncated by terrace cut 1424. The feature contained the contracted skeleton of a young woman in her late teens or early twenties (Fig. 2.12; Plate 2.5; see Browne, below). In May 1992 the left and right tibia of the skeleton were sent for radiocarbon determination (see Section 9). The results suggest a date of  $2240 \text{ BP} \pm 70$  (400–110 cal BC: GU-5269). This totally unexpected date, which places the burial within the Middle to Late Iron Age, was deemed incorrect. Consequently further samples of bone from the burial were submitted for radiocarbon dating (i.e. GU-5675 and GU-5694). It now appears that the original analysis (GU-5269) was erroneous, and that a weighted mean of the two later results provides a date of 1260–900 cal BC (see Section 9). No datable artefacts were retrieved from the fill of cut 1455.

#### Interpretation

Area D appeared to consist of a terraced platform containing the remains of an MBA building (Round-house III). The exact form taken by the building is unclear, although the surviving stake/post plan is perhaps suggestive of a small structure, formed by cuts 1439, 2613, 2764, 2616, 2645, 2758 and 2615, with an internal, tripartite setting of posts (post-holes 2619, 2623 and 2620). As three loomweights were recovered from the base of terrace 1424, in a tight cluster between 2619 and 2622/2620 (Fig. 2.11a), it is possible that these three post-holes represent the remains of an upright loom (cf. Burstow and Holleyman 1957: 177, Fig. 9; Megaw and Simpson 1988: 265), although it remains doubtful whether such a structure would have required extensive footings (Moore and Jennings 1992).



**Plate 2.5** Mile Oak, Trench 27: Area D. Contracted female burial within pit 2705. Viewed from the west. Scale 40cm.

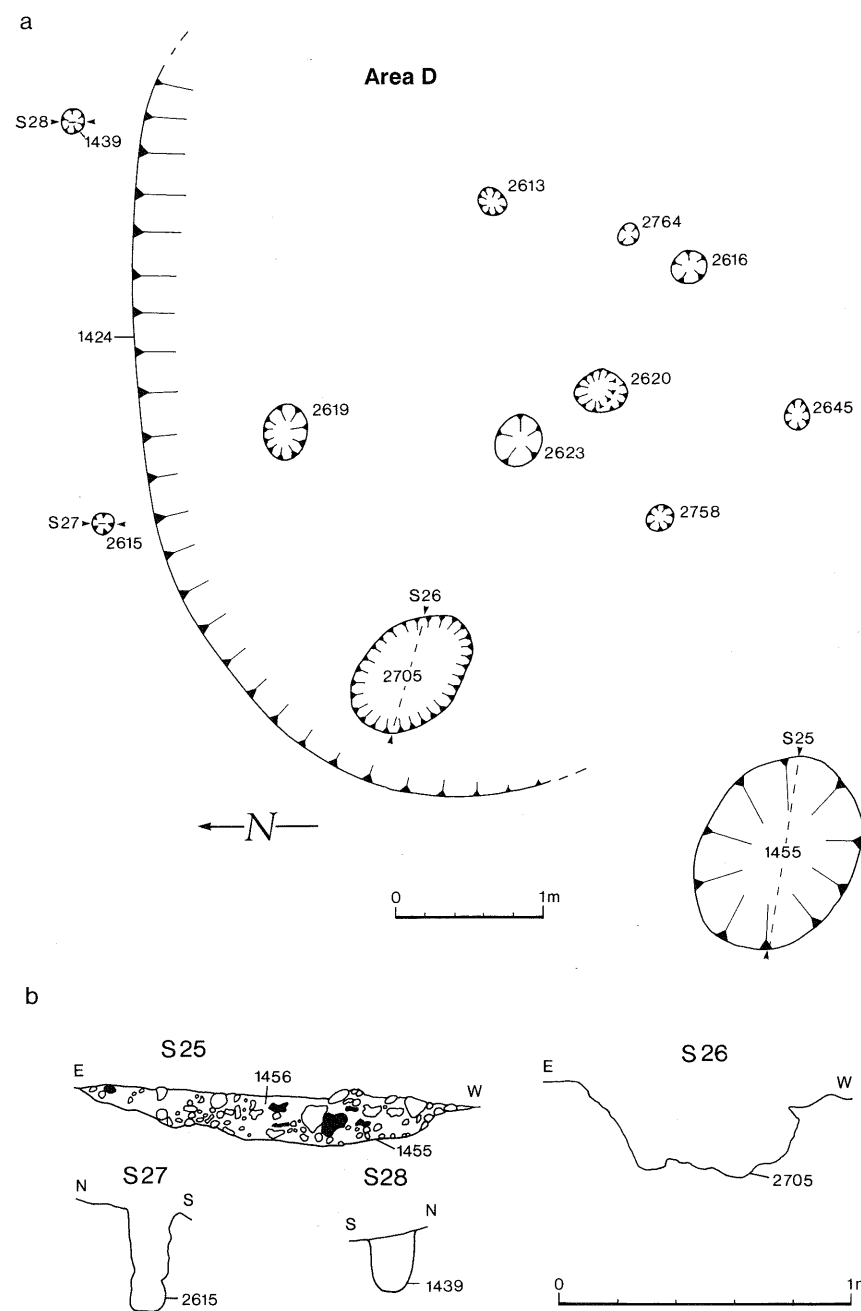


Fig. 2.11 Mile Oak, Trench 27: Area D: Plan and selected feature sections.

The presence of animal bone, pottery and carbonised plant remains from the primary terrace deposit, if taken to be contemporary with the period of round-house occupation (see final discussion for problems surrounding the contemporaneity of terrace fill material), may indicate that, not only textile production, but also food preparation/processing/storage, were all conducted within the confines of the building. The high quantity of *in situ* pottery remains recovered from Round-house III, when combined with the results of the charcoal assemblage, may suggest that the structure in question was abandoned swiftly, possibly as a result of accidental or deliberate incendiary destruction (see Berzins, below), similar to that which appears to have levelled Round-house I, Area A. The structural remains recovered from Area D can probably best be viewed as representing the remains of an MBA ancillary craft or storage building.

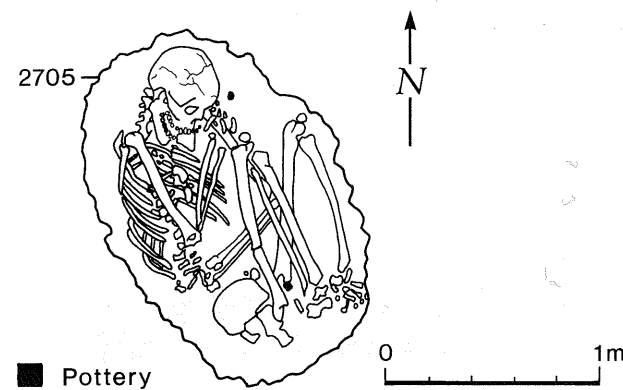


Fig. 2.12 Mile Oak, Trench 27: Area D: Plan of human burial within pit 2705.

Pit 2705 may be interpreted as a simple flat grave, but whether this was the original function of the cut itself remains questionable. Similar, apparently unmarked, flat graves containing crouched or contracted prehistoric burials have been discovered, largely by accident, from a variety of locations in Sussex, including London Road, Roedean Road, Roedean Terrace, Roedean Way and Wild Park in Brighton (Curwen 1923a; Brighton Museum Register nos 2574, 4267, 3330; *Sussex Daily News*, 21 July 1928); Tolmere Farm, Findon (Lewis 1960) and Bullock Down near Eastbourne (Drewett 1982a: 60-62). Such burials, though usually recovered without datable grave goods, are generally assumed to be of Late Neolithic or EBA date (Drewett *et al.* 1988: 85), but considerable numbers of single crouched burials have been recorded from Iron Age contexts (Whimster 1981: 11-21).

The stratigraphic evidence recorded from Area D appears to indicate that pit 2705, containing skeleton 2706, predated the construction of MBA terrace 1424. The position of the burial, within what could be viewed as an internal storage pit, contemporary with the use of the round-house, could therefore be taken to suggest a ritual deposit set down prior to, or immediately following, the main occupation phase of the MBA building. The revised radiocarbon dating for the skeleton suggests, however, that the burial may post-date the cutting of terrace 1424 and the building of Round-house III. If this is correct, the burial may date to either the period of abandonment of the round-house or the subsequent usage of terrace 1424. Pit 2705 may thus have originally functioned as a storage pit, and finally been used for a grave.

Area E (Figs 2.4 and 2.13a)

Area E consisted of a single oval cut (1504), measuring 4m x 3.5m in width, to the immediate south of Area C. The feature was bottomed at a depth of 0.3m. Three sherds of MBA pottery, two mussel valves and three fragments of baked clay were the only finds recovered from the fill (1503), which consisted of a dense silt/loam overlying a discontinuous deposit of unbaked clay. No internal features were recorded.

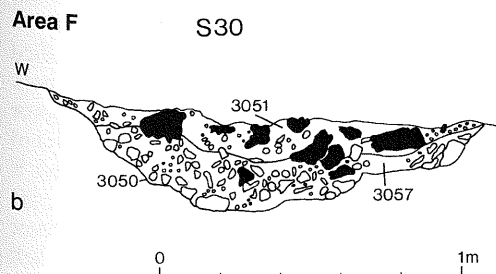
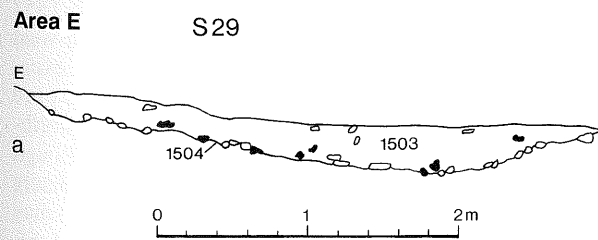


Fig. 2.13 Mile Oak, Trench 27: Areas E and F: Main sections.

A fragment of cow tooth, retrieved from the fill of cut 1504 was submitted for radiocarbon dating (see Section 9) and a date of 2975 ± 50 BP (1400-1030 cal BC: OxA-5108) was produced.

Interpretation

Similar sized oval features have been recorded from a variety of Middle and Late Bronze Age settlement excavations, including Shearplace Hill, Dorset (Rahtz and ApSimon 1962: 305), Aldermaston Wharf, Berkshire (Bradley *et al.* 1980: 232) and Black Patch, East Sussex (Drewett 1982b: 325). When encountered, these are generally interpreted as ponds. The presence of a discontinuous deposit of unbaked clay at the base of cut 1504 may indicate the remains of a deliberate lining of water-resistant material (*cf.* Rahtz and ApSimon 1962: 305) and therefore indicate that the feature as a whole represents a pond or water collection unit associated with the phase of MBA settlement. Alternatively, the recorded deposit may suggest that the feature originally functioned as a clay puddling pit.

Area F (Figs 2.4 and 2.13b)

Area F consisted of a single 1.4m x 0.9m oval depression (3050), lying directly upon the projected line of ditch 245. The feature, which possessed irregular edges, contained no datable archaeological finds.

Interpretation

Feature 3050 may represent the remains of a tree-throw hollow (*cf.* Moore and Jennings 1992: 10).

Cuts 243/245/1557 (Figs 2.3, 2.14, 2.15, 2.16 and Plate 2.6)

Cuts 243 and 245/1557 were completely excavated by hand in an attempt to retrieve as many datable artefacts as possible. From each recorded context 5% of the soil was retained for flotation. Sections were drawn and photographed (Plate 2.6) at regular 1m intervals in order to establish the complete depositional sequence. Four section drawings have been reproduced here as Figure 2.15 (all remaining section drawings have been archived). A single soil column was excavated through one of the more prominently surviving sections of cut (section 3.2, Fig. 2.46; see Wilkinson, below).

Cut 243 consisted of a single, curving feature measuring 43.6m in length and ending in two well-rounded terminals. Undisturbed stratigraphy survived to a maximum depth of 1.3m. The overall width of the feature varied considerably, giving the cut a distinctly segmented/beaded appearance in plan. A comparison of all recorded section drawings (Fig. 2.15 and archive) would, however, suggest that the segmentation is an illusion created by differential patterns of erosion upon the upper edges of the cut (*cf.* Pitt-Rivers 1898: 24-6; Curwen 1930a). The lower edges of the cut profile, as recorded, display a remarkable consistency and, taking account of observations regarding the preservation of feature profile beneath primary silt accumulation (e.g.



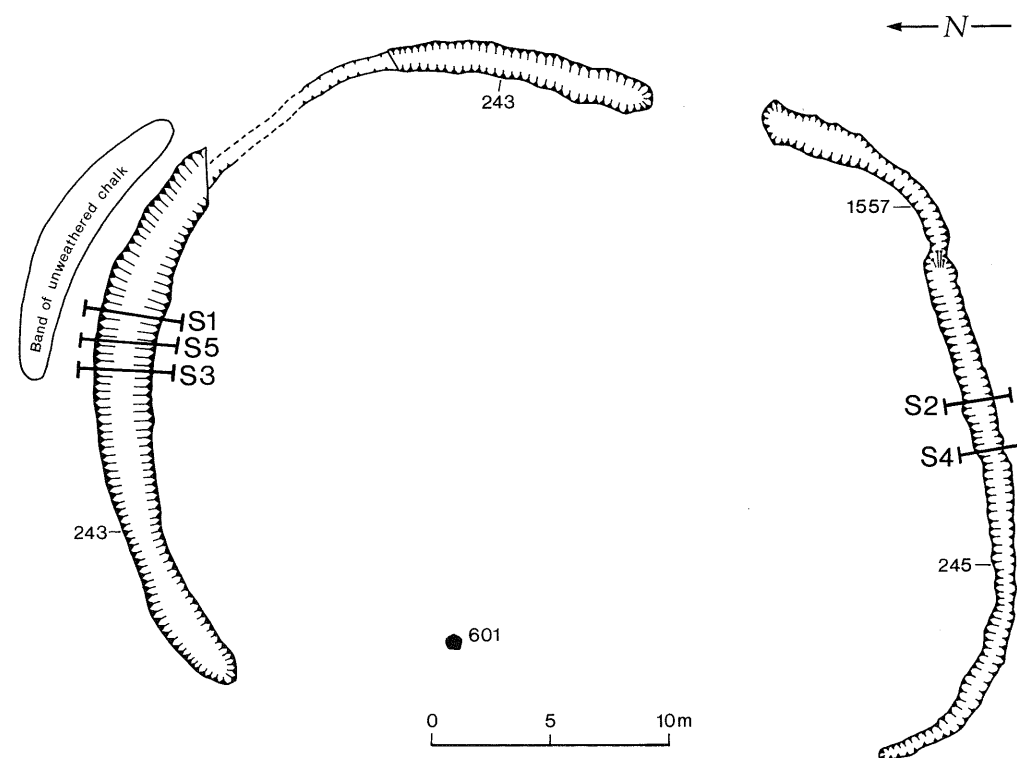


Fig. 2.14 Mile Oak, Trench 27: Plan of ditch segments 243/245/1557.

Jewell and Dimbleby 1966: 339–40), it is possible to suggest that the original form taken by cut 243 was that of a steep-sided, flat-bottomed 'V' (cf. Reynolds and Schadl-Hall 1980: 119) with a basal width of between 0.4m and 0.65m.

Cuts 245 and 1557, which appeared in plan to constitute two parts of a single curving feature, lay to the immediate south-east of cut 243 (Fig. 2.14). Although severely truncated by a combination of chemical erosion (to a point where the south-western section of cut 245 had been completely erased), plough disturbance and the cutting of a modern, east-west aligned, land drain, feature 245/1557 survived to an approximate length of 40m. Stratigraphy within cut 245 survived, at its eastern junction with 1557, to a maximum depth of 0.82m, decreasing at the approximate rate of 0.05m per metre as the cut swung westwards.

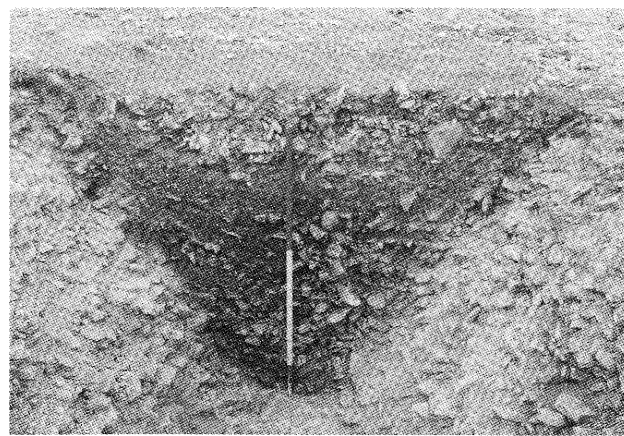


Plate 2.6 Mile Oak, Trench 27: Ditch segment 243. Section facing west. Scale 1m.

Stratigraphy within cut 1557 survived to a maximum depth of 0.78m at its northern terminal, tapering to 0.06m at its junction with cut 245. Lower cut profiles, preserved within primary silt contexts, suggest that both cuts 245 and 1557 originally possessed a flat-bottomed, 'V'-shaped section. The basal width of cut 245 remained at a fairly constant 0.35m, while that within cut 1557 varied between 0.3m at its southern limit, and 0.6m at its northern terminal.

The three recorded segments of cut appeared to form a single oval feature with a north/south elongation. The cuts clearly predated both linear feature 1401 (Fig. 2.3) and Area A (see above). The area enclosed by cuts 243 and 245/1557 had an internal diameter of 37.25m north-east/south-west and 30.75m north-west/south-east. Cuts 243 and 245/1557 were separated by two causeways aligned west-north-west and east-south-east. The south-eastern causeway, as excavated, measured 4.6m in width. No additional features were recorded from the area of the causeway gap. The north-western causeway, as excavated, measured 27.5m, although it should be noted that, as chemical erosion had completely erased the southern terminal of cut 245, the original gap may originally have been considerably smaller. A pattern of differential weathering, appearing as a 'raised area' of chalk (cf. Atkinson 1957; Holden 1972: 89–90) was recorded from the subsoil to the north-east of cut 243 (Fig. 2.14).

Five basic units of soil accumulation were identified from within cuts 243, 245 and 1557 (see Wilkinson below). Primary silting was represented by Unit E, although in some cases E was preceded by a thin (c.0.003–0.009m) deposit of rain-washed chalk solution. Finds recovered from Unit E consisted of 11 unretouched flint flakes, three undiagnostic flint-tempered sherds of pottery, two fragments of red deer bones and small amounts of charcoal and marine shell (mussel, cockle and oyster). A fragment of deer femur from the primary silt of cut 1557 has produced a radiocarbon

determination of  $3480 \pm 80$  BP (2040–1620 cal BC: OxA-3153), while a piece of ungulate tibia from the primary silt of cut 245 has produced a date of  $3250 \pm 60$  BP (1690–1410 cal BC: OxA-5106).

The secondary unit of soil accumulation (Unit D), which consisted of chalk and flint rubble, and was derived almost exclusively from the inner edges of cuts 243, 245 and 1557, appears to represent material weathered out from the upper levels of the respective cuts. Although damaged by weathering, the outer face of cuts 243, 245 and 1557 do not appear to have been affected to the same extent. This is due, in the main, to a series of successive silt (Unit C) and flint rubble (Unit B), which appear to have consistently entered the ditch from its outer margin, even when this faced away from the natural slope of the hill. Finds from these units consisted of small amounts of worked flint, MBA pottery and marine shell. The final accumulation deposit (Unit A), varied in

depth throughout cuts 243–245/1557, erosion having largely removed it from within cut 245. Large amounts of marine shell, animal bone, struck and burnt flint, baked clay, charcoal and MBA pottery were recovered from within this deposit.

#### Interpretation

Cuts 243 and 245/1557 appeared to have originally formed part of an oval ditched enclosure, with a north/south elongation. The ditch circuit had originally been pierced by at least two points of entrance aligned west-north-west and east-south-east. No evidence was recorded to suggest the former presence of a gate structure or facade at either causeway, although it must be admitted that plough disturbance within this area, as represented by negative lynchet 1401, was

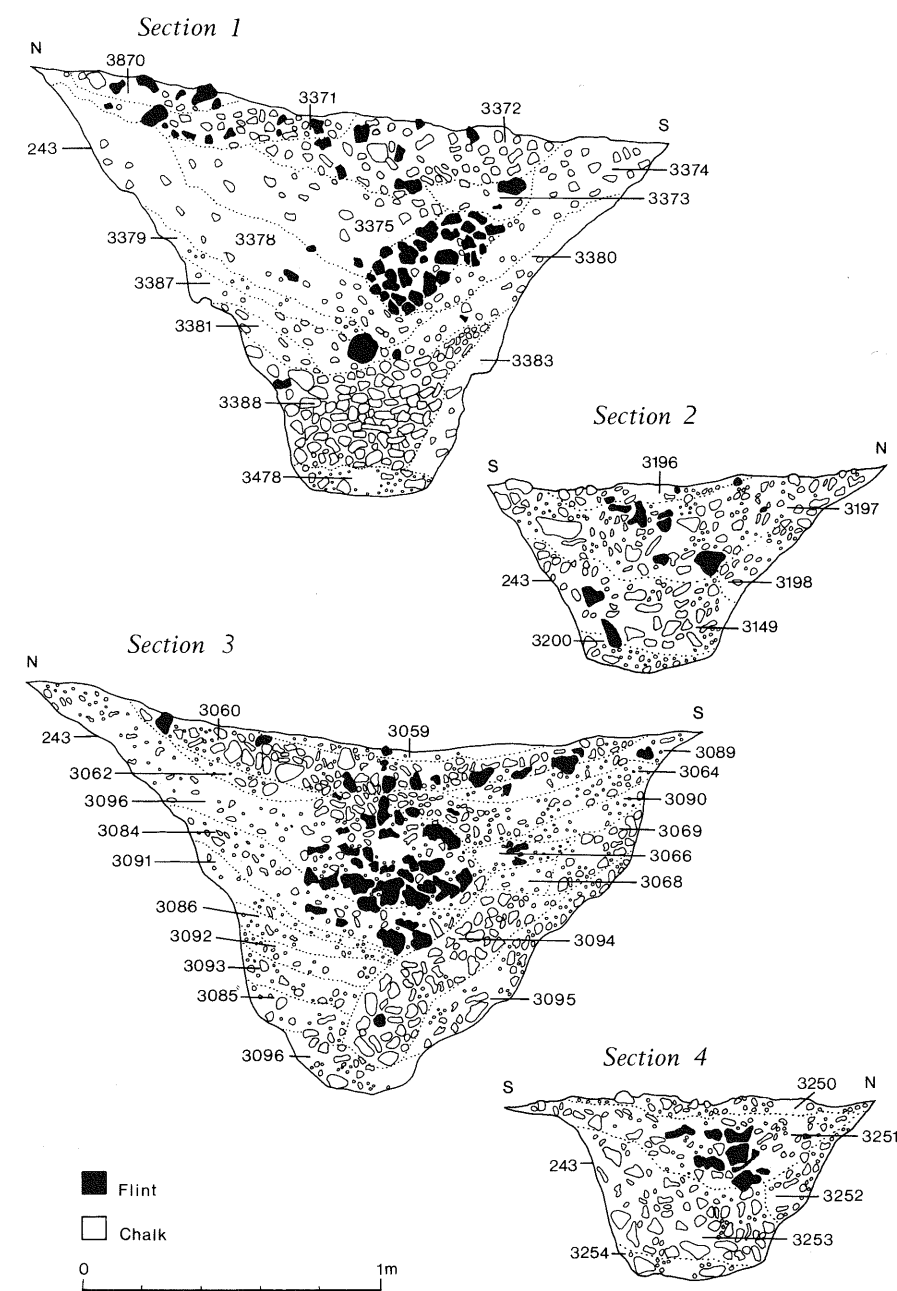


Fig. 2.15 Mile Oak, Trench 27: Selected ditch sections.



extensive. At the north-western entrance gap, only the northern terminal survived, its southern companion having apparently been removed through chemical erosion. Differential patterns of weathering preserved in the chalk subsoil to the north-east of ditch arc 243 appear to suggest that the enclosure as a whole had originally been surrounded by an external bank (cf. Atkinson 1957; Holden 1972: 89-90; Fig. 2.14).

There are two possible reasons for the degree of segmentation observed within the southern ditch arc. First, segment 1557 may represent a deliberate attempt on the part of the original ditch excavators to narrow the south-eastern entrance gap from 9m to just under 4.6m. Alternatively, segment 1557 may represent an early phase of enclosure which was incompletely joined, or simply overlooked, when the original ditch was re-cut or enlarged to form cut 245. Such an action would effectively have enlarged (or re-aligned) the point of entrance for the modified enclosure circuit. Considering the broad similarity of fill as recorded within cuts 245 and 1557, the former theory would appear plausible, although it should be noted that the slight, irregular form of cut 1557, when combined with the radiocarbon results (OxA-3153 and 5106: see below and Section 9), appears to support the suggestion that cut 1557 represents a survival from an earlier phase. The form taken by this earlier ditch must remain unknown, but, given the lack of survival of additional areas of Phase 1, it is likely that the basic plan remained unaltered in the course of the later remodification.

The full sequence of ditch fill, which appeared largely consistent throughout the recorded circuit, may be interpreted as follows (this sequence is illustrated in Fig. 2.16 (Section 3.3) and should be compared with the sections recorded in Fig. 2.15).

- i **3408** Primary silt. Assuming that the ditch was not cleared out on a regular basis, this deposit, representing soil derived from weathered turves, would have accumulated within months of the original excavation (cf. Pitt-Rivers 1898: 25; Jewell and Dimbleby 1966: 314-

15; Bell 1990). An alternative suggestion is that the layer may represent part of a 'ritual' deposit of fertile soil, deliberately placed at the base of the ditch shortly after its original excavation. The complete absence of any recognisably ritual artefact or artefact group (cf. Thomas 1991: 56-78) from this deposit, assuming that the artefacts were not of an organic nature, appears, however, to argue against any such interpretation.

- ii **3407** First major deposit: chalk and soil mix derived from the outer edge of the ditch. It is possible, given the existing evidence regarding the position of an outer bank (differential soil erosion: Fig. 2.14), that this deposit represents the material derived from the partial collapse of external bank material. A word of caution should, however, be noted regarding such an interpretation, for the results from experimental earthwork surveys, such as the Overton Down project, have indicated that a berm between bank and ditch can effectively prevent large amounts of soil from being deposited into the surrounding ditch hollow (Crabtree 1990: 229).
- iii **3406, 3398, 3405, 3404** Major collapse, through weathering, of the southern, inner face of the ditch, altering the original upper ditch profile.
- iv **3400, 3403, 3402, 3399** Further soil creep, possibly derived from the collapse of the external bank, which lessened the effect of weathering upon the outer face of the ditch. The deposit that formed is a mix of chalk and loam.
- v **3395, 3397** Increased soil infill derived from the inner and outer edges, possibly suggesting a time of more extensive human activity (see Wilkinson, below).
- vi **3401, 3392** Extensive deposition throughout the ditch of chalk and flint rubble derived, primarily, from the outer edge of the enclosure. The consistent quantity, and apparently rapid formation, of this context may suggest deposition through human, rather than natural, agencies. It is possible, therefore, that the deposit represents the final levelling of the bank prior to ploughing or the establishment of the MBA settlement (Areas A-E). In this respect it should be noted that the

high density of flint rubble, relative to chalk, within the unit appears consistent with the differential rates of chalk and flint survival within collapsing bank material as noted by Jewell and Dimbleby (1966: 323 and plates xxvi and xxvii).

- vii **3394, 3391, 3396, 3393, 3409** Slow deposition of soils containing Bronze Age midden deposits and presumably contemporary with the main phase of MBA occupation.
- viii **3390** Final tertiary fill, possibly suggestive of plough activity.

The radiocarbon determination of 1690-1410 cal BC (OxA-5106) from the primary silting of ditch 245 appears to provide a *terminus post quem* for the earliest phase of silting for enclosure circuit 245 (and presumably 243: see Section 9), while a *terminus post quem* of 2040-1620 cal BC (OxA-3153) has been provided for the possible earlier phase represented by surviving ditch segment 1557. With these broad dates in mind, there are, in the author's current (1998) opinion, at least four possible interpretations of the Trench 27 enclosure: Bronze Age barrow; an MBA settlement enclosure; a Bronze Age animal enclosure or stock corral; and an EBA henge monument. These alternatives will now be discussed in turn.

#### Bronze Age barrow

The overall internal dimensions of the Trench 27 enclosure (in excess of 30m) do not automatically disqualify the site from any discussion concerning Bronze Age barrows. Many barrow mounds from Sussex dating to this period are known to have exceeded 30m in diameter (e.g. Arlington 68 SE3, Arundel 49 SE2, Harting 20 SE1, Harting 20 SE4, Heyshott 35 SW2, Stedham 21 SE3, Stoughton 48 NW10; Grinsell 1934, 1940), while at least one, the famous Hove barrow (Phillips 1857; Curwen 1924; see Fig. 1.1) is said to have originally possessed an overall diameter in excess of 60m (Curwen 1954: 152-4). Interpretational problems do, however, arise when the setting of the Mile Oak enclosure is taken into consideration. The site, located upon the lower, west-facing slopes of a secluded dry valley, was evidently not designed to be seen from any great distance and, as it occupied a position barely 50m to the west of the dry valley floor, it can hardly be described as being 'false crested'. In fact the overall impression is that of an earthwork which, unlike the majority of barrow structures, was either hidden or constructed specifically to be viewed at close quarters.

Causewayed/interrupted ditch circuits have been recorded from a variety of prehistoric round barrows in Britain (Ashbee 1978: 34-7, 55-6; Harding and Lee 1987: 34-9). Within a barrow-ditch context, causeways are generally interpreted as entrances and perceived as being the focal point of a funerary structure (Ashbee 1978: 35). The majority of excavated causewayed barrows are EBA in date and most sites appear to possess only one entrance. Of the few double entrance sites excavated, three - Fargo Plantation, Wiltshire (Stone 1938), High Knowes 3, Northumberland (Jobey and Tait 1966) and Corporation Farm, Oxfordshire (Bradley and Holgate 1984: 117, 120) - may be reinterpreted as 'mini-henges' (Harding and Lee 1987), while a henge interpretation has, in the past, been suggested for a fourth site, that of Powerstock 4a in Dorset (Grinsell 1959: 18, 169).

At least six causewayed barrows have, at some time, been recorded from Sussex (Russell 1996a: 33-4). Only one, that at Pyecombe near Brighton, has been securely dated through excavation (to the Late Neolithic/EBA: Butler 1991). At Itford Hill a penannular ditch recorded from beneath an MBA cremation cemetery and cairn structure (Holden 1972; Ellison 1980a) and interpreted as a causewayed barrow (Ashbee 1978: 55) of the Later Bronze Age, has recently been reinterpreted as representing the remains of a Late Neolithic/EBA palisade monument (Russell 1996a). A similar interpretation is also possible for the Pyecombe, Steyning Round Hill and Playden sites (Russell 1996a: 18-19, 22-3, 32-4), while the causewayed barrow from Gundreda Road, Lewes (Allen 1986) may alternatively be viewed as a penannular gullied, Iron Age round-house (Russell 1996a: 34).

The interpretation of enclosure 243, 245/1557 as a Bronze Age barrow of causewayed type, however, proves problematical in that the earthwork does not appear ever to have possessed an internal mound (differential weathering of the chalk subsoil suggesting instead the former presence of an external bank). This is not an insurmountable problem, especially when it is considered that many circular/oval ditched enclosures, apparently without central mounds, have been identified from aerial photographs in Britain (Leeds 1936; Curwen 1937). Such 'ring-ditch' sites, when excavated, have invariably produced funerary evidence (e.g. Field 1974: 62-3; Taylor and Woodward 1985), which may indicate that the majority represent plough-damaged bowl or disc barrows (in North Devon, for example, it has been calculated that up to 75% of all round barrow mounds have been damaged or removed by ploughing: Fasham 1982). In such cases it is debatable whether ring-ditches represent a class of monument in their own right, or whether the term may more usefully be applied to a type of prehistoric funerary monument where all evidence of surface form, such as a barrow mound, has been erased (Taylor and Woodward 1985).

More problematical for the barrow interpretation is the absence within the area defined by cuts 243/245/1557 of a primary interment, especially as the position of grave pit 2705 (Area D), at the extreme north-western margin of the site, is difficult to explain within a barrow context unless viewed as a *secondary* deposit. The additional radiocarbon determinations for the skeletal remains recovered from pit 2705, however, indicate that the burial is of LBA date (1260-900 cal BC; GU-5675+GU 5691; see Section 9). Blank or empty barrows are known from both the Neolithic and Bronze Age of Britain (Allen *et al.* 1995) and, when encountered, may be interpreted as cenotaphs (Allen 1981: 106), undefined ceremonial structures (Drewett *et al.* 1988: 83-4), or territorial markers (cf. Renfrew 1973; Higham 1986: 64-71).

The absence of a primary burial deposit within the Mile Oak enclosure, however, when coupled with the absence of an internal mound, the two recorded points of entrance and the general low-level siting of the earthwork within a dry valley, combine to indicate that the Bronze Age barrow interpretation is here, at best, dubious.

#### MBA settlement enclosure

A series of circular or oval enclosures of Middle/Late Bronze Age date have been identified within Southern

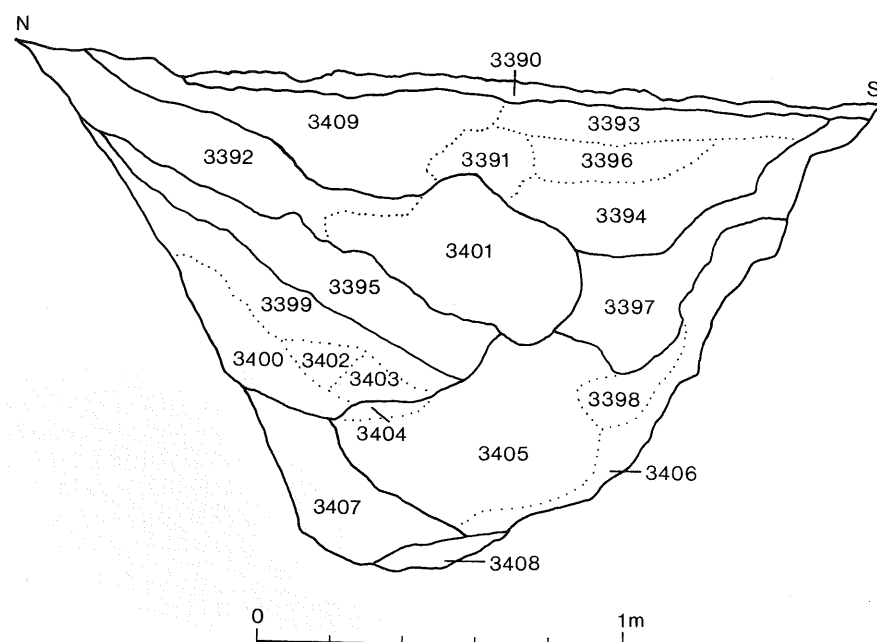


Fig. 2.16 Mile Oak, Trench 27: Ditch section 5.

Britain (e.g. Mill Hill, Kent: Champion 1980; Carshalton, Surrey: Lowther 1946; Adkins and Needham 1985; Mucking North Ring, Mucking South Rings and Springfield Lyons, Essex: Priddy and Buckley 1987: 50-51; Bond 1988). These enclosure sites have been interpreted as defended settlements, centres of trade and exchange or mini-forts (Adkins and Needham 1985: 46). At none of the sites, however, do the enclosed units of Bronze Age settlement appear to cut into, or otherwise erase, sections of bank and ditch, as at Mile Oak. The ramparts themselves, where known, also appear to be almost exclusively internal (i.e. of a defensive nature). Only two lowland Middle/Late Bronze Age settlement enclosures appear to share the inverted rampart sequence as recorded from Mile Oak: Cock Hill, West Sussex and Hog Cliffe Hill, Dorset.

At Cock Hill, an oval, internally ditched, single-entranced enclosure measuring between 33.5m and 39m was found to partially enclose an area of MBA settlement (Ratcliffe-Densham 1961; Ellison 1981). If contemporary with the main settlement phase, something which is by no means certain as MBA material was confined solely to the upper levels of ditch fill (Ratcliffe-Densham 1961: 82), the inverted rampart sequence may have been designed specifically for stock control. A similar explanation is possible for the oval, internally ditched enclosure covering 5.6ha, apparently encircling the Later Bronze Age settlement of Hog Cliffe Hill, although unfortunately, as no dating evidence was recovered from the primary fill of the ditch (Ellison and Rahtz 1987), an exact correlation between settlement and enclosure could not be proven (*cf.* Needham and Ambers 1994: 239). An alternative interpretation for the Cock Hill enclosure, that of an EBA henge monument, predating the establishment of the Bronze Age settlement, has recently been proposed (Russell 1996a: 19-20, 31).

The 'MBA enclosure' interpretation for ditches 243/245/1557 is, as noted above, complicated by the presence of the MBA building terrace which clearly cuts, and is therefore stratigraphically *later* than, ditch 243 (Units E-B). The Trench 27 settlement could, of course, have originally consisted of two or more distinct units (*cf.* Russell 1996b; *see* Section 9), with Round-house I representing a later phase. Such an explanation does not, unfortunately, explain why no recognisably Middle Bronze Age artefact was recovered from the ditch before the accumulation of Phase IV soils (*see* Hamilton, below). The struck flint assemblage recovered from the primary silts of the Trench 27 ditch was, furthermore, morphologically distinct from that recovered from within the area of MBA settlement (Underwood 1991: 5; Underwood, *see* below), while the two radiocarbon determinations suggest an Early Bronze Age *terminus post quem* for the earthwork.

Considering the primary silt finds assemblage, the position of Round-house I and the inverted rampart sequence, the suggestion that the Trench 27 ditch may be interpreted as the remains of an MBA settlement enclosure, would appear improbable.

#### Stock enclosure/animal corral

A number of circular, sub-circular and rectangular enclosures, generally viewed as specialised stock corralling or food storage zones (Hingley 1984; Monk and Fasham 1980), have been recorded from southern England. Such sites are often termed 'banjo enclosures', owing to their appearance (Perry 1969: 36; Perry 1972), and generally date

from the Iron Age, although a Later Bronze Age origin is possible in some cases (e.g. Holgate 1986). No such specialised stock/storage corral has yet been identified in southern Britain for the earlier Bronze Age. It is possible that herds were, at this time, simply contained within, or close to, contemporary areas of settlement - indeed the inverted rampart sequence recorded from a rectilinear earthwork at Belle Tout, East Sussex (Bradley 1970), may, if contemporary with the main phase of Beaker settlement, have been specifically designed for stock control.

#### Henge monument

Henges are enigmatic sites and although many attempts have been made at interpreting possible purpose and function, the basic view that they were intended for unknown (and indeed unknowable), non-utilitarian activities has altered little since the monument class was first defined (Kendrick and Hawkes 1932; Clark 1936; Piggott and Piggott 1939; Atkinson *et al.* 1951; Tratman 1967; Burl 1969; Wainwright, 1969, 1989; Catherall 1971, 1974, 1976; Clare 1986, 1987; Harding and Lee 1987; Barclay 1989; Harding 1995).

The most comprehensive reclassification of these supposedly communal/ritual enclosures has recently been conducted by Harding and Lee (1987: 11-56). In this work a 'classic-henge' is defined as a circular or oval enclosure generally possessing an internal segmented ditch, with a width in excess of 2.5m and depth around 2m, enclosing an area with an internal diameter of over 14m (anything less is classified as a mini-henge). 'Classic' sites possess either one or two entrances (the Class I and Class II division first defined in the 1930s: Piggott 1939). Single entrance sites generally appear to be oriented within the north/north-eastern sector of the compass, while those with two appear to possess an east-south-east/south-south-east to west-north-west/north-north-west orientation. Some two entrance sites are markedly asymmetrical in plan. Three-quarters of all 'classic' sites possess internal burials, while some possess internal stone or timber uprights and pit rings. Most 'classic' henges are situated in low-lying positions close to rivers or streams. The bulk of excavated sites lie within the date range 2100-1800 cal BC (dating evidence obtained from primary ditch silt accumulation; Harding and Lee 1987: 47-52).

With regard to the Mile Oak enclosure, it should be noted that the ditch of the secondary phase encloses an area of an average internal diameter of 34m, measures 2.5m in width and 1.3m in depth at its maximum point of preservation (e.g. Box section 3.1: i:Archive) and had originally been surrounded, at least along its northern circuit, by an external bank. The ditch, though not segmented to any great degree (with the obvious exception of cuts 245 and 1557 which appear to represent the incomplete joining of two distinct phases of construction), appeared to have originally been cut in a series of straightish lengths (*cf.* the Devils Quoits henge: Lambrick 1990; F. Healey 1991, pers. comm.; and Old Yeavinger: Harding 1981: 119-22) and is markedly asymmetrical in plan with the two recorded entrance points being aligned west-north-west/east-south-east. Dating evidence obtained from the primary silt of the Phase I and secondary phase enclosures suggests a *terminus post quem* for the main construction of 2040 and 1620 cal BC (OxA-3153); the *terminus post quem* for the substantial remodifi-

cation being between 1690 and 1410 cal BC (OxA-5106). The external bank of the secondary circuit had largely collapsed back into ditch 243 before the construction of a Middle Bronze Age terraced house platform. The enclosure itself was situated on a low-lying (60m OD), largely indefensible position, two miles east of the River Adur. A faced stone upright (Area D) within the enclosed area was unassociated with the MBA settlement complex.

The Mile Oak enclosure, as represented by ditches 243 and 245/1557, fits the criteria laid down by Harding and Lee (1987) as being representative of a 'classic' Class II henge monument. It is the author's opinion that, of all the proposed interpretations put forward here, a henge is by far the most plausible (*cf.* Russell 1996a, 32).

#### Cuts 1401 and 1403 (Fig. 2.3)

Two vaguely defined areas of linear disturbance (1401 and 1403) were detected within Trench 27. Cut 1403, which was traced for a maximum north/south length of 35m, clearly disturbed stratigraphy within Area A, cutting ditches 243 and 1557. Forty-nine sherds of MBA pottery and a few fragments of marine shell appeared to be associated with this disturbance. Cut 1401 was traced for a maximum east-west length of 24m to the immediate east of Area A. Four sherds of Romano-British pottery and two sherds of MBA pottery were recovered from the area of this feature.

#### Interpretation

'Cuts' 1401 and 1403 presumably represent the remains of plough disturbance and can therefore best be interpreted as negative lynchets. Both features had previously been recorded as minor surface depressions prior to the commencement of excavation (Fig. 2.2). No trace of a positive lynchet or field bank was noted in either case.

The exact date of these apparent field boundaries remains unknown. Pottery evidence may suggest plough initiation in the MBA or Roman period (*see* Hamilton below) although the large quantity of MBA pottery retrieved from 1403 may represent, at least in part, material disturbed from the upper levels of ditches 243 and 1557. What is certain, however, is that on stratigraphic grounds, both 1401 and 1403, in their latter stages at least, represent the final phase of pre-modern activity recorded from Trench 27. It is possible that the field layout had its origin in the MBA (*cf.* Drewett 1978a; J. Russell 1990) and that the area of MBA settlement, as represented by terrace cuts 234, 2604, 1424 and 1411, was at the outset constructed within the north-east corner of an existing field (defined by the junction of 1401 and 1403). Disturbance to Round-house I could, in this respect, be explained by the continued ploughing and the subsequent migration downslope of the field lynchet following the abandonment of the original settled area (Areas A-E, Fig. 2.4).

#### Other areas

The details concerning all remaining features recorded within the area of Trench 27, the majority of which are considered to represent the product of natural processes such as solifluction, root disturbance or tree throw holes (*cf.* Moore and Jennings 1992) have been archived.

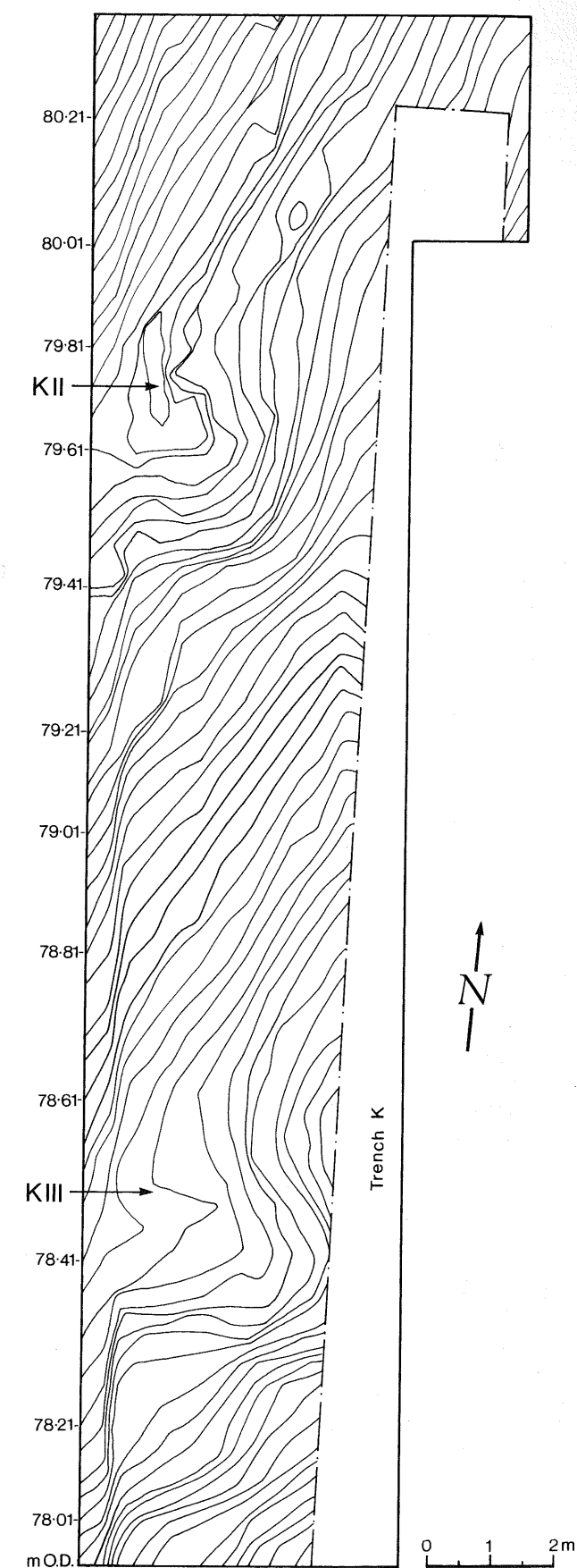


Fig. 2.17 Mile Oak: Contour survey of area to immediate west of Trench K.



## Trench K (Figs 2.2, 2.17–2.24; Plates 2.7–2.10)

The field lynchet (1449) sampled by Trench K proved archaeologically unproductive, consisting of little more than a shallow linear depression in the chalk subsoil. The two low mounds (KII and KIII) identified to the immediate west of the machine-cut trench were quadranted by hand in August 1989, when the opposing north-west and south-east quadrants were removed to the chalk bedrock (*see* excavation methodology). KIII had unfortunately been partially removed along its eastern edge by the JCB excavator during the initial cutting of Trench K, prior to its identification as an independent surface feature, in the belief that it represented part of a denuded field lynchet. Part of the contour survey of KII and III, conducted after the original machine excavation of Trench K, is presented in Figure 2.17. The remaining areas of KII and III were removed in July of the following year when the trench was reopened and extended by hand. It was felt that in this way finds could be retrieved and plotted with some accuracy (Hagedoorn *et al.* 1990: 22; *see* Fig. 2.19).



Plate 2.7 Mile Oak, Trench K: Aerial photograph taken from a hot-air balloon. Viewed from the north-west. (Photo: Derek Kennet)

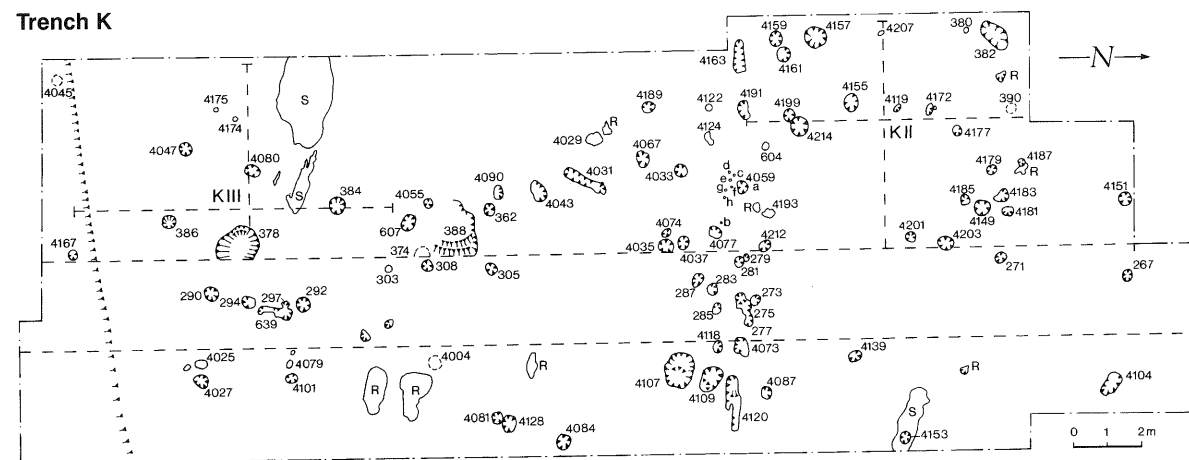


Fig. 2.18 Mile Oak, Trench K: Feature plan as excavated.

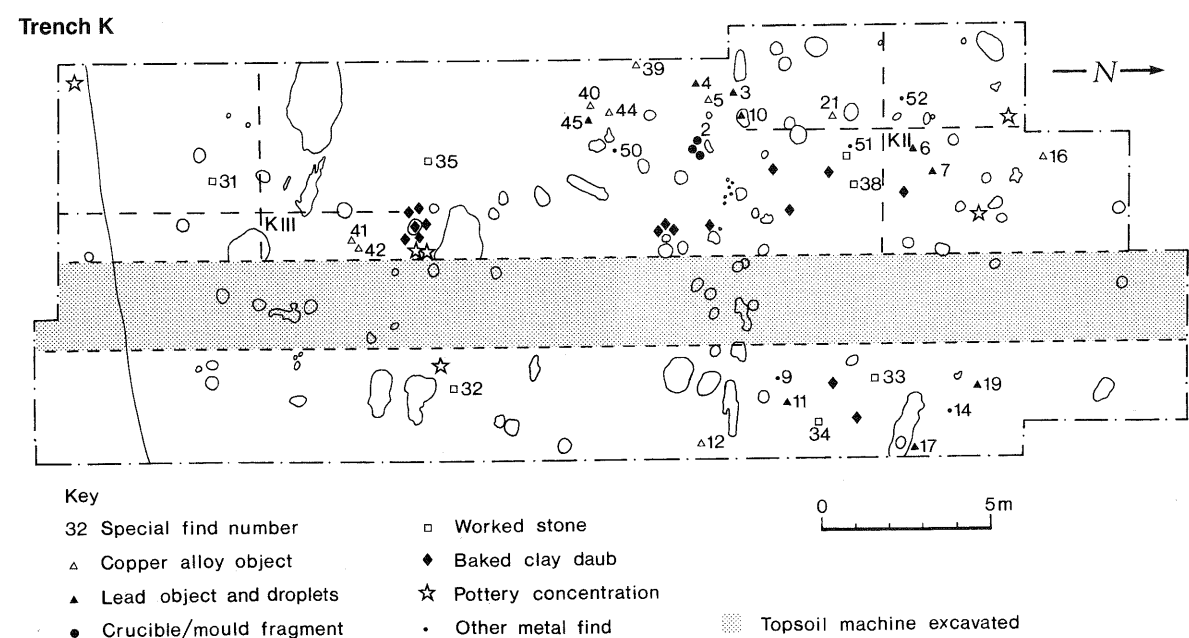


Fig. 2.19 Mile Oak, Trench K: Distribution of Bronze Age metallurgical debris and other finds from topsoil contexts.

## Mound KII (Plate 2.8)

KII consisted of a roughly circular raised area, 5.1m in diameter and 0.33m in height. Seven layers were identified from the main body of the mound (Fig. 2.20: full details archived): 314/5, root-sorted topsoil; 312, light grey/brown clay loam (containing around 1 tonne of fire-cracked flint); 322, medium grey/brown loam; 323, dark brown silt loam; 329, red/brown clay silt; 328, dark brown silt loam similar to 323; 334, dark brown loam. Chalk loam mix 320, beneath KII, presumably represents the original buried plough soil/turf line.

Mound KII contained some 7.75kg of pottery, 83% of which was LBA in date, 9% was Beaker and MBA, while the remaining 8% was represented by Romano-British and Medieval wares (*see* Hamilton, below). The Romano-British and Medieval pottery was confined to the upper 0.1m of mound deposits with Beaker, Middle and Late Bronze Age sherds distributed throughout. Later Bronze Age flintwork, some faunal remains and a single Iron Age coin were also retrieved from Mound KII, the coin being recovered from final topsoil deposits (*see* Rudling, below). A fragment of cattle humerus recovered from the base of deposit 334 has produced a radiocarbon determination of  $2820 \pm 50$  BP (1130–840 cal BC: OxA-5110).

## Mound KIII (Plates 2.9 and 2.10)

KIII consisted of a roughly circular raised area, 5.4m in diameter and 0.4m in height. As noted above, the eastern area of the mound had unfortunately been removed during the initial machine cutting of Trench K. Stratigraphy within the northern half of the mound had been further disturbed (Fig. 2.20) by the cutting of an irregular-sided pit (331) containing the skeletal remains of an adult sheep and at least five lambs (*see* Stevens, below). The adult sheep skeleton has produced a radiocarbon determination of  $110 \pm 50$  BP (cal AD 1660–1955: OxA-5105).

Seven layers were identified from the main body of the mound (Fig. 2.20: full details archived): 324, root-sorted topsoil; 335, a dense deposit of charcoal/loam with 15–20% baked clay inclusions; 358, a thin layer of bright orange baked clay; 327, a dense deposit (similar in composition to 335) of charcoal/loam with 15–20% baked clay inclusions; 393, a thick deposit of fire-cracked flint; 350, dark brown compacted silt loam; 4215, an area of orange/red baked clay at the eastern end of 350; 359, dark brown silt loam similar to, and probably representing a continuation of, layer 350. The majority of the pottery (88.4%) retrieved from the KIII mound is LBA (*see* Hamilton, below). A further 4% of pottery was identified as being MBA, with 7% Romano-British and 0.1% Medieval and Post-Medieval. All Roman and later material was confined to the upper 0.1m of mound deposits.

Four small, roughly oval cuts (4141, 4143, 4145 and 4147; Fig. 2.21), each measuring c.0.1–0.2m in width and between 0.1m and 0.18m in depth (full details archived) were recorded from the north-eastern quadrant of KIII. The features appeared to cut charcoal layer 335, but did not disturb the chalk subsoil below (333/360). No finds were associated with these cuts. Chalk loam mix 333/360, below 335 and the main body of KIII, presumably represents the original buried plough soil/turf line.



Plate 2.8 Mile Oak, Trench K: Mound II during excavation. Viewed from the south-east. Scales 1m and 50cm.

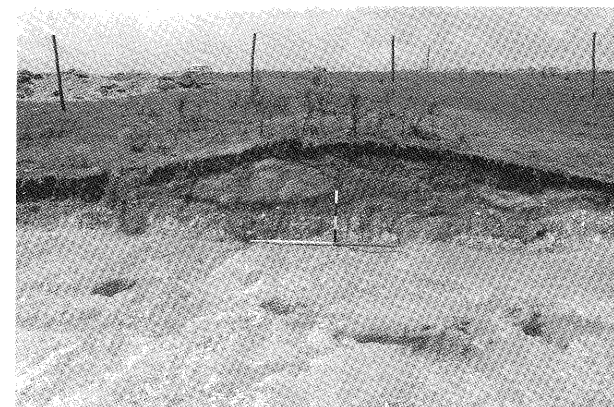


Plate 2.9 Mile Oak, Trench K: Mound III during excavation. Viewed from the east. Scales 1m and 50cm.

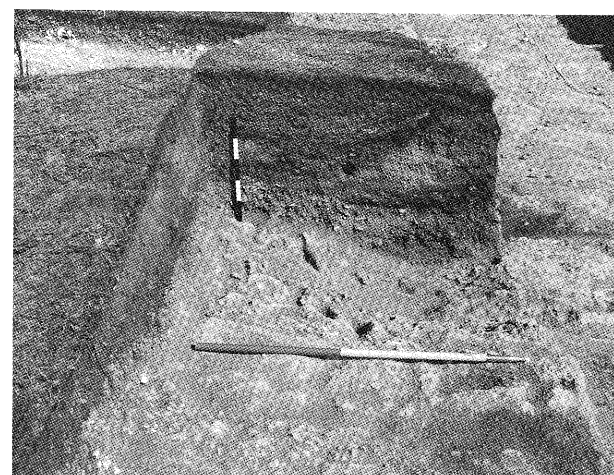


Plate 2.10 Mile Oak, Trench K: Mound III during excavation. Viewed from the south. Scales 1m and 50cm.

## Other features

Removal of topsoil deposits across Trench K revealed considerable amounts of fire-cracked flint and LBA pottery. Smaller quantities of Beaker, Iron Age and Roman pottery were also recovered (*see* Hamilton, below). Small, but discrete, scatters of molten copper alloy and lead, 'cut-off' pieces of copper alloy, worked stone and a number of baked clay and crucible fragments were located at the base of the



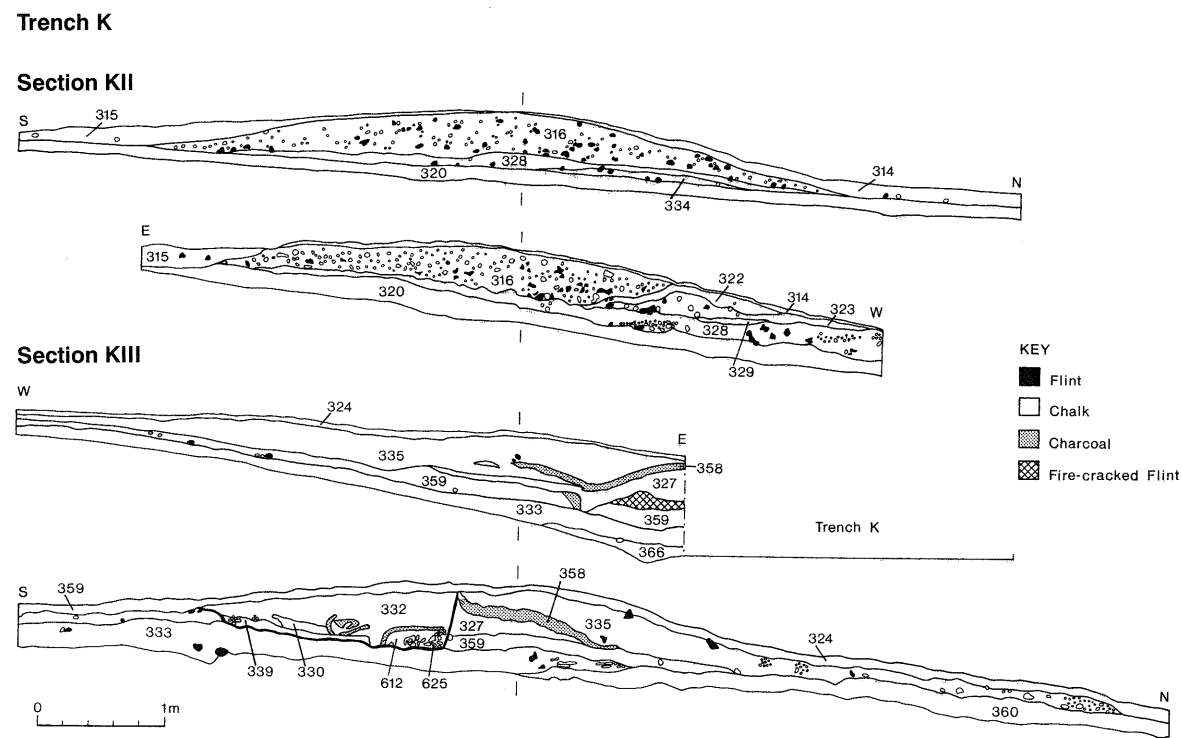


Fig. 2.20 Mile Oak, Trench K: KII and KIII. Main sections.

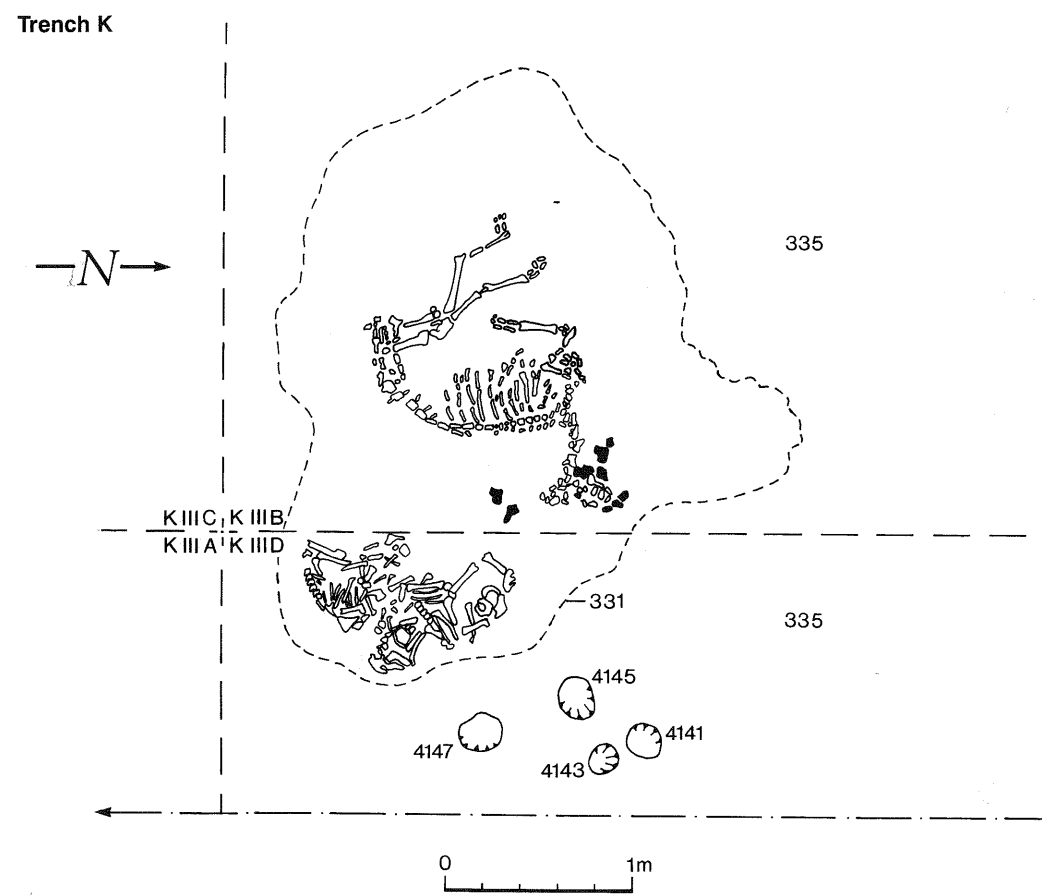


Fig. 2.21 Mile Oak, Trench K: Plan of features cut into Mound III, layer 376.

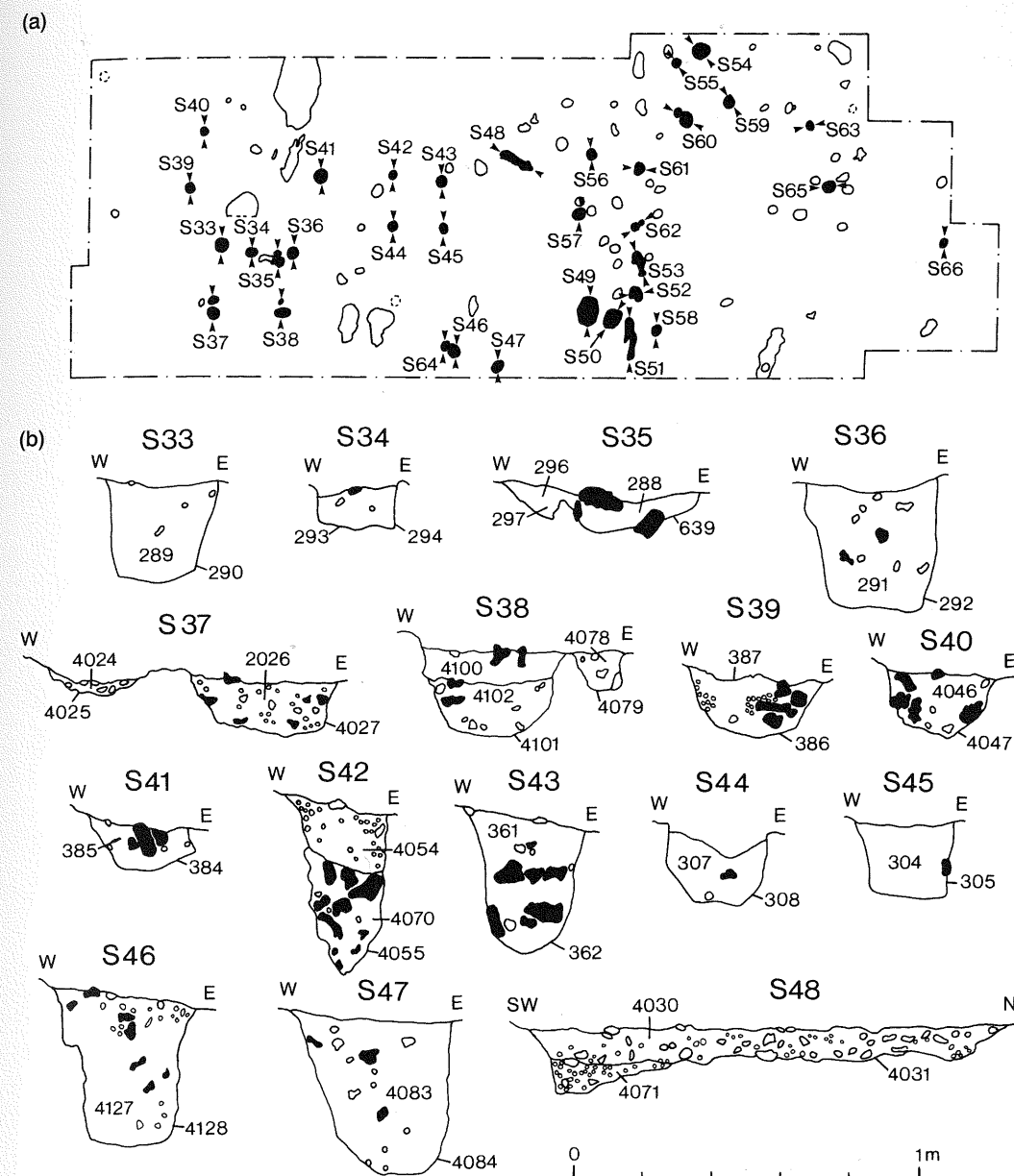


Fig. 2.22 Mile Oak, Trench K: (a) location of feature sections; (b) selected feature sections.

topsoil, at the interface with the natural chalk, during the initial hand-clearance (see specialist reports, below). The positions of these finds are recorded in Figure 2.19.

A total of 101 cuts and 13 apparently natural (root/solifluction) hollows were recorded from the chalk subsoil of Trench K (Fig. 2.18). Thirty-three of these features were recorded from beneath (being apparently sealed by) mounds KII and III. Features were divided into nine broad categories according to recorded dimensions, that is to say overall width, basic profile and depth (depth was not, however, considered to be an overriding criterion, due to both the gradient of the hill-side and the possible loss of archaeological deposits through later agricultural (lynchet) activity and/or chemical erosion):

- i Regular, well-faced, cylindrical, flat-bottomed cuts measuring between 0.34m and 0.4m in diameter and c.0.3-0.65m in depth (267, 290, 292, 4035, 4084, 4128, 4161, 4175).
- ii Regular, moderately well-faced, cylindrical, roughly flat-bottomed cuts measuring between 0.17m and 0.28m in diameter, and 0.14m and 0.3m in depth (271, 281, 285, 294, 305, 308, 313, 384, 386, 607, 4067, 4080, 4101, 4122, 4124, 4153, 4185, 4201, 4212, 4214).
- iii Moderately well-cut, roughly 'U'-profiled cuts measuring between 0.12m and 0.3m in width, and 0.12m and 0.3m in depth (273, 283, 362, 604, 4027, 4047, 4082, 4104, 4119, 4139, 4149, 4151, 4159, 4181, 4203).
- iv Large, irregular-sided 'V'-profiled 'stake-driven' cuts measuring between 0.17m and 0.31m in diameter, and 0.39m and 0.63m in depth (4033, 4055, 4059a, 4177).
- v 'Stake-driven' holes between 0.05m and 0.1m in diameter (297, 303, 4025b, 4059b, c, d, e, f, g, h, 4079b, c, 4174, 4179, 4207).
- vi Shallow features where basic form could not be determined (279, 287, 301, 380, 4004, 4025a, 4037, 4074, 4118, 4165, 4183, 4187, 4189, 4199).

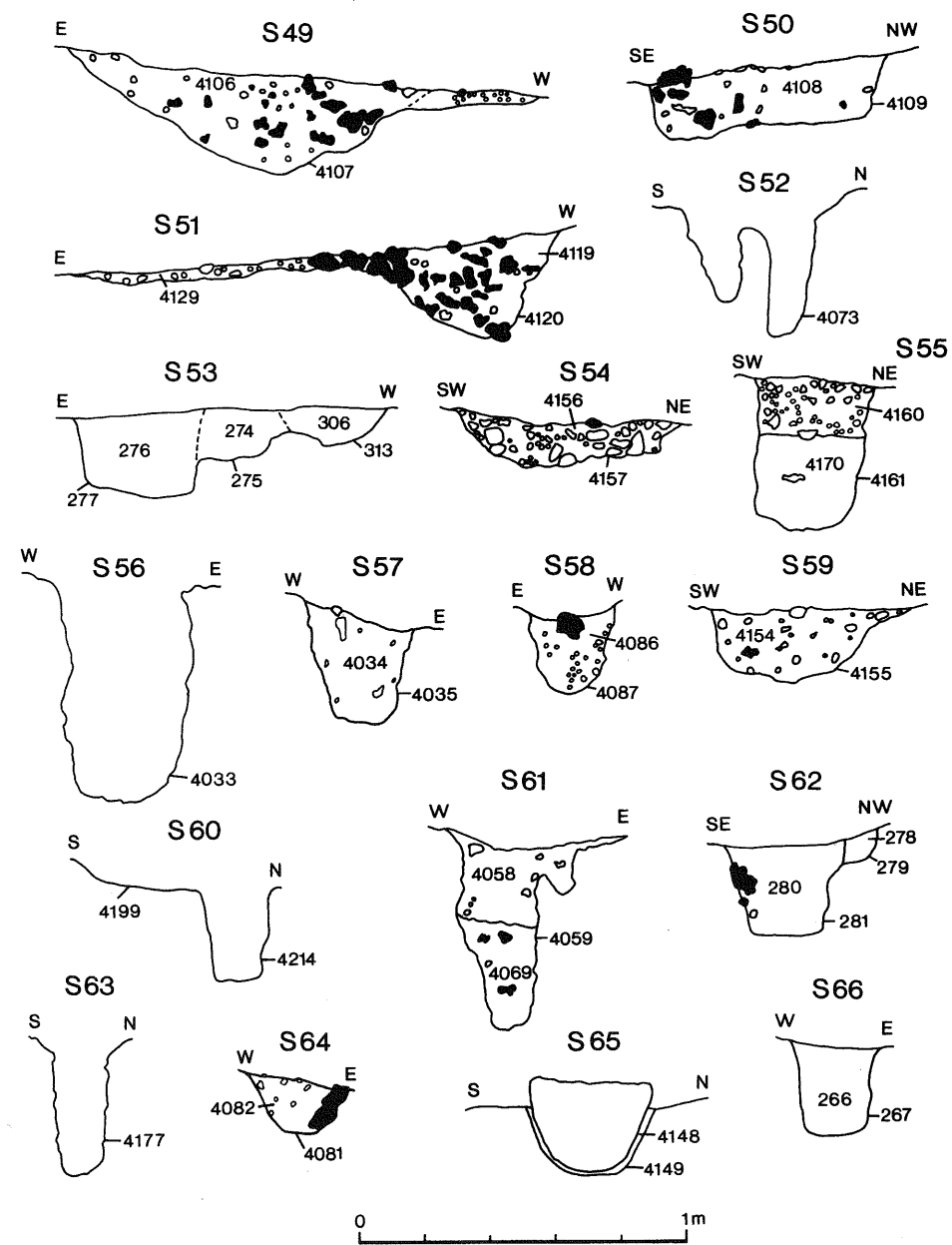


Fig. 2.23 Mile Oak, Trench K: Selected feature sections.

- vii Rectilinear cuts, both probable and possible (275, 277, 639, 4031, 4073, 4077, 4079a, 4090, 4120, 4163, 4191).
- viii Cuts over 0.45m in overall diameter (378, 388, 4043, 4107, 4109, 4155, 4157).
- ix Solifluction hollows, both probable and possible (312, 382, 4029, 4172, 4183, 4187, 4193).

LBA pottery was retrieved from cuts 267, 277, 292, 305, 639, 4028, 4031, 4033, 4035, 4101, 4104, 4107, 4109, 4120, 4183, 4199 and 4210, while MBA sherds were recorded from cuts 4104 and 4141. A single Beaker sherd (residual?) was also retrieved from cut 4109. Romano-British sherds were recovered from cuts 4033 and 4157. Fragments of deer skull recovered from the fill of cut 386 have produced a radiocarbon determination of  $3050 \pm 80$  (1520–1050 cal BC: OxA-3154).

#### Interpretation

The majority of the Trench K finds assemblage appears to be Later Bronze Age in date, although residual Beaker (Late Neolithic/EBA) and later Iron Age/Romano-British elements were also recorded. The Beaker pottery elements, as they appear to congregate from within and around the area of Mound KII, presumably relate to an area of as yet undetected Beaker activity (settlement/burial) to the immediate north or north-west of the excavated area. Cuts 4033 and 4157 appear to be of Romano-British date and may relate to an area of Roman activity to the west of the trench.

There are a number of problems associated with the interpretation of the Trench K feature plan. First, it should be noted that not all features recorded from Trench K were

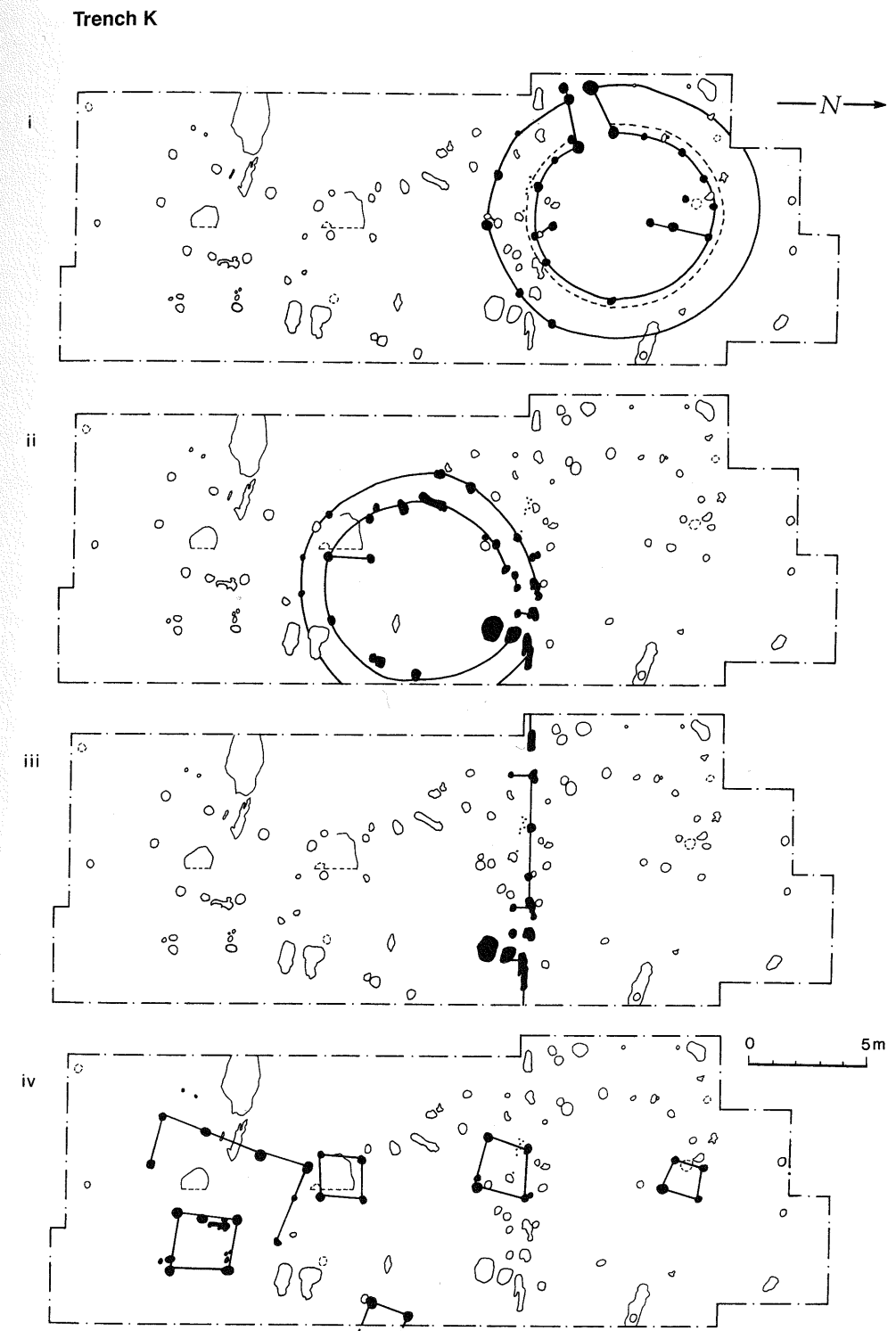


Fig. 2.24 Mile Oak, Trench K: Possible interpretations of post plan.

necessarily contemporary (only a limited number have produced datable artefacts and some of these finds may have been residual). Second, it should be borne in mind that the area exposed within Trench K represents only a sample of the total area of archaeologically defined activity on this part of the hill (see Trench J interpretation, below). Third, unlike Trench 27, no discernible terrace cuts, defining and separating distinct activity loci, were recorded from this particular trench. Further difficulties arise when it is considered that not

all structures, post-built or otherwise, would necessarily have penetrated the chalk subsoil and that chemical/plough erosion, however minimal, may already have erased certain, less substantial features (cf. Guilbert 1975: 214–20).

Four basic interpretations of the post plan are, nevertheless, presented here (Fig. 2.24). These interpretations are in no way intended to be definitive, and alternative readings of the basic field data may well be possible (cf. Bradley *et al.* 1980; Ellison 1987; Reece 1988: 106–7).



### 1. Round-house A

'Round-house A' is represented by 12 post-holes (271, 4181, 4175, 4177, 4119, 4155, 4214, 604, 4059, 281, 273, 4139), forming a circle 7.9m in diameter. These post-holes may be viewed as forming part of an internal ring of roof supports (*cf.* Guilbert 1981). In this reconstruction, post-holes 4155 and 4214/4199 appear to form a south-west-facing entrance structure. Cut 4149, containing an almost complete Later Bronze Age pot (*see* Hamilton, below) may be interpreted as a storage pit, while post-holes 4203, 4185, 4201 and 4212 may represent the remains either of interior furnishings, or a more permanent form of internal partition. Stake-holes 4059b, c, d, e, f, g and h may indicate the former position of an external wall (fragments of clay daub were recovered from post-hole 4077 – *see* Russell, below), which would suggest that the structure may originally have enclosed an area of around 8.86m in diameter. The basic building plan is, in this respect, closely comparable to that of Hut 6 from the Later Bronze Age settlement of Eldon's Seat in Dorset (Cunliffe and Phillipson 1968: Fig. 2.6; Guilbert 1981: 310, fig. 8).

An alternative reading of the post plan would suggest that 4207, 4157, 4161, 4122, 4033, 4035, 4118 and 4087 may originally have supported the fabric of an external wall, with 4157 and 4161/4159 functioning as an extended point of entrance. It should, however, be noted in this respect, that no prehistoric finds were recovered from cut 4157, the only datable material being four sherds of Roman pottery. If the second structural post ring is accepted as representing the original outer wall of the building, this would imply an overall diameter of around 11.6m (*cf.* Hut 1, Standlake Down: Riley 1946; House A, Shearplace Hill: Rahtz and ApSimon 1962; Guilbert 1981: figs 7 and 8). It is possible, however, that this outer ring of posts represents a second, distinct phase of construction (*cf.* Hut complex 3887, Winklebury Camp: Smith 1977; Guilbert 1981: fig. 1).

### 2. Round-house B

In plan, 'Round-house B' is composed of up to 19 plank slots/post-holes (4077, 4067, 4029, 4055, 303, 301, 283, 287, 4037, 4074, 4031, 4043, 4090, 362, 308, 4004, 4082, 4128, 4084) forming a putative double ring (*cf.* Ellison 1987: fig. 2, V) measuring c.10.9m in overall diameter. In this particular interpretation plank/post-slots 4120, 4037, 4118, 277, 275, 313 and 285 represent a north-facing entrance structure (*cf.* Britnell 1989: figs 7, 8, 11, 12), while features 4107, 4109 and 388 may be viewed as representing internal storage pits.

The evidence for Round-house B is, however, far from convincing, although similarly-sized Bronze Age round-houses have, in the past, been interpreted from less conclusive data (*cf.* Huts B3101, B3110, B9, B18: Moore and Jennings 1992: 16–17, 36; J. Moore 1994, pers. comm.). If plank/post-slots 4120–313 did originally constitute an entrance point to a round-house, then it would appear that little of the main body of internal roof supports or external wall structure have survived into the archaeological record.

### 3. Fenceline

The fenceline interpretation is based primarily upon the position of plank/post-slots 4163, 313, 275, 277, 4073 and

4120 (identified in Fig. 2.24 as representing the remains of two door structures or points of entrance) relative to feature 4191 and post-holes 4059 and 281/279. This linear alignment of plank/post-slots may, however, be fortuitous, especially if post-holes 4059 and 281 originally formed part of the inner circle of roof supports for Round-house A (*see* above). It is unfortunately impossible, without additional excavation to the immediate east and west of Trench K, to take the fenceline interpretation any further.

### 4. Four-post structures

It is possible to suggest the presence of at least 4 four-post structures, FP1 (formed by post-holes 4101, 292, 290, 4027 and plank/post-slots 4079, 297, 639, 4025a and b), FP2 (post-holes 305, 362, 4055, 3081), FP3 (post-holes 281/279, 4059, 4033, 4035/4074), FP4 (post-holes 271, 4181, 4185, 4203) and one five/seven-post structure, FP5 (post-holes 386, 4047, 4080, 384, 607/303 and 312). The identification of FP1 would appear constructionally sound, especially as slots 4079, 297, 639 and 4025a and b appear to indicate the former presence of a planked wall (*cf.* the Neolithic house structure recorded from Flag Fen: Pryor 1974: fig. 4). The grouping together of post-holes to form FP2 is marginally less convincing, although 388 may here indicate a contained working hollow or floor cavity. The patterning of posts within FP3 and FP4 is probably coincidental, with 4059 and 281, 4181 and 271 appearing to form part of the internal post ring of Round-house A (*see* above). No exact pattern is clear for post-holes 286, 4047, 4080, 384 and 607 forming FP5, however, they may originally have enclosed, at least in part, depression 378. Stake-holes 4179 and 4174 could also have been part of this grouping.

Rectangular settings of posts, four, six or nine in number have been recorded from a variety of Later Bronze Age and, more specifically, Iron Age settlement sites (Gent 1983: 260–62). Such post groups, where identified, are usually described as representing the remains of raised storage units or granaries (*cf.* Pitt-Rivers 1898: 55; Bersu 1940: 97–8; Reynolds 1972: 7), although other interpretations, for example shrines (Piggott 1968: 61), workshops (Stanford 1966: 7–8), house structures (Stanford 1970: 110–12), fighting/exposure platforms or watch towers (Ellison and Drewett 1971) and blacksmiths' forges (Bedwin and Holgate 1985: 220), have, rather less frequently, been proposed. The blacksmith's forge interpretation, although originally suggested for a series of Iron Age sites in Denmark (Hvass 1975; Becker 1980), is particularly interesting with regard to the Mile Oak, Trench K features, if only for the close recorded association between four-posters, the charcoal/baked clay mound (KIII) and the Later Bronze Age metallurgical debris assemblage (*see* Wallis, below).

The interpretation of apparently square or rectangular settings of post-holes from archaeological sites has, in the past, proved somewhat problematical. A major factor in this problem is that the recorded group of four, six or nine posts may not originally have defined the shape of the structure's external wall. At West Farleigh, Kent, for example, a 12m diameter timber round-house was successfully constructed upon a 6m square, four-post framework (Russell and McGuinness 1987: 4–12). The building, which survived the hurricane of 1987 with very little structural damage, was demolished in 1990 and excavated the following year, when it was observed that only the basic four-post setting, a

pattern wholly unrepresentative of the building's external form, had survived into the archaeological record (K. Wilkinson 1991, pers. comm.).

The interpretation of surface features KII and KIII, as with the post plan, has proved problematical, but for different reasons. Both mounds appear, from the recorded pottery and worked flint assemblages (*see* Hamilton and Underwood, below), to be Later Bronze Age in date (Roman and later pottery being confined to the uppermost mound deposits, while the few Beaker sherds may be residual). The exact relationship of the mounds to the recorded post plan is, however, difficult to ascertain, although post-holes 386, 4047, 4080, 384 and 4214, 4199, 4155, 4119, 4172, 4172 appear to be sealed by KIII and KII respectively. An alternative possibility is that the circularity of Round-house A originally defined the outer limit of KII (and was not, therefore, a domestic structure in the proper sense) and that FP5 and FP1 formed the structural limits of KIII, with FP1 perhaps forming an entrance or point of access for whatever activities were performed within the mound itself. Without firm stratigraphic associations, however, this alternative interpretation can be taken no further.

The problem is not, unfortunately, helped by the observed stratigraphic disruption of the mounds (ploughing and sheep burials) and the observed variance in structural make-up (Fig. 2.20), KIII being composed largely of charcoal and baked clay. This variance may, however, be purely superficial, especially if, as is suspected, both mounds relate to some form of LBA pyrotechnical activity. The four cut features recorded from within KIII (layer 335) may possibly represent the remains of some sort of fixed constructional element to this particular mound (Hagedoorn *et al.* 1990: 10). Unfortunately, no finds were associated with the features and, as the areas to the immediate south-west and east had both been extensively disturbed by sheep burial and machine excavation, the full extent, date and nature of these cuts must remain unknown.

The quantity of fire-cracked flint, baked clay and charcoal recorded from both KII and KIII may justify the description of 'burnt mounds' (*cf.* Holgate 1987; Buckley 1990; Hodder and Barfield 1991). A number of burnt mounds, generally represented by oval, crescentic or kidney-shaped deposits of charcoal and heat-shattered stone, found in close proximity to a stream or other water source, have been recorded from a variety of Later Bronze Age contexts within the British Isles (Barfield and Hodder 1989). A few elaborately structured burnt mounds have been interpreted as specialised cooking or food preparation sites (O'Kelly 1954; Hedges 1975; Barfield 1991), areas of salt production (Drewett *et al.* 1988: 111; Barfield 1991: 62–4) or textile manufacture (Jeffrey 1991: 105) or as prehistoric saunas or sweat houses (Barfield and Hodder 1987; O'Drisceoil 1988). The setting of Mounds KII and III, some distance from any known source of running water (Young and Lake 1988: 2–3, 89–91) would appear to preclude the latter suggestion, although the former, that of a specialised cooking area, remains a possibility (however, the overall quantity of animal bone debris recovered from the mounds, with the obvious exception of the secondary sheep burial, was not high: *see* Stevens, below).

If KII and III are to be interpreted as specialised cooking areas, then parallels may be drawn with two other Bronze Age mounds, containing burnt deposits, recorded from Sussex, namely Clayton Hill, 8km to the north-east of Trench K, and Burpham, 20km to the east. The Clayton

mound was destroyed in 1805 during the course of flint digging (Horsfield 1824: 43). It was recorded as consisting of burnt stone (presumably fire-cracked flint) and contained 'several fire places, a large quantity of wood ashes and many bones of different animals' (Cooke n.d.: 117). A miniature vessel or incense cup (Curwen 1954; Musson 1954), of a type usually associated with urns in an EBA burial context (Drewett *et al.* 1988: 69), was recovered from the central area of the mound (Cooke n.d.: 118; Horsfield 1824: 43). Cooke interpreted the mound as representing the remains of a 'camp-kitchen', though the incense cup and nearby discovery of a Bronze Age cremation urn (Horsfield 1824: 43–4) suggests the presence of burial elements.

The Burpham barrow was excavated, at least in part, by Mr H. Collyer in the presence of the Croydon Scientific Society during September 1893 (Curwen 1922: 13–15). The mound itself was recorded as being 1.5m high (Lovett 1894) and surrounded by a 'fosse' or ditch, making a total inclusive diameter of 17.4m (although the dimensions of the mound do not appear to have been noted: Curwen 1922: 13). At least two trenches were driven into the mound and it was noted that, approximately 0.3m above the chalk was a layer of 'carbonaceous matter' (Lovett 1894: 80–82). No primary burial deposit was retrieved from the excavated area, although the Curwens put this down to the apparent non-supervision of the workforce. A large number of animal bones were, however, exposed during the course of the excavation, but quantity and nature were not recorded in any detail (Curwen 1922; J. Roles 1991, pers. comm.). An unornamented urn containing ashes was recovered some 3m from the approximate centre of the mound. Whether this represents an original burial deposit remains in dispute, as both urn and contents disintegrated on exposure (Curwen 1922: 13).

Aside from a specialised cooking area, KII could also be interpreted as the remains of a prehistoric clearance cairn (*cf.* the Post-Medieval cairn recorded from Trench W – *see* below). Alternatively, it may be viewed as an utilised stack of raw material (fire-cracked flint, clay etc) necessary for the manufacture of pottery, or the residue of pyrotechnical activity similar to that recorded from, or associated with, the charcoal Mound KIII.

At least four basic interpretations are possible for KIII: cooking area (as above); charcoal burner's mound; pottery kiln; area of metalworking activity/furnace. Little is known about charcoal production, pottery manufacture or metalworking in the British Later Bronze Age, although all activities were presumably conducted on a localised basis to serve the needs of individual communities. Analysis of prehistoric pottery fabrics, where conducted at defined downland settlement sites, certainly appears to suggest the widespread use of locally available tempers such as chalk, flint and shell (Drewett *et al.* 1988: 31). No obvious residue taken to be indicative of *in situ* pottery manufacture (such as wasters or perforated clay slabs: *cf.* Adkins and Needham 1985: 37–8, fig. 12), was noted from Trench K (Hamilton 1992, pers. comm.), however, it is possible that any such material, if originally present, would not have survived long in the archaeological record. It is not certain what remains, other than the charcoal itself, would be left from any putative prehistoric charcoal-burning activity.

The fourth interpretation, that of metalworking activity, is perhaps the most plausible for KIII (and possibly also KII), given the close proximity of metallurgical debris to the mound (Fig. 2.19). Rowlands (1976: 8–19) has suggested



that the activities of a Bronze Age smith may be divided into three main stages of production:

- i Melting of scrap metal/copper ingots within a charcoal-filled furnace (*cf.* Tylecote 1986: fig. 8).
- ii Production of moulds and casting of required object.
- iii Post-casting and finishing work.

There is evidence for all three of these stages at Trench K in the form of a charcoal and baked clay mound (Stage i), fragmentary 'cut-off' pieces of metalwork (Stage i), two fragments of crucible (Stages i and ii), a series of molten lead and copper alloy droplets (Stages i and ii), a possible fragment of clay mould (Stage ii) and a number of stone artefacts for use in grinding/sharpening (Stage iii).

No single example of a metallurgical furnace has yet been positively identified from a secure Bronze Age context in Britain (Tylecote 1986: 23; Timberlake 1994: 122; S. Needham 1993, pers. comm.), so exact comparisons for the Trench K mounds are impossible. Recent work in experimental furnaces (e.g. Bareham 1994; Timberlake 1994) may, however, point the way for possible identification. An experimental, clay-lined furnace bowl, for smelting tin, was constructed at Flag Fen in 1994 in the upper section of an earthen mound (Timberlake 1994: 122) as it was reasoned that a furnace placed within a mound would be better insulated than one placed within a pit below ground level (*cf.* Tylecote 1986: fig. 8). In section the experimental furnace (Timberlake 1994: fig. 2.2) bears a remarkable resemblance to the KIII mound, and it is not unreasonable to suggest that this was in fact the function of the Mile Oak example. Similar furnaces, this time for casting bronze, have also been built and successfully operated by the East Sussex Archaeology and Museums Project at Michelham Priory (Bareham 1994; pers. comm. 1996), and a brief abstract of their work and comparison with the Mile Oak mounds accompanies this text (*see* Bareham, below).

#### Trench J (Figs 2. 2 and 2.25 (Appendix 4))

The field lynchet sampled by Trench J proved archaeologically unrewarding, consisting of little more than a slight linear depression in the chalk subsoil. Three subsurface features, cylindrical cuts 259, 261 and 299 were however, recorded from the northern half of the sample area. Cut 259 survived to a depth of 0.17m and was 0.5m wide. Cut 261 measured 0.42m in diameter and was 0.09m deep. Cut 299 measured 0.16m in diameter and survived to a depth of 0.05m.

Small quantities of molten lead and copper alloy, marine shell, worked flint and LBA pottery were recovered from the machine-excavated topsoil within the northern half of the trench, together with 11,410g of fire-cracked flint.

#### Interpretation

The features recorded from within Trench J appear to indicate an area of LBA structural activity. The extent and nature of this activity is unknown, although the discovery of metallurgical debris from within the immediate vicinity of the three cuts/post-holes may suggest a continuation of the LBA settlement/industrial working area recorded from within Trench K, 4m to the north-east.

#### Trench M (Figs 2. 2 and 2.26 (Appendix 4))

As with Trench J, the field lynchet sampled by Trench M proved archaeologically unproductive. Four subsurface features, cuts 236, 238, 240 and 242, were, however, recorded from within the approximate central area of the trench. Cut 238 consisted of an oval feature 0.12m deep and measuring 0.62m × 0.34m in width. Cut 240 was extremely shallow, surviving to a maximum depth of 0.06m and measuring 0.34m in diameter, while cut oval 242 measured c.0.36m in width and survived to a depth of 0.1m. Cut 236, at the extreme northern edge of the trench, possessed regular, well-cut edges and measured 0.26m in diameter, surviving to a depth of 0.24m. LBA pottery and firecracked flint were recovered from the fill of this feature. A further 230g of fire-cracked flint, 460g of MBA and LBA pottery and three fragments of marine shell were recovered from the machine-excavated topsoil around 236.

During August 1989, a 3.5m × 2m wide extension was cut by hand at the northern edge of Trench M in an attempt to expose fully cut 236 and to ascertain whether any further areas of subsurface archaeology survived within the immediate vicinity. No additional archaeological features were uncovered.

#### Interpretation

If interpreted as post-holes, the features recorded from within the central portion of Trench M presumably relate to an area of LBA activity separate and distinct from those zones of activity sampled by Trenches J and K. The full extent, nature and character of the Trench M field data must, however, unfortunately remain unknown.

#### Trench N (Fig. 2.2)

Trench N was positioned to section part of the north-west/south-east aligned hollow trackway, running from the general area of Cockroost Hill to the centre of the dry valley, which lay to the immediate west of the modern flood dam. A series of seven irregularly edged, linear north-west/south-east aligned cuts were detected at the base of the trackway (details archived). Three of the features produced seventeenth- to twentieth-century metalwork, glass, clay pipe stem and pottery. A single sherd of Beaker pottery, a Late Neolithic/EBA plano-convex flint knife, two notched flakes and a single straight scraper were among finds retrieved from the machine-excavated topsoil (*see* below: full details archived).

#### Interpretation

The linear 'cuts' recorded from the base of Trench N presumably represent wheel ruts of Post-Medieval vehicles using the north-west/south-east aligned trackway leading to the upper slopes of Cockroost Hill. The presence of Late Neolithic/EBA finds is interesting, due to the proximity of the trench to the Trench 27 Class II henge. It is, however, possible that these surface finds represent the accumulation of hillwash deposits from either the presumed area of Late Neolithic/EBA activity on the higher ground around Trench K to the north-west (*see* K interpretation, above), or the area around Trenches F, H, L, M or W to the immediate west.

#### Trenches A, H, I, Q, W and V (Fig. 2.2)

Lynchet preservation at Mile Oak was disappointing, those features sampled by Trenches H–V being too affected by erosion and later ploughing to be of any archaeological interest (details archived). The lynchet/field bank sectioned by Trench A, at the extreme western edge of the site, was preserved to a maximum height of 0.4m. However their feature produced only a single, heavily abraded sherd of Romano-British pottery (Samian ware) (when cut back to recover dating evidence). The soil column here was not considered worthy of further study (K. Thomas 1989, pers. comm.).

Other archaeological features sampled within lynchet trenches consisted of a comparatively recent dump of soil and refuse material at the westernmost limit of Trench A and a flint-clearance cairn containing nineteenth-century pottery at the eastern edge of Trench W. All details concerning these trenches have been archived.

#### Trenches C, D, E, F, L and P (Fig. 2.2)

Trench P sampled an area of modern trackway, F sectioned a comparatively recent 'trough hollow' (H. Cross 1989, pers. comm.), while Trench L disturbed the solid chalk backfill of a groundwater borehole excavated in 1978 (Young and Lake 1988: 90; H. Cross 1989, pers. comm.). Trenches C, D, E and G all proved archaeologically sterile.

## THE FINDS

### The worked flint

#### David Underwood

A total of 2676 humanly struck flints was recovered from deposits other than topsoil at Mile Oak.

#### Raw material

The raw material for the assemblage was nodular chalk flint with a fresh, unabraded cortex, probably extracted from primary bedded flint deposits. Such deposits exist at Cockroost Hill (J. Gardiner 1990) some 500m from the site at Mile Oak.

The flaked surfaces of the flints are patinated bluish-white to white. The degree of patination varies considerably even among conjoining flakes from the same context.

#### Technology and typology

The composition of the assemblage is: 2595 unretouched flakes; 35 cores and 46 tools. The range and quantities of tool types are shown in Table 2.1.

Some 97% of the assemblage is accounted for by unretouched débitage. A large sample of these flakes was subjected to statistical analysis on technological and metric attributes as part of a research thesis at the Institute of Archaeology, University College London (Underwood 1991; *see* also archive report). It was found that the mean breadth:length ratio of flakes was around 1:1. The majority of pieces had been removed from the core with a hard

**Table 2.1** Mile Oak: The representation of flint tool types.

Type	Count
Convex scraper	14
Straight scraper	8
Multiple scraper	1
Notched flake	1
Denticulate	2
Burin	1
Retouched blade	4
Retouched flake	11
Leaf arrowhead	1
Plano-convex knife	1
Hammerstone	2
TOTAL	46

(presumably flint) hammer. Evidence of faceted striking platforms or of the removal of overhangs from the dorsal edge of the platform was rare. The size of the striking platform in relation to flake size was high, showing that the core was generally struck well away from the striking platform edge. The overall tendency was therefore to a lack of control of standardisation of flake production.

Within these general tendencies, multivariate statistical classification revealed two distinct categories of flake. The majority ('Class B', comprising 73% of the sample) were squat thick flakes of irregular outline. Flakes of 'Class A' (27% of the sample) tended to be thinner and more elongated (mean breadth:length ratio around 2:3) with parallel lateral edges and dorsal ridges. There was a slight proportional over-representation of Class A flakes both in the lower fills of the enclosure ditch *and* in the LBA mounds in Trench K.

Variation within the Mile Oak flintwork and the behavioural implications arising from it formed the basis for the author's MA thesis, where they are treated in detail (Underwood 1991).

The flint-bearing contexts analysed (containing at least three unretouched flakes or one tool or one core) are grouped below as follows. Disturbed or later contexts are only included where they contain individually catalogued pieces (DIS).

#### Contexts in the house-platform interior (NIT):

- Round-house 1 (H1)
- Round-house 2 (H2)
- Round-house 3 (H3)
- Other house-platform contexts (HP)

#### Early ditch fills (ED):

- Primary fill (D1)
- Secondary fill (D2)

#### Later ditch fills (LD):

- Tertiary fill (D3)
- Final fill (D4)

#### Mounds in Trench K (M)

#### Undated pre-mound contexts (PM)

#### Isolated context 3180 (3180)

#### Contexts not attributed to any phase (UN)

By far the greatest concentration of all classes of artefact is from Trench K mounds, followed by the settlement interior and the later ditch fills of Trench 27, with a slight over-representation of retouched pieces in the latter. Otherwise the distribution of cores and tools seems to reflect overall flint density. It may tentatively be suggested that Round-house I was a focus of flint-working or use relative to the other buildings, but it is not known what taphonomic processes may have intervened, so that the extent to which the contents of 'round-house' contexts represent activity - *in situ* is highly uncertain.

The concentration of flint in the upper ditch fills may be interpreted as refuse from the house platforms. The presence of four conjoining flakes and a core in the tertiary fill indicates that at least some of this material is primary knapping waste.

As part of the research mentioned above (Underwood 1991: 13-18) the distribution of flake Classes A and B over context groups was investigated. Class A flakes were proportionally over-represented both in the earlier ditch fills and in the Trench K mound contexts. Class B flakes were over-represented in the house platform and later ditch contexts. The latter point reinforces the suggestion that the later ditch fills contain refuse from the round-houses.

The over-representation of Class A flakes in both the early ditch fills and the LBA mounds argues against the early ditch fill assemblage being significantly older than the rest of the site, although the attributes defining Class A are in themselves suggestive of earlier flintwork.

Analysis of the distribution of residual cortex shows there to be no significant variation between context groups which might have served to identify the spatial differentiation of various stages of flintworking.

**Table 2.2** Mile Oak: The distribution of major flint artefact classes by smaller context groups.

Contexts	Unret. Flakes	Tools	Cores
H1	220	1	-
H2	48	1	1
H3	66	-	3
D1	57	-	1
D2	17	2	1
D3	384	11	7
D4	101	1	-
M	1348	17	13
PM	-	-	3
3180	-	1	-
DIS	82	9	4
UN	29	-	1
TOTAL	2352	43	34

**Table 2.3** Mile Oak: The distribution of major flint artefact groups by larger context groups.

Contexts	Unret. Flakes	Tools	Cores
NIT	426	4	5
ED	74	2	2
LD	485	12	7
M	1348	17	13
PM	-	-	3
3180	-	1	-
DIS	82	9	4
UN	29	-	1
TOTAL	2444	45	35

Given that the over-representation of finer flakes in Trench K appears not to result from chronological or technological factors, it seems most likely that it is related to function in the broadest sense. The activities determining the use and discard of flint artefacts caused proportionally more of the finer flakes to be deposited in the Trench K mounds than within the building platforms and enclosure ditch of Trench 27.

Although the condition of the material did not permit direct functional analysis, the shape of Class A flakes makes them potentially suited to fine cutting tasks (*cf.* 'cutting flakes': Ford 1987: 68). This hints at a division of flint-using activity between the Trench K area and the settlement of Trench K.

The refitting of three Class B flakes and one Class A flake onto a core (no. 1035, Context 2658) from an upper ditch fill of Trench 27 shows that the two flake categories are not chronologically diagnostic. It seems reasonable to suggest that the straight-edged flakes may have had a particular (cutting?) function which resulted in their differential deposition within the site. However, the patinated condition of the material prohibits precise functional analysis which might test this hypothesis.

The technology and typology of cores corresponds to that of the flakes in terms of lack of standardisation and control of working. Nine of the 35 cores have straight-edged parallel flake negatives corresponding to the production of Class A flakes.

Only 1.7% of pieces in the total assemblage were retouched to form tools. The tool inventory is dominated by pieces formed using non-invasive retouch on hard-hammer flake blanks. The range of types represented is limited (*see* Table 2.1, above). Only two pieces bear invasive (possibly soft-hammer) retouch: the leaf arrowhead (*see* Catalogue No. 1) and the plano-convex knife (*see* Catalogue No. 12). The former is characteristic of the earlier Neolithic (Green 1980: 92) and is residual in an upper ditch fill deposit. The latter is probably Late Neolithic or EBA (Holgate 1988a: 27) and was found in a disturbed context.

### Discussion

The flint assemblage at Mile Oak possesses characteristics which have been identified by Ford *et al.* (1984: 167) as typical of Later Bronze Age flint industries: lack of control and standardisation in flake production technology, and a restricted range of apparently rudimentary implement types. It is suggested (*ibid.*) that these tendencies reflect the increasing importance of metal as a raw material for edged tools. Although the very high proportion of unretouched material at Mile Oak is at odds with the findings of Ford *et al.* (1984) for this period, it is wholly consistent in this respect with the assemblage from the Later Bronze Age settlements at Black Patch (Drewett 1982b) and Downsview (*see* Section 7) and this may be seen as a result of the immediate availability of raw material.

Detailed attribute analysis of the Mile Oak *débitage* refined this general picture by distinguishing a class of straight-edged, relatively elongated flakes. The question as to whether these pieces were cutting tools must remain open, given the impossibility of use-wear analysis on patinated flint. The retouched tools have potential functions (scraping, whittling, boring) potentially associated with woodworking.

From the flintwork alone it is not possible to identify a significantly earlier phase of occupation on the site. The

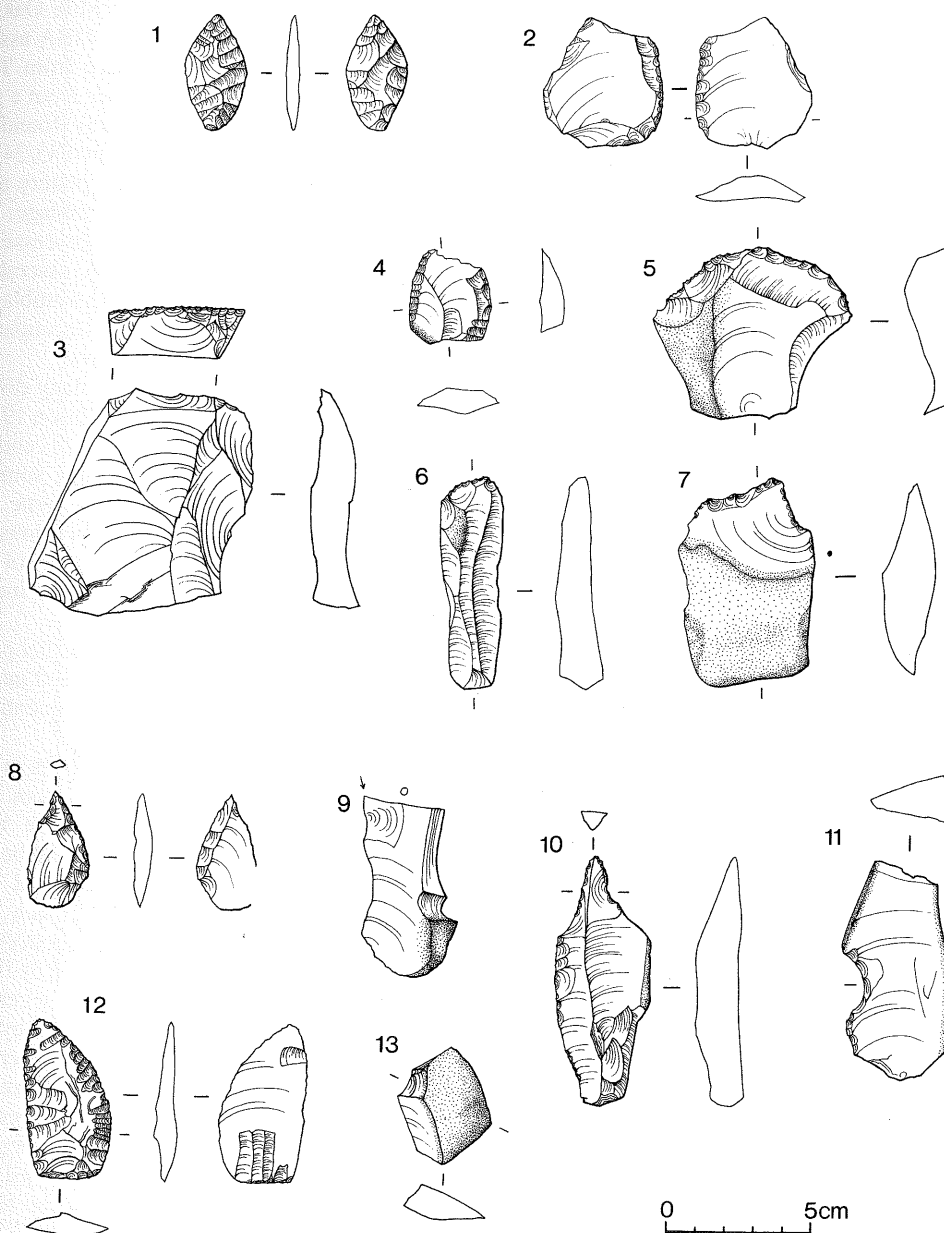
flintwork in the lower ditch fills is not distinguishable from that in the LBA mounds in Trench K. The presence of two probably Neolithic artefacts in residual contexts should not be taken as more than an indication of some earlier human presence in the vicinity of the site.

The overall conclusion is that the Mile Oak flint assemblage represents the use on an *ad hoc* basis of a plentiful local resource to make tools for domestic tasks within the settlement.

### Catalogue of the illustrated flintwork (Figs 2.27 and 2.28)

1. Bifacially surface-flaked leaf arrowhead. Probably Early Neolithic. Context 3063. Fill of ditch 243. Trench 27.
2. Bifacially retouched hard-hammer flake with straight bifacially retouched right lateral edge. Context 3441. Fill of ditch 243. Trench 27.

3. Endscraper; robust straight scraper edge on distal end of large flake. Context 3181. Cut 3180. Trench 27.
4. Multiple scraper; hard-hammer flake with three scraper edges. Context 4017. Mound KII. Trench K.
5. Transverse scraper; robust convex scraper formed on the distal edge of a broad hard-hammer flake. Context 3361. Fill of ditch 243. Trench 27.
6. Endscraper; convex endscraper on the distal end of a hard-hammer blade. Context 3376. Fill of ditch 243. Trench 27.
7. Sidescraper; very short and broad hard-hammer flake with straight scraper edge on one lateral edge - the overall shape is that of an endscraper. Context 2694. Fill of ditch 245. Trench 27.
8. Borer; borer on lateral edge of a distal flake fragment. Context 2625. Fill of ditch 243. Trench 27.
9. Burin; burin facets on both edges of a distal fragment of a blade, originating from the broken end. Context 4018. Mound KII. Trench K.
10. Borer; robust borer formed on the distal end of a thick



**Fig. 2.27** Mile Oak: Flintwork.



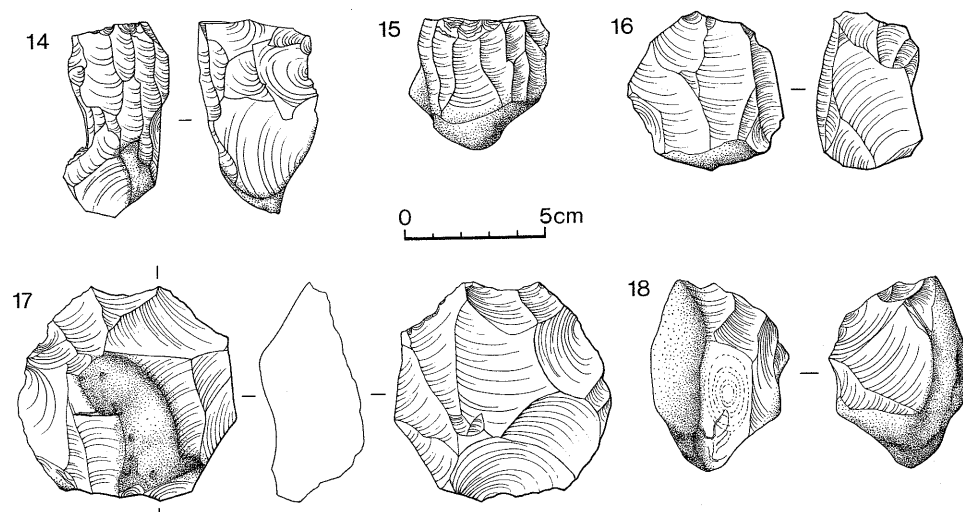


Fig. 2.28 Mile Oak: Flintwork.

- hard-hammer parallel-sided blade. Context 344. Mound KIII. Trench K.
11. Notched flake; hard-hammer flake with deep retouched notch in left lateral edge. Context 4098. Mound KIII. Trench K.
  12. Plano-convex knife; knife on flake blank. Invasive retouch covering dorsal surface. Left lateral edge straight (pre-planned cutting edge), converges with convex right lateral edge at distal end. Bulbar region thinned by long parallel inverse retouch scars made from proximal end. Probably Late Neolithic. Context 228. Topsoil. Trench M.
  13. Notched flake; hard-hammer flake with retouched notch in left distal corner. Context 4018. Mound KII. Trench K.
  14. Core Type A1. Context 4127. Fill of cut 4128. Trench K.
  15. Core Type A2. Context 2708. Fill of ditch 245. Trench 27.
  16. Core Type A2. Context 4011. Topsoil. Trench K.
  17. Discoidal Core. Context 3433. Fill of ditch 243. Trench 27.
  18. Bifacial Core. Context 4006. Mound KIII. Trench K.

### The Mile Oak pottery assemblage - its stratigraphic context, forms, fabrics, chronology and regional significance

Sue Hamilton

#### Introduction: the nature of the Mile Oak assemblage and its stratigraphic context

The Mile Oak pottery assemblage is the largest extant Bronze Age assemblage from a single excavation in Sussex. The recovered assemblage comprises 12,070 sherds, of which 1765 sherds are MBA, 9376 sherds are LBA, 14 sherds are Neolithic/EBA, 803 sherds are Romano-British, and 112 sherds are Medieval and Post-Medieval. Just over 70kg of pottery was recovered, including some 19kg of MBA pottery and 47kg of LBA pottery. Prior to the Mile Oak excavations, the largest Sussex Bronze Age pottery assemblage was that from Black Patch comprising 1,192 MBA sherds, weighing just over 15kg (Drewett 1982b).

The Bronze Age pottery from Mile Oak encompasses two major assemblages, namely an MBA assemblage from Trench 27 and an LBA assemblage from Trench K. The MBA pottery comprises *in situ* finds from a group of associated settlement features (particularly Round-houses I-III), and rubbish accumulation in ditch 243/245/1557 which encircles the settlement. The MBA pottery averages much larger sherd sizes than the LBA assemblage. This has interpretative implications relating to the processes of site usage/abandonment. The Trench K LBA assemblage is topographically separate from the MBA assemblage and is strikingly different in the predominantly secondary nature of its stratigraphic deposition/accumulation.

The MBA assemblage includes many distinctive forms characteristic of the Sussex MBA (Ellison 1978: 34; Ellison 1982), particularly types associated with central Sussex, and west of the River Adur. Interestingly, some East Sussex types, and one Deverel-Rimbury type ('horse-shoe' cordoned bucket urn (Fig. 2.31: 30) previously absent from Sussex, are also present. A wider diversity of influences and forms is evidenced at Mile Oak than that indicated by pre-existing Sussex MBA assemblages.

The LBA assemblage dates to the earlier part of the LBA. It predominantly consists of undecorated jars and bowls. It is interpreted as being immediately sequential to the MBA Mile Oak assemblage.

The MBA pottery from Mile Oak was in a poor state of *in situ* preservation. The LBA sherds from Trench K were eroded, suggesting sustained exposure after breakage during the time of LBA site activity and beyond. Some of the Mile Oak assemblage suffered arson while in post-excavation storage. Most (c. 95%) Trench 27 pottery was *not* in this store - c. 50% of Trench K pottery was also elsewhere. None of the pottery was affected by fire to the extent that the identification of pottery fabric or ceramic form was compromised. Some sherds were affected by 'smoking' and in these instances original colouring has been obscured. The site and context codes on marked sherds survived the fire. Approximately 30% of the fire-damaged sherds were unmarked at the time of storage. Where recovery of the bag labels was not possible, sherds are published as de-stratified. Contexted pottery from nearly all of the features remains (and certainly from the key features). The pottery is fully tabulated to facilitate independent assessment of the data.

### The stratigraphic implications of the Mile Oak Bronze Age pottery

#### Introduction

The impact of arson de-stratification on the Trench 27 assemblage was minimal. The pottery from Trench K suffered greater disruption (c. 12% is de-stratified).

#### Trench 27: Round-houses I, II and III

All pottery from the round-houses is secure, with the exception of sherds from context 1594 (Round-house I) which were de-stratified. On ceramic grounds there is no reason to suggest that Round-house I was occupied later than Round-

All quoted radiocarbon dates have been calibrated according to data published by Pearson and Stuiver (1986) using the maximum intercept method A (Stuiver and Reimer (1986). Dates are quoted at two sigma (95% confidence).

#### Methodology

The pottery was analysed using the pottery recording system recommended by the Prehistoric Ceramics Research Group (PCRG) (1992). All sherds were assigned a fabric type, after macroscopic examination and the use of a binocular microscope (x20 power), and then counted and weighed to the nearest whole gramme. Each diagnostic sherd was assigned a form/decorative/technological type (PCRG 1992: 16-18).

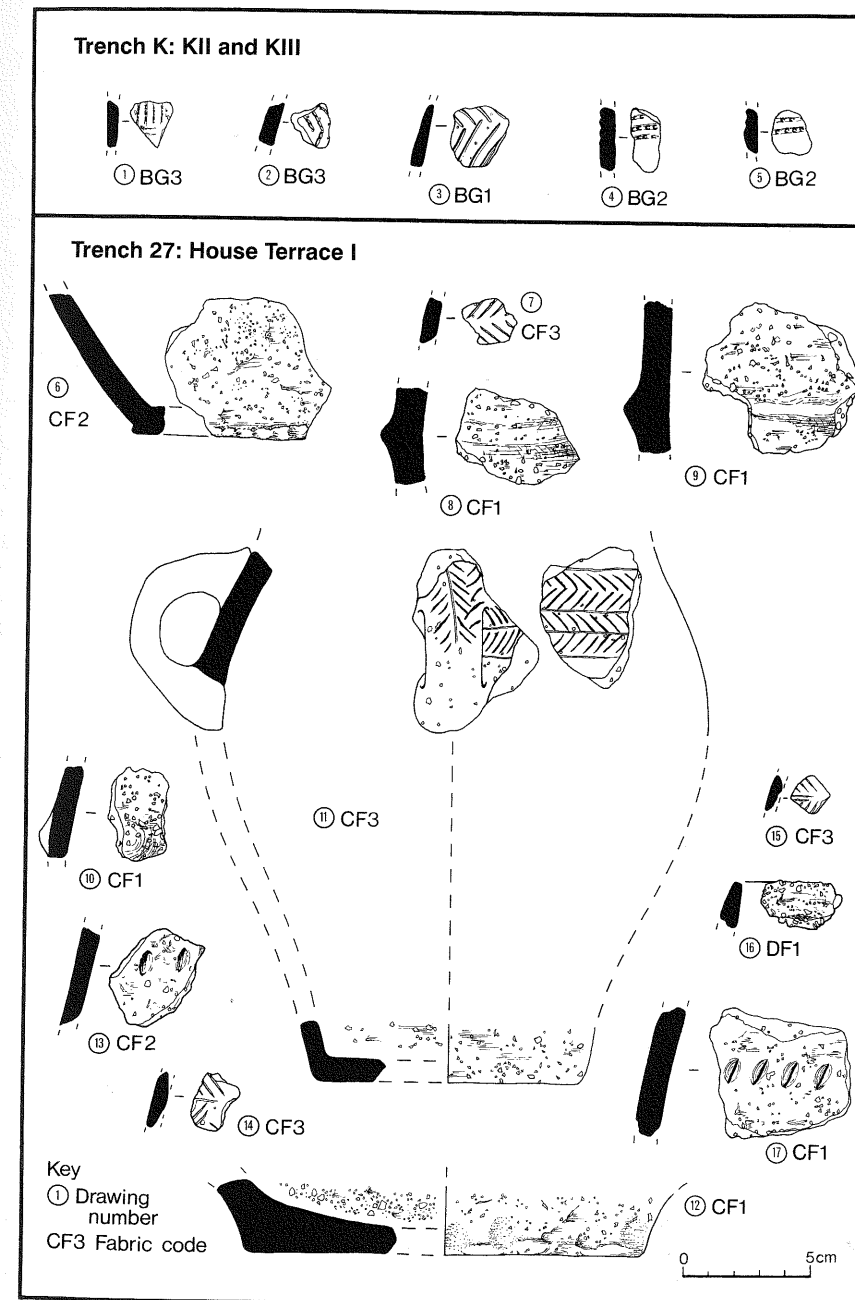


Fig. 2.29 Mile Oak, Trench K: Beaker pottery; Mile Oak, Trench 27: House I: Middle Bronze Age pottery.

houses II and III. The presence of Late Bronze Age fabrics (DF3, DF4, DF5, DF8) in Round-houses I and III, and the presence of some Late Bronze Age forms in Round-house II (Type 1, Ellison 1978: 32) and Round-house III (Type 13, Ellison 1978: 32) indicates chronological overlap in the use of the three structures. Similarly, no chronological disparity is apparent between the pottery from the midden infill phase of the enclosing ditch (243/245/1557, which butted against the area occupied by Round-house I) and the pottery recovered from the round-houses.

#### Area A: Round-house I

Of the three round-houses, Round-house I produced the greatest quantity (c.7kg) and range of pottery (Table 2.4 (Appendix 4)). Round-house I pottery included large coarse

ware 'heavy duty' (Ellison 1982: 362) bucket-shaped storage urns (Fig. 2.29: 8, 9), medium-coarse 'everyday ware' (Ellison 1982: 362) ovoid jars (Fig. 2.29: 10), and a fine ware globular jar with bar handles and incised geometric decoration (Fig. 2.29: 11). This range of wares and forms suggests that Round-house I was used for multiple functions encompassing food storage, food preparation and food serving. The large size of the sherds and the 'complete' condition of several of the vessels suggests that the building was either abandoned suddenly, or that the prevailing tradition of site abandonment was to leave the pottery behind. The weight of recovered pottery stands closest comparison with the weight recovered from Hut 1, Platform 4 at Black Patch. Of the excavated buildings at Black Patch, Hut 1 produced the greatest weight of pottery (5.46kg) and is interpreted as being associated with food preparation and storage (Drewett 1982b: 340, Table 3).

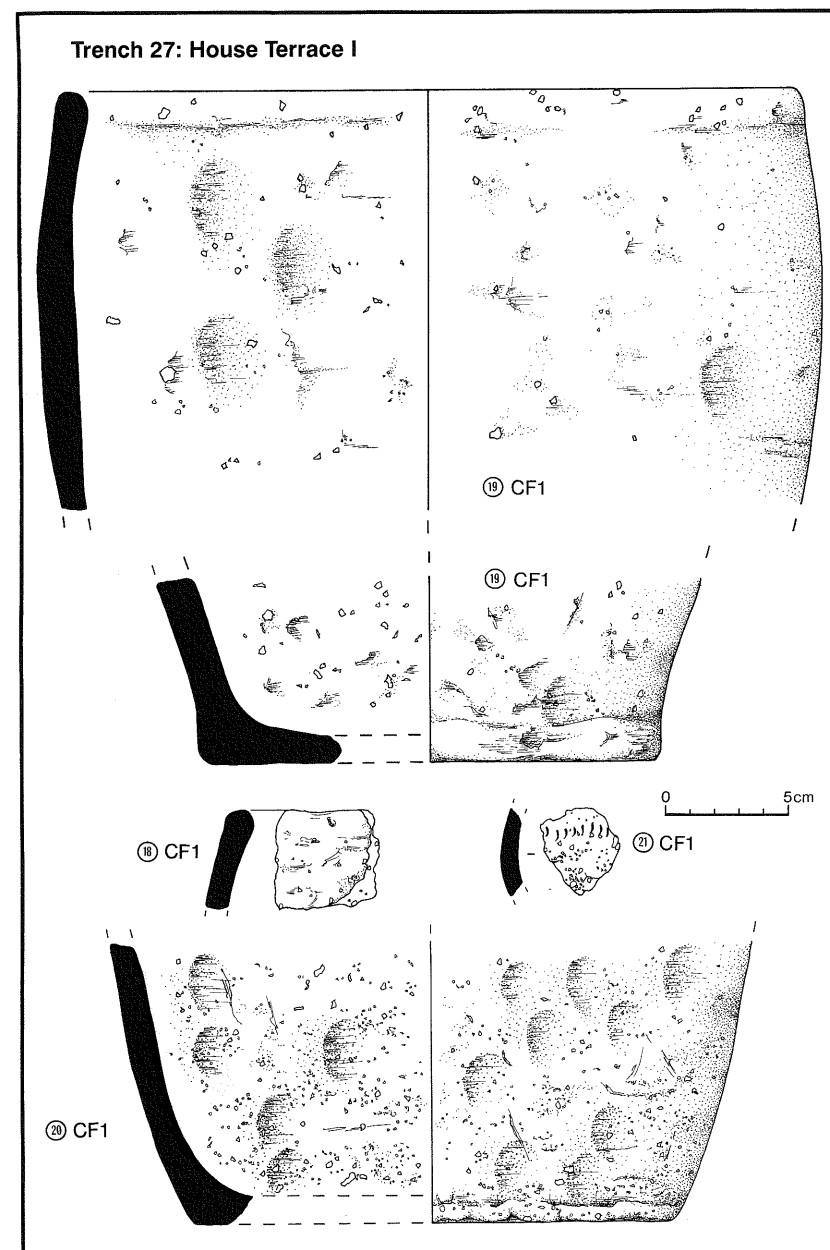


Fig. 2.30 Mile Oak, Trench 27: House I: Middle Bronze Age pottery.

#### Area C: Round-house II

Round-house II produced 0.8kg of pottery (Table 2.5 (Appendix 4)). The sherds were less numerous and more widely scattered than for Round-house I. This could indicate the absence of complete vessels at the time of, or as a result of, house abandonment. It must be noted, however, that disturbance to the Round-house I fill by the JCB excavator was unfortunately substantially more than for Round-houses II and III. Sherd fabrics and the few diagnostic form sherds recovered from Round-house II suggest an emphasis on heavy duty coarse wares associated with large storage urns. A notable exception is a single incised sherd from a rare Sussex fine ware type (Type 15, Ellison 1978: 32). The quantity of pottery recovered compares with Hut 2 at Black Patch which produced 0.51kg of pottery (Drewett 1982b: Table 3) and is interpreted as being an ancillary structure, used for non-artefact based activities (Drewett 1982b: 340).

#### Area D: Round-house III

Just under 3kg of pottery was recovered from Round-house III (Table 2.6 (Appendix 4)). This mostly occurred as two concentrated scatters in the house terrace fill. These scatters largely comprised the remains of a large heavy duty shouldered jar with a cordon decorated with vertical stick impressions around the carination (Fig. 2.31: 27, 28). Part of a bucket urn with applied finger-impressed cordons more characteristic of Essex MBA traditions (Fig. 2.31: 30) was also recovered. Evidence of fine wares was minimal. All of the sherds were relatively large, averaging 11.5g per sherd (compared to an average of 9.5g and 9.8g per sherd for Round-house I and Round-house II respectively). This higher average sherd weight for Round-house III, in addition to reflecting the lack of fine wares, emphasises that whole pots were left *in situ* in the building on desertion. The quantities of pottery recovered have no exact comparisons

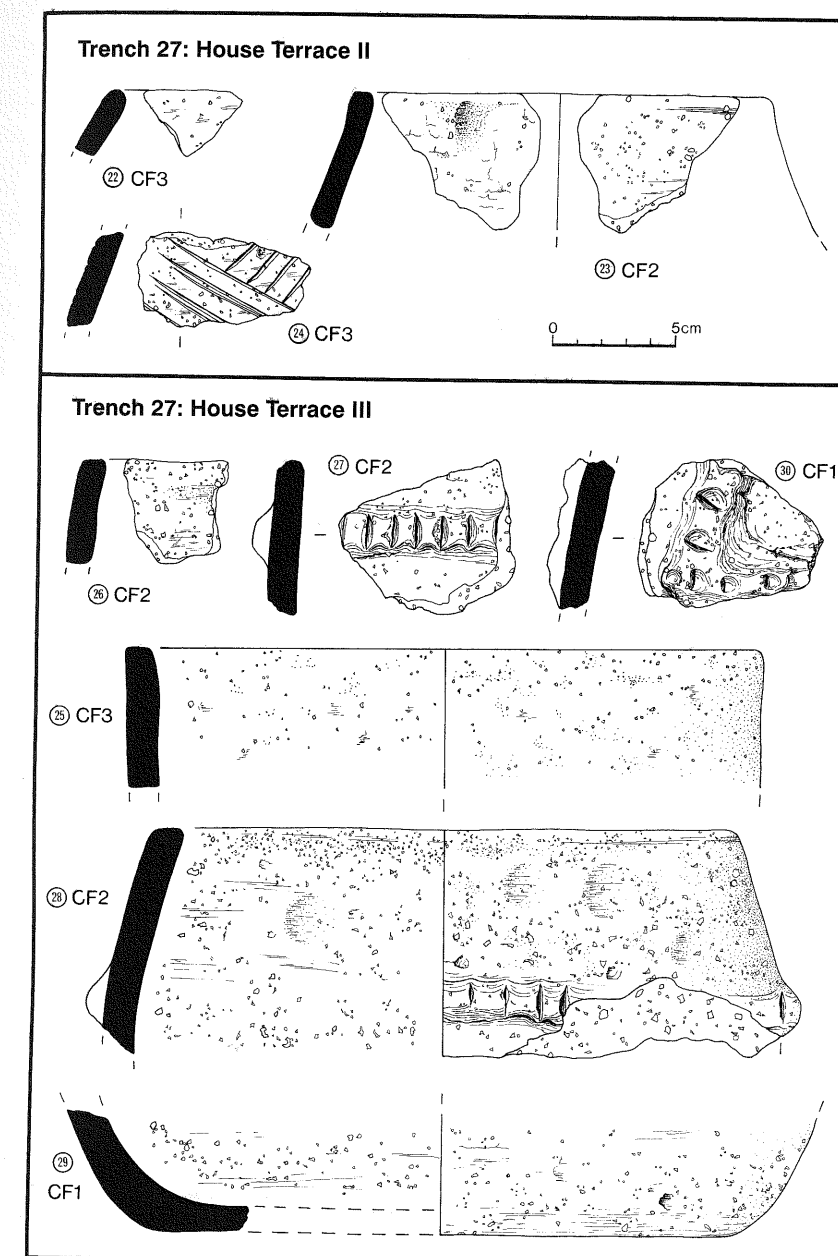


Fig. 2.31 Mile Oak, Trench 27: House II and House III: Middle Bronze Age pottery.



but most closely correlate with Black Patch Hut 3. The latter produced 1.9kg of pottery exclusively from heavy duty storage urns and is interpreted as a craft and storage hut (Drewett 1982b: Table 3; 340).

#### Trench 27: other contexts

Apart from the building terraces (*see above*) and ditch 243/245/1557 (*see below*), only minor quantities of pottery were recovered from other Trench 27 features (Table 2.7 (Appendix 4)). The more significant quantities of pottery are discussed below.

#### Cut 1504

Pottery finds from this feature (interpreted as a pond) comprised three small MBA sherds.

#### Feature 1401

Nine sherds of pottery were recovered from this negative lynchet. Five of these sherds were Romano-British, one Post-Medieval, and the others were MBA. The pottery evidence is not substantial enough to date the beginnings of lynchet formation, but ploughing activity certainly continued into, or was re-initiated, in the Roman period and/or later.

#### Feature 1403

This negative lynchet produced solely Bronze Age pottery. This feature partially disturbs the upper fills (and the midden deposits they contain) of ditch 243/1557. The presence of MBA pottery may therefore be a result of this disturbance. Another possible interpretation of the presence of MBA pottery is that lynchet formation was contemporary with the Mile Oak settlement, or related to subsequent ploughing of an area used contemporaneously with the

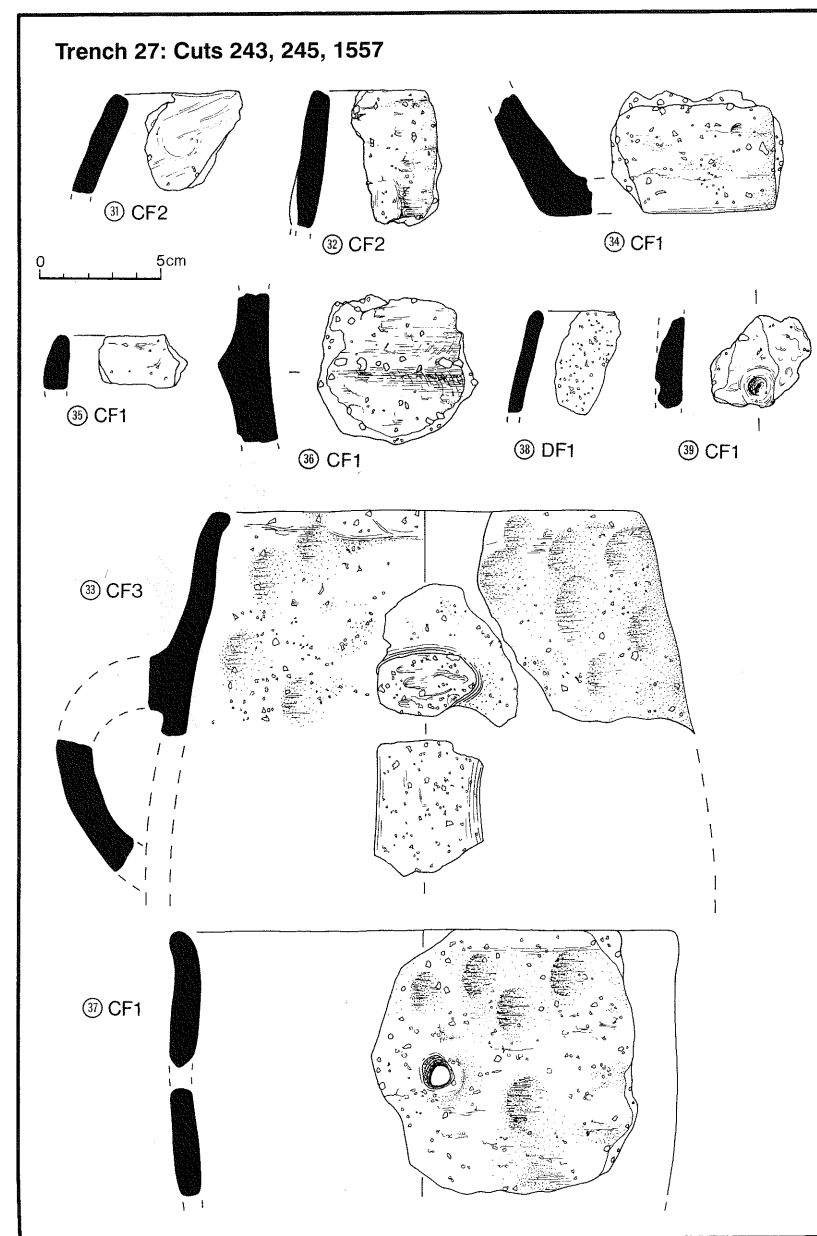


Fig. 2.32 Mile Oak, Trench 27: Ditch 243/245/1557: Middle Bronze Age pottery.

settlement. The lack of post-Bronze Age pottery could also argue in favour of this part of the field system relating to the Bronze Age settlement.

#### Ditch 243/245/1557

A proportion of ditch 243/245/1557 pottery (69 sherds) was de-stratified (Table 2.8: Us (Appendix 4)). This pottery originally came from Contexts 2642, 2664, 3447, 2631, 2680, 2752, 2756 (archive notes). All contexts remaining with allocated pottery are noted in Table 2.8 (Appendix 4). The contexts are ordered according to their suggested (M. Russell: phases I-VII) phasing.

A small number of sherds was recovered from the primary silts (Contexts 2642, 2664 and 3447). Some were so small and eroded that reliable identification was not possible. All of the latter were medium coarse flint-tempered plain body sherds which in Sussex are most characteristic of Bronze Age or earlier pottery. None contained grog and on this basis their identification as Beaker sherds was considered less likely. Some of the sherds were thin-walled enough not to exclude their identification as Neolithic sherds. Of the remaining stratified, securely identifiable sherds (unfortunately from disturbed Context 1592), all were MBA.

There is a clear presence of pottery (MBA sherds) from the middle phase (Phases IV and V) of ditch accumulation onwards. The most substantial quantities of pottery were recovered from the upper ditch fills (Phase VI). The topsoil from ditch 243/245/1557 produced sherds wholly comparable to that recovered from the upper ditch fills and comprised large uneroded sherds suggesting recent disturbance of *in situ* finds. The small number of sherds recovered from this topsoil indicates that the feature had received minimal disturbance post-deposition.

#### Trench K

##### Introduction

Trench K produced a LBA pottery assemblage which is quite distinct from the MBA assemblage of Trench 27.

##### Unstratified pottery

Considerable quantities of pottery were recovered from the initial machine clearance of Trench K. In addition, c. 12% of Trench K pottery is de-stratified. The majority of both of these categories of pottery comprises LBA sherds. This pottery is detailed in Table 2.9 (Appendix 4).

##### Stratified contexts

Approximately 7.1kg of Trench K pottery was recovered from stratified contexts. This pottery came from 36 cut features and amounted to 600 sherds (Table 2.10 (Appendix 4)). Some 92% of this pottery is LBA, 6.5% MBA, and just over 1% Romano-British. Some 90% of the pottery from Trench K topsoil is also LBA. These proportions of pottery clearly indicate a widely spread zone of LBA activity in the Trench K area.

Although there is a range of possible interpretations for Trench K features, the following points may be significant:

- i In one of the possible round-houses (*see above* 'Round-house A'); pit 4149 notably averaged 30.5g per sherd, all of which came from a large storage vessel which appears to have been abandoned *in situ*.
- ii The sherds recovered from another tentative round-house (*see above*, 'Round-house B') were smaller and more dispersed than those associated with 'Round-house A'. Post-hole 4004 contained a part of an MBA base. All other sherds were LBA. Most of these sherds were plain, body sherds, some with evidence of finger-furrowing (e.g. from cuts 4004 and 4054). Post-hole 4083 contained part of a splayed base, a characteristic LBA type.
- iii Cut 277 was the only feature to produce any pottery from the possible fenceline. This pottery comprised four LBA sherds.
- iv There is little ceramic dating evidence for the possible four-post structures. One LBA sherd was recovered from each of cuts 292 and 4101, and two LBA sherds from cut 4035.

#### Mound II

The roughly circular raised area which comprised Mound II produced 7.75kg of pottery. Some 88% of these sherds are LBA. Beaker and MBA pottery (Fabrics B, CF1, CF2: Table 2.11 (Appendix 4)) comprise 4% of the KII pottery assemblage. Romano-British, and Medieval pottery (Fabrics RB and M: Table 2.11 (Appendix 4)) comprise c. 8% of the KII assemblage. Discrete stratigraphic zonation of the KII assemblage is lacking. The presence of Medieval and Romano-British sherds, mixed with considerable quantities of MBA and LBA pottery within upper mound contexts, indicates some stratigraphic disruption. The mound and the buried soil do, however, clearly relate to a major phase of LBA activity. This LBA phase of activity is represented by a range of LBA plain ware pottery forms, including convex jars, hemispherical bowls and shouldered jars (Fig. 2.33: 49-54). Technical features characteristic of the LBA, particularly finger-furrowing and splayed bases (Fig. 2.33: 55) are also evident.

#### Mound III

##### KIII: pits and post-holes

With the exception of two residual MBA sherds (pit 387), pits 375, 378, 4045, and post-holes 384 and 386 are exclusively associated with LBA sherds (Table 2.12 (Appendix 4)). The majority of the latter are plain body sherds.

##### KIII: raised circular area

The majority (88.4%) of the pottery attributed to the KIII 'mound' is of LBA date (Table 2.12 (Appendix 4)). The 4% of MBA pottery present in the mound material is probably residual. Romano-British sherds comprise 7% of pottery recovered from the mound and are distributed throughout the upper levels of mound material. This may indicate once again that some stratigraphic disruption has taken place. Medieval sherds comprise 0.1% of the pottery from the KIII

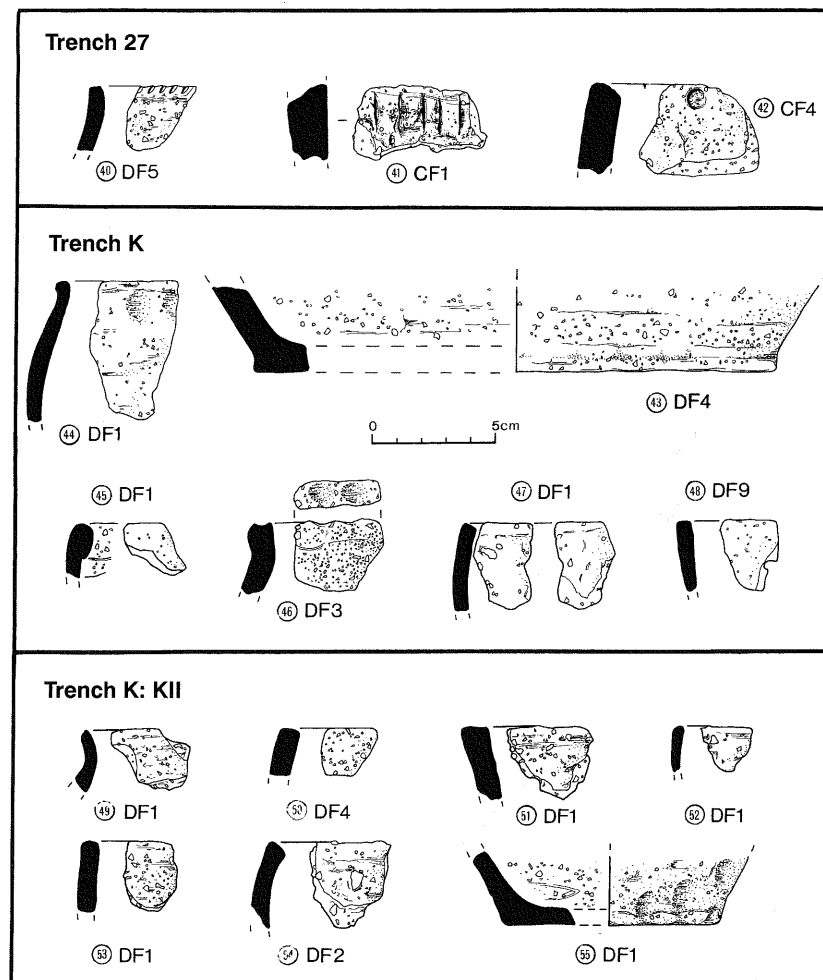


Fig. 2.33 Mile Oak, Trench 27 and Trench K: Middle Bronze Age and Late Bronze Age pottery.

'mound', and Post-Medieval sherds account for some 0.5% of the pottery. The Medieval and Post-Medieval sherds come from the upper layers of the mound. The LBA pottery, specifically the rim sherds, suggest the presence of a broad range of forms, namely a hemispherical bowl, convex-sided jars, and round-shouldered jars with out-turned rims, flat-topped rims, and 'T'-shaped rims (Fig. 2.34: 57), and a possible rim sherd from a fine ware bipartite bowl.

#### Trenches A–D, F–J, L–N, P–R, V and W

Most of these trenches produced very minor quantities of pottery (Table 2.13 (Appendix 4)). Trenches J and M are associated with moderate quantities of LBA pottery suggesting areas of LBA activity.

#### Mile Oak fabric series

##### Definition of fabric types

The fabric types within each series were established and defined on the basis of macroscopic inspection in conjunction with microscopic analysis at  $\times 20$  magnification. All in-

clusion/temper sizes are classified using the Wentworth sedimentary scale and descriptive terms (Krumbein and Pettijohn 1938: 30; PCRG 1992: 35). Density charts (PCRG 1992: App. 3) were used to standardise assessment of the quantity of inclusion/temper present in fabric matrices.

##### Creation of a fabric series

The Mile Oak fabric types are grouped by period (fabric series A–G). Some of the fabric types are already well-defined, with known chronological parameters. Other fabric types were chronologically placed in the series on the basis of the range of diagnostic form types associated with specific fabrics.

#### A Series: Neolithic fabric

##### Flint-tempered fabric

##### AF1 Medium-coarse flint-tempered fabric

Soft fabric with sparse (5% density) flint tempering of granule and very coarse sand sizes (c.1–4mm); matrix colour/firing – grey exterior, dark brown/black interior and core; sherd thickness – c.8mm.

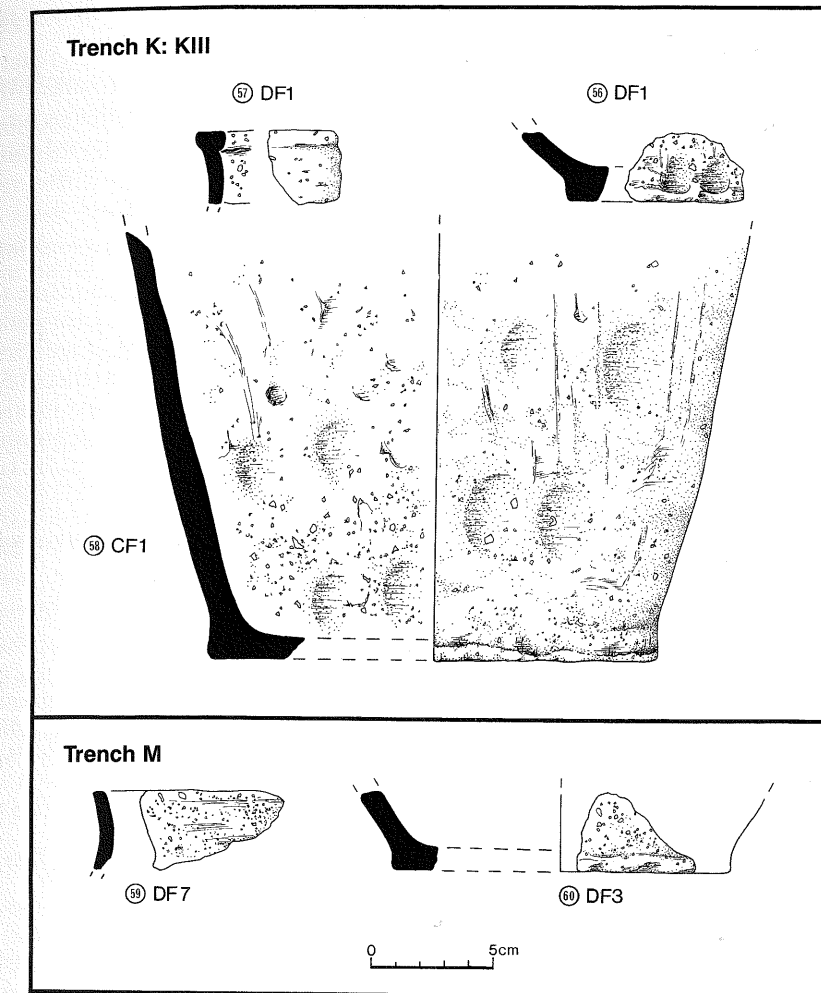


Fig. 2.34 Mile Oak, Trench K and Trench M: Middle Bronze Age and Late Bronze Age pottery.

#### B Series: EBA fabrics

##### Grog-tempered fabrics

##### BG1 Soft, grog-tempered fabric

Soft, macroscopically sand-free clay matrix containing a very common amount (30% density) of coarse sand-sized grog (typically c.1mm); matrix colour/firing – pinky-buff oxidised surfaces and an unoxidised core; sherd thickness – c.6mm.

##### BG2 Soft, grog-tempered with flint fabric

Soft, macroscopically sand-free clay matrix with moderately abundant (15% density) coarse sand-sized (c.1mm) grog and rare (2% density) granule (c.2mm) and pebble-sized (c.5mm) flint; orange matrix colour/firing – oxidised exterior surface and dark unoxidised interior surfaces and core; sherd thickness – c.12mm.

##### BG3 Soft grog-tempered with shell fabric

Moderately abundant grog (15% density) of coarse and very coarse sand size (c.1–1.5mm), together with rare (2% density) oyster shell temper of coarse sand size (averaging 1mm); matrix colour/firing – orange interior and exterior

surfaces and generally unoxidised cores; sherd thickness – c.12mm.

##### BG4 Soft grog-tempered with flint and shell fabric

The fabric is dominated by moderately (10% density) abundant very coarse sand-sized and granule-sized grog (c.1–3mm) together with rare (1% density) pebble-sized (c.5mm) oyster shell and rare (2% density) very coarse sand (c.1–2mm) size grade flint; matrix colour/firing – red to buff interior and exterior surfaces and core; sherd thickness – c.6mm cross-section.

#### C Series: MBA fabrics

##### Thicker-walled flint-tempered fabrics

##### CF1 Very coarse flint-tempered fabric

A moderate amount (15% density) flint temper comprising mostly pebble-sized (6–10mm) and granule-sized (2–3mm) pieces together with some very coarse sand-sized (1.5–2mm) pieces; matrix colour/firing – oxidised exterior surface, black-brown unoxidised cores and dark brown unoxidised or orange oxidised interior surfaces; sherd thickness – c.13–14mm.



**CF2 Coarse flint-tempered fabric**

Moderate (10% density) to common (20–25% density) flint temper comprising occasional pebble-sized (*c.*9mm), mostly granule-sized (*c.*2–4mm), and some very coarse sand-sized (*c.*1mm) grades of flint; moderate quantities (10% density) of fine and medium sand-sized grade quartz sand; matrix colour/firing – grey interior and exterior surfaces, and core; sherd thickness – *c.*12–13.5mm.

**CF3 Medium flint-tempered fabric**

Smoothed/compacted surfaces with common (20% density) flint temper of granule (2–4mm), very coarse sand (*c.*1.5mm) and coarse sand (*c.*0.5mm) size; matrix colour/firing – oxidised exterior surface, black-brown unoxidised cores and dark brown unoxidised or orange oxidised interior surfaces; sherd thickness – *c.*12.5–13mm.

**CF4 Fine and medium flint-tempered with mussel shell temper fabric**

Common (25% density) flint temper comprising occasional pebble-sized flint (*c.* 5mm) and quite numerous granule-sized flint (*c.* 3mm) together with numerous coarse and medium sand-sized flint; rare (1% density) granule-sized (*c.* 3mm) mussel shell temper; matrix colour/firing – exterior and interior surfaces and the core are oxidised orange; sherd thickness *c.* 9–13 mm.

**D Series: LBA fabrics****Chalk-tempered fabrics****DC1 Chalk-tempered fabric**

Rare to sparse (2%–3% density) chalk inclusions in a silty (inclusions <0.06mm) matrix; matrix colour/firing – red/orange or buff-coloured oxidised surfaces and dark brown unoxidised core; sherd thickness – *c.*8mm.

**DC2 Chalk-and-flint-tempered fabric**

Rare to sparse (2%–3% density) chalk inclusions together with sparse to moderate (7%–10% density) quantities of very coarse sand (*c.*1.5mm) and granule (*c.*2–3mm) size; matrix colour/firing – red/orange or oxidised surfaces and dark brown unoxidised core; sherd thickness – *c.*8mm.

**Thinner-walled flint-tempered fabrics****DF1 Coarse flint-tempered fabric**

Common (20% density) flint temper comprising occasional pebble-sized pieces (*c.*4mm) together with more numerous granule-sized (*c.*2mm) and very coarse and coarse sand-sized (*c.*1–0.5mm) flint; orange oxidised exterior and interior surfaces and core; sherd thickness – *c.*8mm.

**DF2 Scattered coarse flint-tempered fabric**

Moderately abundant (10% density) flint inclusions of granule-sized (up to 3mm) flint, together with very coarse sand and coarse sand (0.5–1.0mm) flint inclusions; matrix colour/firing – orange oxidised interior and exterior surfaces and a dark core; sherd thickness – *c.*9mm.

**DF3 Medium coarse flint-tempered fabric**

Moderate (15% density) to abundant (40% density) flint inclusions comprising quite frequent granule-sized inclusions (2–3 mm), occasional pebble-sized (5mm) flint and quite common very coarse sand-sized flint (0.5–1mm); matrix colour/firing – the core, exterior and interior surfaces are predominantly orange with some dark brown unoxidised patches (some cores are unoxidised); sherd thickness – *c.*7.5–10mm.

**DF4 Medium-coarse flint-tempered with quartz sand fabric**

Sparse to moderately abundant flint (7%–10% density) mostly of granule-sized flint (*c.*3mm) mixed with some very coarse sand (*c.*1mm). The clay matrix also contains sparse (3% density) transparent to translucent coarse sand-sized (0.5mm) quartz inclusions of low angularity; matrix colour/firing – surfaces and core generally buff or dark brown; sherd thickness – *c.*7–8mm.

**DF5 Medium-fine flint-tempered fabric**

Common (20% density) flint inclusions comprising granule and very coarse sand-sized (1.5–2.5mm) flint together with medium sand-sized (0.25–0.5mm) flint; matrix colour/firing – surfaces are oxidised orange with some dark brown smudging, dark brown unoxidised cores; sherd thickness – *c.*6–7mm.

**DF6 Medium-fine flint-tempered with quartz sand fabric**

Moderate to common (15–20% density) flint inclusions comprising granule-sized and very coarse sand-sized (1.5–2.5mm) flint together with medium sand-sized (0.25–0.5mm) flint – and sparse (5%–7%) quartz sand of predominantly medium sand-size (0.25–<0.5mm) grade; matrix colour/firing – surfaces are oxidised orange with some dark brown smudging, dark brown unoxidised cores; sherd thickness – *c.*6–7mm.

**DF7 Abundant fine flint-tempered fabric**

Very common (30% density) of flint inclusions comprising mostly coarse sand-size grade (*c.*0.5mm) together with granule-sized flint (mostly *c.*3mm and occasionally 4mm); matrix colour/firing – brown grey interior and exterior surfaces and dark brown unoxidised core; sherd thickness – *c.*8mm.

**DF8 Sparse fine flint-tempered with some fine quartz sand fabric**

Sparse (7% density) coarse sand-sized (0.5–1mm) flint, together with sparse (5% density) very fine quartz sand (*c.*0.125mm); matrix colouring/firing – orange oxidised interior and exterior surfaces and a dark brown unoxidised core; sherd thickness – *c.*5.5mm.

**Iron-oxide fabrics****DIO1 Iron oxide fabric**

The fabric is dominated by the presence of very common (30% density) pisolitic iron oxides of medium sand size (*c.*0.4mm) together with moderate (15% density) medium (*c.*0.3mm) quartz sand; matrix colouring/firing – leather-brown partially oxidised exterior surface with dark brown unoxidised interior surface and core; sherd thickness – *c.*9mm.

**Sandy fabrics****DQ1 Medium quartz sand fabric**

Moderate to common (15%–20% density) medium (0.25–0.5mm) and fine (0.123–<0.25mm) quartz sand; matrix colour/firing – variable but most commonly buff-coloured oxidised exterior and interior surfaces and dark brown unoxidised cores; sherd thickness – *c.*7mm.

**DQ2 Fine quartz sand fabric**

Moderate to common (15%–20% density) and fine (0.123–<0.25mm) quartz sand; matrix colour/firing – mostly buff-coloured oxidised exterior and interior surfaces and dark brown unoxidised core; sherd thickness – *c.*6mm.  
Shelly fabric

**DS1**

Sparse to moderate (7%–10% density) soft shell fragments (fossil shell?) of pebble-sized (*c.*4mm) and granule-sized (*c.*2–3mm) grades; matrix colour/firing – dark buff or orange-coloured exterior surface and dark brown unoxidised core and interior surface; sherd thickness – *c.*10.8mm.

**E Series: Romano-British**

The Romano-British fabrics were not studied in detail. Some 719 sherds of Romano-British were recovered and were ascribed to six major fabric groupings.

**EF1 Medium-flint-and-grog-tempered fabric**

A moderate amount (10% density) of very coarse sand (1.5–2mm) flint temper, together with a sparse to moderate amount (7–10% density) of granule-sized (2–3mm) pieces of grog; matrix colour/firing – oxidised red/orange surfaces and core.

**EG1 East Sussex Ware (also known as Cooking Jar Fabric)**

This fabric has been defined by Green (1977, 1980) and is particularly characterised by its 'soapy' feel.

**EQ1 Medium-grained sandy wares**

These wares comprise a moderate (10–15% density) to common (20–30% density) medium size (0.5mm or less) sub-rounded to rounded quartz sand grains; matrix colour/firing – three wares are identified on the basis of surface

fired colour: (i) unoxidised grey surfaces, (ii) oxidised orange surfaces, (iii) oxidised buff surfaces.

**EQ2 Fine-grained sandy wares**

A moderate to common (15–20% density) amount of fine (0.25mm or less) sub-rounded quartz grains; matrix colour/firing – oxidised orange throughout.

**EQ3 Very fine silty fabric**

A very fine fabric which contains a common amount of microscopic quartz silt measuring *c.*0.1mm; matrix colour/firing – oxidised orange throughout.

**ES Samian ware****F Series: Medieval**

A small number of Medieval sherds was recovered. These were ascribed to four general fabric groupings and did not receive detailed study.

**FG1 Grog, scattered quartz sand and medium flint fabric**

Sparse to moderate (5%–7% density) inclusions of granule-sized (2–3mm) pieces of grog together with rare (15%–25% density) medium quartz sand (0.25mm) and very coarse sand size (1mm) flint; matrix colour/firing – dark brown unoxidised surfaces and core; sherd thickness – *c.*8mm.

**FMG Multi-gritted fabric**

This fabric compares with Bishopstone Anglo-Saxon Fabric 2 (Bell 1977: 229). Its most obvious distinguishing feature is a very common (30% density) temper of coarse and medium sand-sized grades (0.25–1mm) multicoloured polished grits (white, red, grey and pink); matrix colour/firing – either oxidised dark orange throughout or unoxidised dark brown throughout; sherd thickness – *c.*9mm.

**FQ1 Medium quartz sand fabric**

Moderately abundant (10–15% density) coarse and medium size grade quartz sand (0.2–1mm), the quartz grains being polished and sub-rounded; matrix colour/firing – surfaces are oxidised orange and cores are dark grey/dark brown; sherd thickness – *c.*7.5mm.

**G Series: Post-Medieval**

A small number of Post-Medieval sherds were recovered. They are ascribed to four general fabric categories.

G:BGE Brown glazed earthenware  
G:RHE Red hard-fired earthenware  
G:CHI China  
G:TPC Transfer-printed china.

### The Bronze Age pottery: clay and temper sources

There are no clay sources on site. There are, however, extensive surface deposits of Clay-with-Flints immediately south and west of the site. Flint, the major clay tempering used for both MBA and LBA fabrics, would have similarly been obtained locally, or on site, either from the Clay-with-Flints or the Chalk.

The quartz sand tempering in LBA Fabrics DQ1 and DQ2 points to use of sandy clays, or quartz sand temper, derived from the Upper Greensand 3.5km south of Mile Oak.

The LBA iron oxide fabric (Fabric IO1) is characteristic of East Sussex LBA and Early Iron Age (EIA) wares and suggests the use of alluvial clays weathered out of the Wealden ferruginous strata (Hamilton 1980: 58). The richest iron-bearing alluvial clays are approximately 20km inland and derive from a High Wealden source such as Wadhurst Clay.

The LBA sherds with possible fossil shell inclusions (Fabric DS1) may be the same Sussex LBA fossil shell fabric first identified at Bishopstone (Hamilton 1977: 89) and subsequently in other East Sussex and Mid Sussex assemblages such as that from Thundersbarrow Hill which is local to Mile Oak (Hamilton 1993). The clay for this fabric comes from the shelly Eocene clay deposits which are exposed to the west of Newhaven Harbour, some 25km east of Mile Oak. Bishopstone appears to be the main production centre for pottery in this fabric (Hamilton 1993).

The Mile Oak Bronze Age pottery fabrics suggest the predominant use of locally available resources in ceramic production. Flint is, however, widely available in Lowland Britain and its presence as the major tempering material cannot exclude the possibility that not all of the flint-tempered pottery was produced on site, or locally. During the LBA there is an increased range of fabrics and a more diverse exploitation of resources, or pottery, from more distant (3–20km) locations. The latter include off the Chalk geologies north of Mile Oak.

### The earlier prehistoric pottery: forms and decoration

Only a very small number of sherds (11) were identified with any confidence as pre-Deverel-Rimbury. Several of these sherds were small and eroded, and it is possible that other such sherds were unidentifiable due to their fragmentary state. The marked absence of earlier prehistoric pottery from the Mile Oak assemblage is however notable.

No diagnostic Neolithic forms or decoration were present in the assemblage. Possible Neolithic sherds from Trenches 27 and K were body sherds identified on the basis of fabric and sherd wall thickness. Eight Beaker sherds (all from Trench K) were readily identifiable on the basis of fabric (grog-tempered) and decoration. With the exception of one incised decorated sherd (Fig. 2.29: 3) and two cord-impressed sherds (Fig. 2.29: 1, 4 and 5).

### The MBA assemblage: forms, decoration and technology

#### Quantification of form, decoration and technology elements

The elements of form, decoration and technology present in the MBA assemblage are listed in Table 2.14. These elements are tabulated in Table 2.16 together with their association with identified MBA pottery types (listed in Table 2.15) and fabrics. In tabulating forming and finishing technology, and decoration, some sherds received more than one count due to the multiple presence of diagnostic elements.

**Table 2.14** Mile Oak, Middle Bronze Age pottery assemblage: form, decoration and technology elements.

Code	Description
R1	Turned-over rim
R2	Flat-topped rim
R3	Rounded rim
R4	Outflaring
A1	Slightly emphasised carination
H1	Bar handle
D1	Fingertip-impressed decoration
D2	Fingernail-impressed decoration
D3	Stick-impressed decoration
D4	Incised decoration
D5	Plain unperforated applied lug
D6	Applied cordon or fillet
O1	Rivet-hole
B1	Flat base
B2	Splayed base
B3	Folded over base
T1	Finger-furrowed
F1	Smoothed finish

Key: R = rim; A = angled body sherd; B = base type; D = decorated sherd; F = surface finish; T = forming technology

#### Introduction

The Mile Oak MBA pottery is best matched by the MBA assemblages from the settlement sites of Itford Hill (Burstow and Holleyman 1957), Plumpton Plain A (Holleyman and Curwen 1935), Black Patch (Drewett 1982b), Blackpatch, Findon (Ratcliffe-Densham 1953), and the MBA cemetery assemblages from Itford Hill (Holden 1972) and Steyning Round Hill (Burstow 1958).

The typology of Sussex MBA pottery was first defined by C. F. C. Hawkes and subsequently revised and expanded by Ellison (1978, 1980b, 1982). Ten of the Sussex types defined by Ellison occur at Mile Oak (Table 2.15). One further Deverel-Rimbury type, previously unknown from Sussex, was additionally present (Type BU1: Table 2.15).

#### The Mile Oak forms and decoration

The form types present in the Mile Oak assemblage (Table 2.17) are discussed below:

##### Ellison Type 1

Ellison (1975: 34) has isolated this plain bag-shaped form as a type local to Sussex. It has a very minor presence in the Mile Oak assemblage (Table 2.16).

**Table 2.15** Mile Oak, Middle Bronze Age pottery assemblage: pottery types present. (See Table 2.14 for key to () codes)

Ellison Types	Description
E1	Shapeless baggy jar with turned-over simple rim (R1)
E2	Ovoid jar with plain unperforated applied lugs (D5) at or above the point of maximum diameter and flat-topped (R2) or rounded (R3) rim
E3	Ovoid jar with plain unperforated lug (D5) and outflaring rim (R4)
E6	Plain large urn with slack biconical profile and slightly emphasised carination (A1)
E7	Globular jar with bar handles (H1) and herringbone incised decoration (D4)
E8	Plain bucket-shaped urn with flat-topped (R2) or rounded (R3) rim
E9	Bucket-shaped urn with flat-topped (R2) or rounded (R3) rim and fingertipping (D1) or fingernail impressions (D2) applied directly to the body at a short distance below the rim
E10	Bucket-shaped urn with flat-topped (R2) or rounded rim (R3) and with applied cordon (D6) bearing fingertip impressions (D1) or stick impressions (D3)
E13	Large shouldered jar with finger-impressed (D1) applied cordon (D6) around the carination and flat-topped rim (R2)
E15	Small rounded pot with incised decoration (D4)
Other types	BU1 Bucket urn with applied 'horse-shoe' band (D6) with fingertipped-impressed decoration (D1)

**Table 2.16** Mile Oak, Middle Bronze Age pottery: correlation between form, decorative and technological elements, and fabric types.

Ellison type	Elements	Fabrics					
		CF1	CF1 (S)	CF2	CF2 (S)	CF3	CF4
1	R1	1	0	0	0	0	0
2	R2	7	0	2	0	0	0
2	R3	0	0	4	1	0	0
2/3	D5	1	0	1	0	0	0
3	R4	0	1	0	0	0	0
8/9/10	R2	5	0	4	1	0	0
8/9/10	R3	2	0	0	0	0	0
6	R2	0	0	0	1	0	0
6	A1	3	0	0	1	0	0
7	D4	0	0	0	0	9	0
7	H1+D4	0	0	1	0	0	0
7?	H1	0	0	1	0	2	0
8	R2	14	0	0	0	0	0
8	O1	2	0	0	0	0	0
9	D1	0	2	0	0	0	1
9	D2	6	0	2	0	0	0
10	D6	1	0	0	0	0	0
13	R2	0	0	0	0	4	0
13	D6+D3	1	0	1	0	1	0
15	D4	0	0	0	0	1	0
BU1	D6+D1	1	0	0	0	0	0
Unknown	B1	25	0	14	0	0	0
Unknown	B2	3	0	0	8	0	0
Unknown	B3	0	0	6	0	0	0
Unknown	D3	2	0	2	1	0	0
Unknown	T1	118	0	0	0	0	0
Unknown	F1	0	96	0	19	4	0

##### Ellison Types 2 and 3

Ovoid lugged jars are common components of Sussex MBA assemblages. Ovoid lugged jars (Ellison Type 2, Figs 2.31 and 2.32: 22, 26, 31, 32, 35) also occur in the Thames valley, but Ellison Type 3 (ovoid lugged jar with outflaring rim) is particular to Sussex. Both types are more frequent east of the River Adur (Ellison 1978: 34) and have a substantial presence in the Mile Oak assemblage (Table 2.18).

##### Ellison Type 6

This plain, slightly carinated form (Figs 2.29, 2.31 and 2.32: 2, 8, 9, 23, 37) is a characteristic Sussex type, being absent from Wessex and East Anglian MBA assemblages (Ellison 1978: 34).

##### Ellison Types 8, 9 and 10

These simple bucket-shaped forms, without (Ellison Type 8: Fig. 2.30: 18, 19), or with, fingernail/fingertip-impressed decoration direct on the vessel body (Ellison Type 9: Figs 2.29, 2.31, 2.32 and 2.33: 13, 17, 25, 39, 42), or with applied cordons with fingernail/fingertip-impressed decoration (Type 10: Fig. 2.33: 41), are common components of southern British MBA assemblages. In Sussex these bucket-shaped forms (particularly Ellison Type 10) have been isolated as occurring most frequently west of the River Adur (Ellison 1978: 34). Recent excavations now extend the regular occurrence of these types eastwards, these forms being common in both the Mile Oak MBA and the Downview MBA (see Section 7) assemblages. The occasional use of stick impressions (Fig. 2.32: 28), instead of fingertip or fingernail impressions, is a characteristic of the Mile Oak assemblage.

##### Ellison Type 7

The globular jar with bar handles and incised geometric decorative motif (Figs 2.29 and 2.32: 7, 11, 14, 15, 33) from Round-house I (and perhaps part of another from ditch 243/245/1557) can be matched at Black Patch (Ellison 1982: Fig. 30: 6, 31: 32, 34–6), Cock Hill (HBA and Ratcliffe-Densham 1961: pl. XLA), Park Brow (Smith 1927: Figs 2, 2A), Plumpton Plain Site A (Hawkes 1935: Figs 3 and 4), Highdown Hill (Wilson 1940: Fig. 1: d1/d2) and the Itford Hill cemetery and settlement (Ellison 1972: Fig. 8:7). The incised decorative motifs on Ellison Type 7 jars comprise a very restricted repertoire which is combined to give slightly varying patterns on each jar (Ellison 1980b: Fig. 11). The uniformity of vessel form, size, fabrics and decorative repertoire suggests that Ellison Type 7 forms may be the products of a single craftsman/crafts workshop. The filler is usually dense medium-sized calcined flint, but a fine,



micaceous quartz sand fabric is also associated with the form (Ellison 1980b: 34; 1982: Table 2). The Mile Oak example is of the same smoothed fabric tradition as the other flint-gritted Ellison Type 7 vessels and most closely compares in its decorative motifs with the Cock Hill and Plumpton Plain A examples. The Mile Oak Ellison Type 7 jar falls within the tight distribution that Type 7 jars have in central Sussex (Ellison 1980b: Fig. 12).

#### Ellison Type 13

Seven diagnostic sherds (Table 2.17) indicate a minor presence in the Mile Oak MBA assemblage of Type 13 storage jars with finger-impressed applied cordons around the carination (e.g. Fig. 2.31: 27, 28 from Round-house III). This form appears towards the end of the second millennium BC in assemblages such as Plumpton Plain B (Hawkes 1935: Fig. 6: B1B). The latter assemblage has an eleventh-century BC date on the basis of the presence of a fragment of a winged axe (Barrett 1980).

#### Ellison Type 15

A single sherd with incised geometric ornament from Round-house II (Fig. 2.31: 24) can be ascribed to an Ellison Type 15 fine ware bowl. The sherd decoration exactly compares with the two other examples known from Sussex, namely from Plumpton Plain B (Hawkes 1935: Fig. 11: a) and Downsview (see Section 7). Together these examples suggest a second specialist pottery workshop pottery distribution area in central and east Sussex, complementary to the Ellison Type 7 fine ware pottery distribution of central Sussex (see above). The presence of this form in the Plumpton Plain B assemblage places it contemporary with Ellison Type 13, towards the end of the second millennium BC (see above).

#### Type BU1 (bucket urn with applied, finger-printed 'horse-shoe' band)

This form, represented by a single sherd at Mile Oak (Fig. 2.31: 30), is a characteristic component of 'Ardleigh' type assemblages of south-east Essex (Erith and Longworth 1960) and is previously unrecorded from Sussex. In addition to the Mile Oak sherd, the excavations at Downsview (see Section 7) provides at least one more example. The examples from Mile Oak and Downsview are distinctive in having an additional vertical band applied within the horse-shoe cordon. This particular decorative modification is also occasionally found among the Essex examples (Erith and Longworth 1960: Fig. 3: D17).

#### Rivet-holes

Two sherds from Type E8 bucket urns have 'rivet-holes'. These are interpreted as being repair holes bored either side of cracks in the fabric of the pottery to allow them to be secured with leather thonging. Similar repair holes occur in the Itford Hill cemetery assemblage and have been discussed by Ellison (1972: 111). Given the great size, weight and fragility of these buckets urns, it seems likely

that they were made on, or near, the site. The evidence for repairing might, however, suggest off-site local production, or on-site seasonal production.

#### Technology

There is some evidence for finger-furrowed (T1) sherds, sometimes in association with splayed bases (B2) in the Mile Oak MBA assemblage. Finger-furrowing and splayed bases are present in late second millennium BC and early first millennium BC assemblages from Lowland Britain (e.g. South Cadbury, Somerset: Alcock 1980: Fig. 12) and both features are often suggested as indicative of slab building rather than coil construction. In Sussex finger-furrowing and splayed bases occur in the Itford Hill settlement and cemetery assemblages (Burstow and Holleyman 1957: Fig. 20: e, f). An absence of horizontal lines of weakness or breaks along coil joins is also noted for Itford Hill assemblages (Burstow and Holleyman 1957: 195). This suggests that slab construction emerged in Sussex within late Deverel-Rimbury potting traditions. Finger-furrowing also occurs in the Sussex Deverel-Rimbury assemblage of Plumpton Plain A, but here it occurs alongside the continued use of coil construction methods (Hawkes 1935: 39, Fig. 2:9). The presence of breaks along coil joins and the recurrent presence of remnant impressions from coil-bonding in the Mile Oak MBA assemblage, together with the absence of clear evidence for slab construction, suggests that in this case finger-furrowing was being employed to achieve more complete bonding between coils.

#### Form and fabric

Table 2.16 shows the correlation between identifiable MBA forms and fabrics. Few direct relationships are present, although Fabric F3 is consistently associated with Ellison Types 7 and 15. There is a tendency for Ellison Types 8, 9 and 10 to contain the coarsest flint. Ellison (1982: 362) similarly notes a lack of correlation between vessel forms and fabrics for the Black Patch assemblage. This situation contrasts with the MBA assemblages in Wessex and the Thames Valley where specific vessel forms are associated with distinct fabric traditions (Ellison 1975).

#### Conclusion

The Mile Oak MBA pottery falls within Ellison's 'South Downs and Sussex coastal plain Deverel-Rimbury' grouping. There is no distinct variation in the pottery from different features suggesting that the pottery can be treated as an homogeneous assemblage.

From Lowland Britain as a whole the main cluster of Deverel-Rimbury radiocarbon dates fall within the fifteenth to twelfth centuries cal BC (Barrett 1976: App. 1; Needham 1996). A few Deverel-Rimbury domestic assemblages have produced stratigraphically associated sherds of EBA biconical urns and collared urns (Avery and Close-Brooks 1969: Fig. 19:47; Barrett 1976: 294; Bradley and Ellison 1977: 92; Rahtz and ApSimon 1962: Fig. 8:43) and a case might even be made for a pre-sixteenth century BC emergence of Deverel-Rimbury pottery traditions. The presence of LBA type thinner-walled flint-gritted fabrics alongside

some of the Trench 27 Deverel-Rimbury assemblage suggests that the Mile Oak Deverel-Rimbury assemblage may at least in part fall towards the end of the Deverel-Rimbury period. The presence of Ellison Types 13 and 15 also suggest a later Deverel-Rimbury tradition. The assemblage has characteristics of central and East Sussex MBA traditions. One sherd from a bucket urn with 'horse-shoe' cordons interestingly suggests connections north-east into Essex.

A more detailed discussion of the radiocarbon chronology for Sussex Deverel-Rimbury traditions occurs in the discussion of the Downsview MBA pottery assemblage (Hamilton, see Section 7).

#### The LBA assemblage: forms, decoration and technology

##### Quantification of form, decoration and technology elements

The elements of form, decoration and technology present in the LBA assemblage are listed in Table 2.17. These elements are tabulated in Table 2.18 together with their association with

Table 2.17 Mile Oak, Late Bronze Age pottery assemblage: form, decoration and technology elements.

Mile Oak	Code	Description
RIMS		
Straight-sided jars	R1	Flattened, square profile rim
Convex jars	R2	Flattened, square profile
	R3	Rounded
	R4	Incurved, rounded
	R5	Internally bevelled
Round-shouldered/ weak-shouldered jars	R6	Upturned, rounded
	R7	Upturned, flattened
	R8	Flattened, externally expanded
	R9	Flattened, expanded, T-shaped
Bipartite jars	R10	Upturned, rounded
	R11	Upturned, flattened
	R12	Upturned, rounded externally thickened
	R13	Internally bevelled
Hemispherical bowls	R14	Rounded
	R15	Rolled over and fingernail-fixed
	R16	Incurved, flat-topped
Bipartite bowls	R17	Rounded
	R18	Slightly beaded rim
Shouldered bowls with short necks	R19	Out-turned rounded
	R20	Out-turned squared
BODY SHERDS	A1	Plain bowl/jar shoulder
	P1	Plain body sherd
	O1	Sherd with rivet-hole
BASES	B1	Flat base
	B2	Splayed base
	B3	Wrapped-over base
	B4	Flinted under-base
DECORATION	D1	Furrowed shoulder
	D2	Boss
	D3	Finger-impressed
	D4	Finger-impressed
	D5	Incised
TECHNOLOGY	T1	Finger-furrowed
	T2	Finger-pressed
	T3	Grass-wiped

Key: A = angled body sherd; B = base type; D = decorated body sherd displaying no other feature; R = rim; S = surface finish; T = forming technology; O = other feature; P = plain body sherd

fabric type. In tabulating forming and finishing technology, and decoration some sherds received more than one count due to the multiple presence of diagnostic elements.

#### Introduction

The Mile Oak LBA assemblage comprises a diverse range of coarse ware (Fabrics DF1, DF2, DF3, DF4, DC1, DS1) forms (straight-sided jars, convex-sided, round-shouldered jars, bipartite jars and hemispherical bowls) together with fine ware (Fabrics DF 5, DF7, DF8, DF9) bowls (bipartite bowls, and short-necked, shouldered bowls). This assemblage is almost wholly associated with Trench K.

#### LBA assemblages from Lowland Britain

The Mile Oak combination of plain straight-sided jars, convex jars and squat round-shouldered jars occurs in the first occupation phase at Eldon's Seat Dorset, together with Deverel-Rimbury bucket forms (Cunliffe and Phillipson 1968: Figs 10-13), indicating possible overlap between the two traditions. Elsewhere the straight-sided jars, convex jars and round-shouldered jars comprise the earliest components of post-Deverel-Rimbury assemblages and emerge within the latter half of the second millennium BC. Ceramics of this type are stratigraphically associated with radiocarbon-dated contexts at Aldermaston Wharf, Berkshire (Bradley *et al.* 1980: Fig. 12: 18-24, Fig. 14: 67-70), Cadbury Castle, Somerset (Alcock 1980: 664, 681, Fig. 5: 126 A1, 2, and Fig. 11: 5, 6), and Rams Hill, Berkshire (Barrett 1975: Fig. 3:5: 13, 14). All these results fall within the latter half of the second millennium cal BC and are as follows: Aldermaston Wharf, Berkshire: pit 6, 1880-1220 cal BC (BM-1592, 3240±135 BP); pit 68, 1400-1100 cal BC (BM-1590; 3000±40 BP) and 1020-840 cal BC (BM-1591 (2785±35 BP), Cadbury Castle, Somerset: pre-rampart layer 126A, 1440-1020 cal BC (SRR-422; 3014±75 BP), 1370-800 cal BC (SRR-443; 2820±110 BP) and 1450-800 cal BC (SRR-451; 2905±140 BP), pre-rampart soil, layer 016 1420-900 cal BC (I-5973; 2835±90 BP) and 1390-830 cal BC (I-5971; 2875±90 BP); and Rams Hill, Berkshire: double palisade phase, 1430-1030 cal BC (HAR-197; 3010±70, 1420-1000 cal BC (HAR 461; 2980±70), 1450-990 cal BC HAR-231; 3000±90), 1000-790 cal BC (HAR-230; 2690±70), 1420-930 cal BC (HAR-229; 2960±80 BP) and 1510-1000 cal BC (HAR-228; 3020±90). Hemispherical bowls are less consistently present in earliest post-Deverel-Rimbury assemblages. They are relatively rare in the Thames Valley early first millennium BC sequence but have dates centring on the eighth-century BC (Hamilton 1993). In Sussex they certainly appear earlier (see below).

#### Sussex LBA assemblages

In Sussex, a range of straight-sided jars, convex jars and round-shouldered jars appear as early as the eleventh century BC (Barrett 1980: 311) in post-Deverel-Rimbury assemblages (e.g. Plumpton Plain B: Hawkes 1935: Figs 8-10, 13). At Bishopstone plain convex jars and straight-sided jars have a thermoluminescence date of 1550-350 BC (950±300 BC) (Hamilton 1977: Fig. 40: 1, 2, Fig. 41: 8, 11; Bell 1977: 290). Plain convex jars, together with plain round-shouldered jars, hemispherical bowls and plain shouldered bowls at

**Table 2.18** Mile Oak, Late Bronze Age pottery: correlation between form, decorative and technological elements, and fabric types.

Elements	Fabrics											
	DF1	DF2	DF3	DF4	DF5	DF6	DF7	DF8	DF9	DS1	DC1	DC2
R1	6	0	2	0	0	0	1	0	0	0	0	0
R2	4	0	1	0	0	0	0	0	0	0	0	0
R3	15	4	0	2	0	0	0	0	0	0	0	0
R4	5	1	2	1	1	0	0	0	0	0	0	0
R5	2	2	1	0	0	0	0	0	0	0	0	0
R6	3	0	1	0	3	0	0	0	0	0	0	0
R7	11	0	5	3	7	1	0	0	0	0	0	0
R8	2	0	1	0	0	0	0	0	0	0	0	0
R9	4	0	0	0	0	0	0	0	0	0	0	0
R10	15	0	2	0	2	0	2	0	0	0	0	0
R11	4	2	4	0	0	0	0	0	0	0	0	0
R12	3	0	0	0	0	0	0	0	0	0	0	0
R13	1	0	0	1	0	0	0	0	0	0	0	0
R14	1	0	0	0	0	0	0	0	0	0	0	0
R15	5	0	3	0	0	0	0	0	0	0	0	0
R16	0	0	2	0	1	0	0	0	0	0	0	0
R17	3	0	1	1	10	0	3	0	1	0	0	0
R18	0	0	0	0	1	0	0	0	0	0	0	0
R19	0	0	0	4	5	0	13	2	5	0	2	0
R20	0	0	0	0	3	0	3	0	4	0	0	0
A1	1	0	0	0	0	0	6	0	0	0	0	0
P1	0	0	0	0	0	0	0	0	0	0	0	0
B1	18	1	3	7	1	0	1	0	0	0	0	0
B2	132	0	12	12	0	0	0	0	9	0	0	1
B3	7	0	0	0	0	0	0	0	0	0	0	0
B4	5	0	0	0	0	0	0	0	0	0	0	0
O1	2	0	0	0	0	0	0	0	1	0	0	0
D1	0	0	0	1	1	0	0	0	0	0	0	0
D2	1	0	0	0	0	0	0	0	0	0	0	0
D3	4	0	4	0	1	0	3	0	0	0	0	0
D4	2	0	1	1	0	1	0	0	0	0	0	0
D5	1	0	0	0	0	0	0	0	0	0	0	0
T1	461	0	41	139	4	0	0	0	0	2	0	0
T2	4	0	15	1	0	0	0	0	0	0	0	0
T3	0	0	1	3	0	0	0	0	0	0	0	0

Yapton are associated with a date of 910–530 cal BC (HAR-7038, 2600±70 BP) (Hamilton 1987).

### The coarse wares

#### Straight-sided jars

The Mile Oak straight-sided jars with flat-topped, square profile rims (e.g. Fig. 2.33: 51) are characteristic of several East Sussex LBA assemblages, including the Heathy Brow LBA assemblage with a suggested ninth- or eighth-century BC date (Hamilton 1982, 1993) and Bishopstone with a LBA assemblage with a 1550–350 BC (950±300 BC) absolute dating (*see above* for details; Hamilton 1977).

#### Convex-sided jars

This category of jar occurs in a variety of rim forms at Mile Oak, namely rounded (R3: Fig. 2.33: 52, 53), incurved rounded (R4), and internally bevelled (R5: Fig. 2.33: 47, 54). Convex jars are occasionally present in Sussex late Deverel-Rimbury assemblages (e.g. Bishopstone: *see above*; Itford Hill domestic site: Burstow and Holleyman

1957: 195, Fig. 23 which has a date of 1310–1410 cal BC (GrN-6167; 2950±35 BP)). Convex jars with internally bevelled rims form part of the Sussex ceramic repertoire in late second millennium BC assemblages (e.g. Bishopstone: *see above*; Itford Hill: Burstow and Holleyman 1957: Fig. 22: B; Plumpton Plain B: Hawkes 1935: Fig. 10: m, Fig. 12: e, g) and earliest first millennium BC assemblages (e.g. Yapton: Hamilton 1987: Fig. 4:2) but continue in later c.seventh-century BC Sussex assemblages such as Harting Beacon and Chanctonbury Ring (Hamilton 1993).

#### Round-shouldered, weak-shouldered jars

The Mile Oak LBA round-shouldered jars are associated with a wide range of rim forms; R6: upturned, rounded (Fig. 2.33: 44); R7: upturned, flattened; R8: flattened, externally expanded rim; R9: flattened, expanded, 'T'-shaped rims (Fig. 2.33: 53).

The distinctive expanded rims are variably present in both LBA and EIA assemblages from Lowland Britain, being notably present in Bedfordshire (Matthews 1976: Fig. 18), Buckinghamshire (Cotton and Frere 1968: Fig. 16) and Oxfordshire (Harding 1972: pls 44–5; 1975: Fig. 38) assemblages. In Sussex, flattened and slightly expanded rims are

occasionally present in late second millennium BC assemblages, for example at Itford Hill (Burstow and Holleyman 1957: Fig. 22: A) and Plumpton Plain B (Hawkes 1935: Fig. 5: b, Fig. 9: e, f). Similar rims are associated with plain wares in the stratigraphically mixed Sussex assemblages from Highdown Hill (Wilson 1940: Fig. 3: c, d, f–k, n–u) and Selsey (White 1934: Fig. 2: 5, 7). They also occur in the lower ditch silts of the Bishopstone enclosure together with the thermoluminescence-dated sherds (*see above*). The rims are also present in the early first millennium BC assemblages from Yapton (Hamilton 1987: Fig. 4:2a) and Heathy Brow (Hamilton 1982: Fig. 15: 1b).

#### Bipartite shouldered jars

Plain bipartite shouldered jars, together with plain bipartite bowls (*see below*) are regular components of LBA assemblages with suggested tenth–eighth-century BC dates (e.g. Coombe Warren, Kingston, Surrey: Field and Needham 1986: Fig. 3: 8, 13, 15, 147), predominantly on the basis of Ewart Park metalwork associations (Field and Needham 1986: 136). The Mile Oak examples mostly have upturned rims (Fig. 2.33: 49). The Sussex LBA assemblage from Harting Beacon hillfort (with a suggested eighth–sixth-century BC date, Hamilton 1993), has a comparable range of rim forms (Hamilton 1979, Fig. 6: 5, 6).

#### Hemispherical bowls

Hemispherical bowls are present in Sussex assemblages from the end of the second millennium BC, as is indicated by examples with rounded rims from Plumpton Plain B (Hawkes 1935: Fig. 9: a, b) and a hemispherical bowl with an incurved, flat-topped rim from pre-hillfort enclosure assemblage at Thundersbarrow Hill (Hamilton 1993; forthcoming). Both of these forms are present in the Mile Oak assemblage.

Some of the Mile Oak hemispherical bowls have rolled-over rims formed by folding the rim-edge over on to the inside of the vessel wall, and fixing it by fingertip and fingernail pressing it against the vessel wall (e.g. Fig. 2.33: 45; and from Trench M, Context 235). The same 'technical trick' occurs in Sussex LBA assemblages from Yapton (Hamilton 1987: Fig. 5: 9, 14) and Bishopstone (Hamilton 1977: Fig. 47: 44, 48, 50, 50, 51).

### The fine wares

#### Bipartite bowls

Plain bipartite bowls variously with squared (Fig. 2.33: 40), rounded, or slightly beaded rims (e.g. from KII, Context 346), form a (19 rims) component of the Mile Oak LBA assemblage. Most of these sherds come from undecorated vessels. Undecorated, bipartite bowls are occasionally present in Sussex assemblages by the beginning of the first millennium BC. One possible Sussex example of a LBA fine ware bowl with a slightly beaded rim is the bipartite bowl from West Blatchington Site B. The latter was found in a shallow pit 6m from a LBA palstave hoard (Norris and Burstow 1950: 11, pl. 1: 7, Fig. 1) dating to the Wilburton

metalwork phase, c. tenth century BC. A similar Sussex example comes from the Bishopstone LBA assemblage (Hamilton 1977: Fig. 54: 96).

One rim sherd is decorated with a line of fingernail impressions (Fig. 2.33: 40).

#### Shouldered bowls with short neck

These bowls (41 rim sherds) occur in the Mile Oak assemblage with out-turned rims of either rounded or squared (Fig. 2.33: 48; Fig. 2.34: 59) profile. Limited stratigraphic evidence (from Surrey assemblages) suggests that shouldered bowls with shorter profiles have primacy within the LBA bipartite bowl sequence (Adkins and Needham 1985: 31, Fig. 10: 315, 320). Sussex examples of plain shouldered bowls with short, slightly convex-profiled shoulders and short out-turned rims occur in fine ware fabrics at Highdown Hill (Wilson 1940: Fig. 4: h) and Kingston Buci (E. Curwen 1931: Fig. 6) and coarse ware fabrics (c. eighth-century BC) at Yapton (Hamilton 1987: Fig. 5: 15).

#### Rivet-holes

Rivet-holes are associated with two coarse flint-tempered sherds and one fine ware flint-tempered sherd (Fig. 2.33: 48). The implications of rivet-holes (off-site, or seasonal pottery production) have been discussed for the MBA assemblage (*see above*).

#### Decoration

Two eroded 'furrowed' sherds, possibly from shouldered bowls were recovered from Trench K topsoil. The furrowing comprises horizontal, wide, shallow-tooled channels. Furrowed bowls come early in the Wessex early first millennium BC sequence, and are associated with dates of 820–390 cal BC (NPL-104; 2480±90) and 1060–380 cal BC (NPL-105; 2580±155 BP) from the earliest house (House II:1) at Longbridge Deverill Cow Down, Wiltshire (Callow *et al.* 1966; Callow and Hassall 1968; Hawkes 1961: 347; Needham 1995: 164). The form infrequently occurs in Sussex. A single sherd, very similar to the Mile Oak sherds, occurs in the LBA component of the unstratified assemblage from Kingston Buci (E. Curwen 1931: Fig. 10).

There is also a minor presence in the Mile Oak LBA assemblage of finger-impressed, and fingernail-impressed, rims associated with shouldered jars and bowls (Fig. 2.33: 40, 46). There is no evidence of a discrete association of fingernail-impressed decoration with fine wares and finger-impressed decoration with coarse wares, as is evidenced with some West Sussex early first millennium BC assemblages, for example Chanctonbury Ring (Hamilton 1980: Fig. 13), Harting Beacon (Hamilton 1979: Fig. 6), Highdown Hill (Wilson 1940: Fig. 5), Stoke Clump (Cunliffe 1966: Fig. 1) and the Trundle (Curwen 1929: pl. XI). At these sites the more prevalent presence of such decoration suggests a post-eighth-century BC and pre-sixth-century BC date (Hamilton 1987: 62). The limited presence of decoration at Mile Oak suggests an eighth-century or slightly earlier dating.



## Technology

The presence of splayed bases (Figs 2.33 and 2.34: 43, 55, 56, 58, 60) and finger-furrowed sherds (e.g. Fig. 2.34: 58) has already been discussed for the Mile Oak MBA assemblage as being indicative of slab-construction methods. These features are much more prevalent in the LBA assemblage and the absence for evidence of coil construction in a large number of, but not all, sherds suggests that slab construction was used for at least a part of the LBA assemblage. This method of construction is well-documented for other Sussex LBA assemblages (Hamilton 1987: 58). The 'wrapped-over' bases, (where the formed base piece has been pulled up and over the base of the vessel wall and fixed to it by smearing and pressing), are, however, associated with coil-built bases. 'Wrapped-over' bases are also present in the MBA assemblage (Fig. 2.29: 6). Profusely gritted under-bases are another technological feature of the Mile Oak coarse ware assemblage. Such gritting might indicate manufacture on a bed of crushed flint and has been noted for other LBA/EIA assemblages from south-east England (Macpherson-Grant 1991: 39).

Evidence of finger-pressing (as part of the secondary shaping process) remains on several of the coarse ware sherds (e.g. Fig. 2.33: 44). Other coarse ware sherds have been finished by grass-wiping. This method of finishing the exterior surfaces of coarse wares is recurrent on many LBA assemblages from Lowland Britain and is an occasional feature on slightly later assemblages (De Roche 1978: 49). It is present in a few Sussex LBA assemblages including Bishopstone (Hamilton 1977: Fig. 40:6).

## Conclusion

Although the LBA assemblage from Mile Oak is very fragmented, it contains a full range of LBA forms. The presence of a limited amount of decoration, and the diversity of forms, tends to suggest a dating at the beginning of the first millennium BC, perhaps c.900/800 BC.

A related consideration of the radiocarbon chronology of Sussex LBA pottery traditions also occurs in the discussion of the Downsview LBA pottery assemblage (Hamilton, *see* Section 7).

## The prehistoric pottery: illustrated sherds

The following are listed by catalogue number, with form, fabric and content.

## Beaker pottery (Fig. 2.29)

- 1 *Form*: sherd decorated with vertical lines of square-toothed comb-impressions; *Fabric*: BG3; *Context* 316: Trench K, Mound II.
- 2 *Form*: decorated sherd with twisted cord impressed chevron motif; *Fabric*: BG3; *Context* 316: Trench K, Mound II.
- 3 *Form*: sherd decorated with incised chevron design; *Fabric*: BG3; *Context* 316: Trench K, Mound II.
- 4 *Form*: sherd decorated with three horizontal lines of square-toothed-comb impressions; *Fabric*: BG2; *Context* 346: Trench K, Mound III.

- 5 *Form*: sherd decorated with two horizontal lines of square-toothed-comb impressions; *Fabric*: BG2; *Context* 346: Trench K, Mound III.

## Middle and Late Bronze Age pottery (Figs 2.29–2.34)

## Trench 27

## Round-house I

- 6 *Form*: 'wrapped-over' base; *Fabric*: CF2; *Context* 233: fill of terrace platform 234.
- 7 *Form*: body sherd with incised herringbone decoration from a fine ware globular jar (Ellison Type 7); *Fabric*: CF3; *Context* 233: fill of terrace platform 234.
- 8 *Form*: shoulder sherd from carinated bucket urn (Ellison Type 6); *Fabric*: CF1; *Context* 616: fill of terrace platform 234.
- 9 *Form*: shoulder sherd from carinated bucket urn (Ellison Type 6); *Fabric*: CF1; *Context* 616: fill of terrace platform 234.
- 10 *Form*: small unperforated lug from bucket-ovoid urn (Ellison Type 2 or 3); *Fabric*: CF1; *Context* 1407: fill of terrace platform 234.
- 11 *Form*: body, handle and base sherds from globular jar with herringbone incised decoration on the upper body and upper part of the handle (Ellison Type 7); *Fabric*: CF3; *Context*: 1419: fill of terrace platform 234.
- 12 *Form*: flat base; *Fabric*: CF1; *Context* 1419: fill of terrace platform 234.
- 13 *Form*: finger-impressed body sherd from a bucket-shaped urn (Ellison Type 9); *Fabric*: CF2; *Context* 1419: fill of terrace platform 234.
- 14 *Form*: body sherd with incised herringbone decoration from a fine ware globular jar (Ellison Type 7); *Fabric*: CF3; *Context* 348: fill of pit 347.
- 15 *Form*: body sherd with incised herringbone decoration from a fine ware globular jar (Ellison Type 7); *Fabric*: CF3; *Context* 348: fill of pit 347.
- 16 *Form*: inturned rim from convex jar; *Fabric*: DF1; *Context* 1429: fill of post-hole 1428.
- 17 *Form*: sherd decorated with a horizontal line of oblique fingernail impressions, likely from a bucket urn (Ellison Type 9); *Fabric*: CF; *Context* 1561: fill of post-pit 1562.
- 18 *Form*: flattened rim sherd from bucket-shaped urn (Ellison Type 8 or 9); *Fabric*: CF1; *Context* 156: fill of post-pit 1562.
- 19 *Form*: rim and base sherds from bucket-shaped urn with flat-topped rim (Ellison Type 8); *Fabric*: CF1; *Context* 1576: fill of pit 1572.
- 20 *Form*: large rounded base with evidence of fingering; *Fabric*: CF1; *Context* 1576: fill of pit 1577.
- 21 *Form*: sherd decorated with an uneven horizontal line of fingernail impressions; *Fabric*: DF3; *Context* 1658.

## Round-house II

- 22 *Form*: rounded rim sherd from ovoid jar (Ellison Type 2); *Fabric*: CF3; *Context* 1457: fill of post-hole 1458.
- 23 *Context* 1510: fill of post-pit 1511.
- 24 *Form*: body sherd with incised geometric decoration from rounded bowl (Ellison Type 15); *Fabric*: CF3; *Context* 1444: fill of post-pit 1499.

## Round-house III

- 25 *Form*: flat-topped rim from bucket-shaped urn (Ellison Type 8 or 9); *Fabric*: CF3; *Context* 1452: pot scatter within fill 1421 of terrace platform 1424.
- 26 *Form*: flat-topped rim from ovoid jar (Ellison Type 2); *Fabric*: CF2; *Context* 1421: fill of terrace platform 1424.
- 27 *Form*: body sherd with applied cordon decorated with vertical stick impressions (Ellison Type 13); *Fabric*: CF2; *Context* 1452: pottery scatter within fill 1421 of terrace platform 1424.
- 28 *Form*: flat-topped rim and applied cordon decorated with vertical stick impressions from large carinated jar (Ellison Type 13); *Fabric*: CF2; *Context* 1453: pottery scatter within fill 1421 of terrace platform 1424.
- 29 *Form*: large, rounded base; *Fabric*: CF; *Context* 1422: pottery scatter within fill 1421 of terrace platform 1424.
- 30 *Form*: sherd with applied, finger-impressed, decorated cordons suggesting the base of a 'horse-shoe' shaped cordon decoration from a bucket-shaped urn (Type BU1); *Fabric*: CF1; *Context* 1452: pottery scatter within fill 1421 of terrace platform 1424.

## Ditch 243/245/1557

- 31 *Form*: flattened rim sherd from ovoid jar (Ellison Type 2); *Fabric*: CF2; *Context* 1556: fill of ditch 243/245/1557.
- 32 *Form*: inturned rim and part of applied lug from ovoid jar (Ellison Type 2); *Fabric*: CF2; *Context* 1566: fill of ditch 243/245/1557.
- 33 *Form*: inturned rim and strap handle from globular jar (Ellison Type 7); *Fabric*: CF3; *Context* 2625: fill of ditch 243/245/1557.
- 34 *Form*: flat base; *Fabric*: CF1; *Context* 3012: fill of ditch 243/245/1557.
- 35 *Form*: rounded rim sherd from ovoid jar (Ellison Type 2); *Fabric*: CF1; *Context* 3058: fill of ditch 243/245/1557.
- 36 *Form*: shoulder sherd from carinated bucket urn (Ellison Type 6); *Fabric*: CF1; *Context* 3187: fill of ditch 243/245/1557.
- 37 *Form*: rounded rim and part of the body, with rivet-hole, from bucket-shaped urn (Ellison Type 6); *Fabric*: CF1; *Context* 3375: fill of ditch 243/245/1557.
- 38 *Form*: rounded rim from convex jar; *Fabric*: DF1; *Context* 3376: fill of ditch 243/245/1557.
- 39 *Form*: finger-impressed body sherd from a bucket-shaped urn (Ellison Type E9); *Fabric*: CF2; *Context* unstratified: fill of ditch 243/245/1557.

## Lynchet (1403)

- 40 *Form*: out-turned squared rim with fingernail-impressed decoration from bipartite bowl; *Fabric*: DF5; *Context* 1403.

## Topsoil/unstratified

- 41 *Form*: stick-impressed cordon sherd from a bucket-shaped urn (Ellison Type 10); *Fabric*: CF1; *Context* 1400: topsoil.
- 42 *Form*: rounded rim, with finger impression below the rim, from bucket-shaped urn (Ellison Type 9); *Fabric*: CF4; *Context*: unstratified.

## Trench K

- 43 *Form*: splayed base; *Fabric*: DF4; *Context* 1418: fill of cut 1419.
- 44 *Form*: upturned, rounded rim from round-shouldered jar; *Fabric*: DF1; *Context* 2160: topsoil.
- 45 *Form*: rolled rim (from hemispherical bowl?); *Fabric*: DF1; *Context* 321: topsoil.
- 46 *Form*: upturned, finger-impressed rim from shouldered jar; *Fabric*: DF3; *Context* 321: topsoil.
- 47 *Form*: bevelled rim convex jar; *Fabric*: DF1; *Context* 321: topsoil.
- 48 *Form*: flattened, out-turned squared rim (from short-necked shouldered bowl?), with part of a rivet-hole just below the rim; *Fabric*: DF9; *Context* 321: topsoil.

## KII

- 49 *Form*: upturned rim from shouldered jar; *Fabric*: DF1; *Context* 4012: topsoil.
- 50 *Form*: flattened, squared-profile rim from convex jar; *Fabric*: DF4; *Context* 4023: topsoil.
- 51 *Form*: flat-topped rim from straight-sided jar; *Fabric*: DF1; *Context* 4051: layer.
- 52 *Form*: rounded rim from convex jar; *Fabric*: DF1; *Context* 4051: layer.
- 53 *Form*: rounded rim from convex jar; *Fabric*: DF1; *Context* 4051: layer.
- 54 *Form*: bevelled, inturned rim from convex jar; *Fabric*: DF2; *Context* 346: layer.
- 55 *Form*: splayed base sherd; *Fabric*: DF1; *Context* 4020: layer.

## KIII

- 56 *Form*: splayed base; *Fabric*: DF1; *Context* 346: layer.
- 57 *Form*: flattened, expanded, 'T'-shaped rim from round-shouldered jar; *Fabric*: DF1; *Context* 4007: layer.
- 58 *Form*: large splayed base, evidence of fingering and finger-furrowing; *Fabric*: CF; *Context* 4044: fill of pit 4045.

## Trench M

- 59 *Form*: out-turned, squared rim of short-necked shouldered bowl; *Fabric*: DF7; *Context* 235: fill of post-hole.
- 60 *Form*: splayed base sherd; *Fabric*: DF3; *Context* 342.

## The Roman pottery (not illustrated)

Of the 803 sherds of Romano-British pottery recovered none were recovered *in situ* and most are quite fragmented. The assemblage is dominated by East Sussex Ware. This fabric remains common in Sussex during the post-conquest period until at least the third century AD. For details of the contexts and forms of the Roman assemblage *see* report in Appendix 4.

### The Medieval and Post-Medieval pottery (not illustrated)

A small number of Medieval sherds were recovered from disturbed contexts. For a summary of these sherds according to fabric, form and context *see* reports in Appendix 4.

### The Bronze Age metalwork

Jonathan Wallis

#### Trenches J and K

The metalwork and metalworking debris from Trench K is not great in quantity or quality, but is important in that it represents the first evidence of *in situ* metallurgy from a Bronze Age settlement site in Sussex. The evidence is extremely diverse and includes crucible fragments (Russell, *see* below), stone tools (*see* Laughlin *et al.* below), metal droplets, objects and fragments of slag (*see* Fig. 2.35). The artefacts were all recovered at the base of the secondary topsoil, at the interface with the natural chalk. The relative positions of some of these finds have been plotted on Figure 2.19.

#### The objects (Fig. 2.35)

- 1 Decorated lead alloy ring. Maximum diameter: 17mm; internal diameter: 9mm; maximum thickness: 2.5mm. Context: machine-excavated topsoil, Trench K. Special Find (SF) 8.
- 2 Copper alloy object. Pin length: 8mm; pin diameter: 1.5mm; plate diameter: (max) 11mm; plate thickness: 0.5mm. Context: topsoil, Trench K. SF39.
- 3 Copper alloy tweezer fragment. Length: 40mm; maximum width 5.5mm; thickness: 1 mm. Context: topsoil, Trench K. SF16.
- 4 Copper alloy ring. Diameter: 8.5mm; internal diameter: 3mm; thickness: 1.5mm. Context: topsoil, Trench K. SF12.
- 5 Copper alloy stud head. Diameter: 10mm; pin diameter: 3mm; thickness: 2mm. Context: topsoil, Trench K. SF40.
- 6 Copper alloy sword blade fragment. Width: 41mm; maximum thickness: 4mm. Context: topsoil, Trench K. SF5.

#### Discussion of the metal objects

There were only six recognisable metal objects of possible Bronze Age date. Three of these are definitely Bronze Age: the tweezers, the sword fragment and the lead alloy ring. The other three objects are possibly Bronze Age, but, as none were from securely dated contexts, and as they lack direct parallels, cannot be further assigned.

The lead alloy ring (no. 1) is very unusual, having only one other possible parallel: the rings recorded from Flag Fen (Coombs 1992). The four rings from Flag Fen are either of copper alloy, tin or lead, and one is decorated with short punched lines. The Mile Oak ring does not seem to have any

practical use unless it is a blank for mass production (*see* below). There are a number of prehistoric objects possessing a similar decoration, including a quoit-headed pin (MBA) from Barton Bendish, Norfolk and later, from the Dowris Phase in Ireland, a copper alloy pin from Boobybrien, Co Clare (Herity and Eogan 1977). Pottery also shows a similar tradition, with the Deverel-Rimbury globular urns from Thorny Down in Wiltshire being decorated in the same way (Megaw and Simpson 1988).

The sword fragment (no. 6) is probably the most diagnostic object. It is probably of a Wilburton type; its section is similar to some of those from the Late Wilburton hoard from Andover in Hampshire (Varndell 1979). It is of a simple type, probably Class A (Colquhoun and Burgess 1988; Needham 1990). An analysis conducted by Dr Northover shows the alloy to be similar to some of the swords of this period, notably pieces from the hoards recovered at Isleham and Blackmoor (Northover 1982). Similar sword fragments have come from Sussex, the closest to Mile Oak being from Slonk Hill (Fig. 1.1; Hartridge 1978). Complete swords have also been found from this period in the county at Battle, Eastbourne, Newhaven and Wilmington (Curwen 1954). The Wilmington hoard is of special significance as it also contained a bronze mould for socketed axes, and pieces of scrap metal (*see* below).

The tweezer fragment is Bronze Age, but cannot be dated further. It is made of fairly pure copper which was available at this time in the form of ingots, large numbers of which have been found in Sussex. Curwen, for example, lists 10 from Marshall Estate, Bognor, 3 from Beachy Head, Eastbourne, 13 from Lewes and quantities, exact number unknown, from the Forty Acre Brickfield in Worthing (Curwen 1954: 213-17).

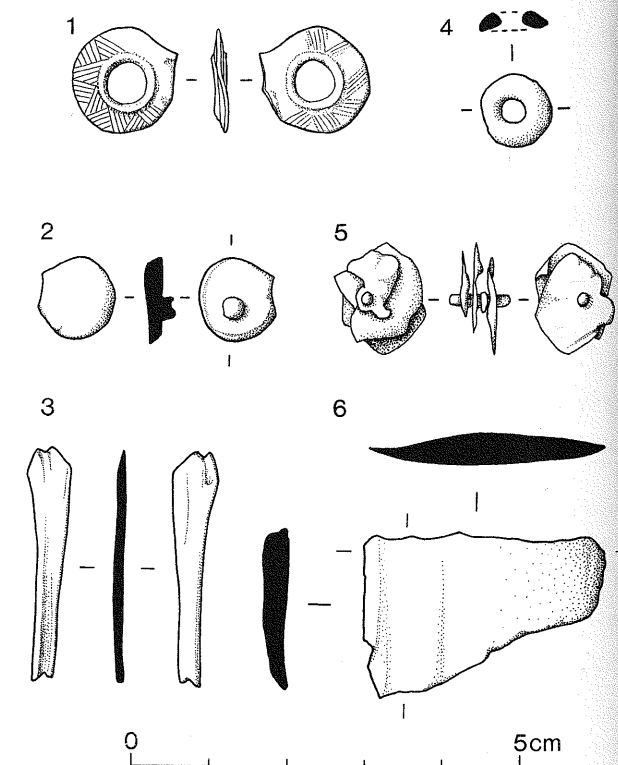


Fig. 2.35 Mile Oak, Trench K: Bronze Age metalwork.

#### Fragments of sheet metal (Fig. 2.36)

There were six fragments of sheet metal recovered from Trench K.

- 1 Copper alloy. Thickness: 1-2mm. Possibly represents part of a broken spear socket (Dr Northover, pers. comm.). Context: topsoil. SF3.
- 2 Copper alloy. Thickness: 3-4mm, with sign of a definite cast edge. Context: topsoil. SF21.
- 3 Copper alloy. Thickness: 1-2mm. Context 333, Mound III. SF41.
- 4 Copper alloy. Thickness: 1-2mm. Context 333, Mound III. SF42.
- 5 Lead alloy. Thickness: 3-6mm. Possible casting waste. Context: topsoil. SF6.
- 6 Lead alloy. Thickness: 3-4mm. Possible casting waste. Context: topsoil. SF19.

#### The droplets (Fig. 2.37)

- 1 Lead alloy. Context: Trench K, topsoil. SF7.
- 2 Lead alloy. Context: Trench J, topsoil.

A further five lead alloy droplets and one copper alloy droplet were recovered from Trench K. No precise date can be given for this assemblage as none of the material was recovered from datable contexts. The presence of metal droplets can, however, be taken to denote metalworking in some form. It is not known what the product of such metalworking was at Mile Oak, but lead appears to have been a major component of the alloy (*see* below).

#### The analysis

An analysis of nine samples was carried out by Dr J. P. Northover of the Department of Metallurgy and Conservation of Materials at Oxford in 1991, using X-ray fluorescence analysis with the scanning electron microscope (Northover 1982). This was used on all the samples. The results (Table 2.19) show that a number of those pieces sampled had high lead contents of up to 56.25%. This is normally a trait of the first part of the LBA.

Lead is a soft metal with a low melting point (327.4°C) and a high density (11.34 gcm<sup>-3</sup>). It was probably mined in a number of places in the UK during the Bronze Age. The closest source of lead to Sussex is that in the Mendips of Somerset, which is known to have been exploited in the Roman period and may have been known of earlier.

The main use of lead in prehistory is for deliberate alloying with copper and tin to make leaded bronze. This addition improved the flow during casting, increasing the complexity of cast objects. Lead use has been identified in Britain from MBA contexts (Craddock 1978; Northover 1980; Needham and Hook 1988), where the highest recorded lead content is in the region of 7%. The analysis of lead, its alloys and leaded bronze have in the past proved problematical. Some of the post-war analyses (e.g. Brown and Blin-Stoyle 1959) have since been found to have undervalued the lead contents, in some cases considerably (when the lead content of an alloy was over 4%, the analyses were found to be consistently wrong by often as much as 3.5 times: Hughes 1979). This means that many of the bronzes thought to pos-

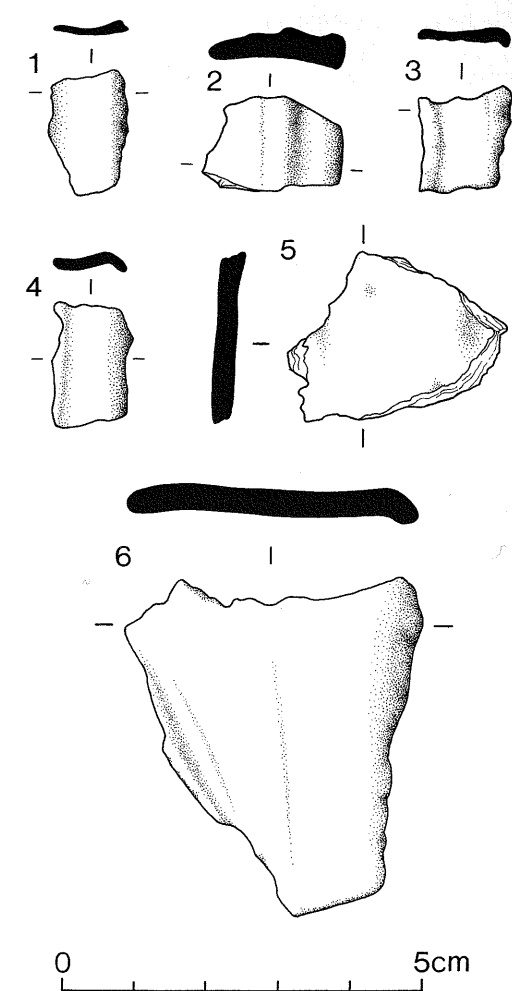


Fig. 2.36 Mile Oak, Trench K: Copper alloy and lead sheet metal.

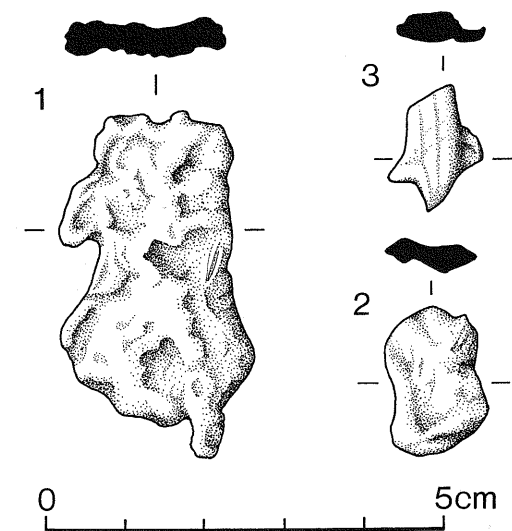


Fig. 2.37 Mile Oak, Trenches J and K: Metal droplets.

sess a medium level of lead content may in fact have a much higher content, and therefore be possibly more comparable to the Mile Oak material.

Objects of lead are rare in any period, including the LBA. Lawson (1979a) lists three objects of lead from Britain other than axes and fragments of lead in axe moulds. These



include a cube of lead from West Caistor, Norfolk, a similar example to which was found at Flag Fen (Coombs 1992), a lump of lead from the lost hoard at Greensborough Farm, Shenstone, Staffordshire, and a lead core with dubious Bronze Age association from Mildenhall, Suffolk. Needham and Hook (1988: 269) list an additional 14 examples of Later Bronze Age lead from Britain, including a number of ring fragments from a hoard recovered at Ferring, West Sussex (Aldsworth and Kelly 1983) some 15km to the south-west of Mile Oak. The rings of white metal from Mile Oak and Flag Fen increase this list.

### The slag materials

A total of 146 pieces of slag were recovered from nine trenches (*see* archive). The majority of pieces were retrieved from Trench K. Some of the slag is obviously modern, coming from the farm roads and yard located slightly to the west. Trench K showed evidence of extensive thermal processes, notably the high amount of fire-cracked flint and the charcoal mound.

Each piece of slag was studied visually under a binocular microscope (X20–X50). Most of the pieces were broken to reveal their internal structure, and from this any metallurgical slag would have been noticed (Bachmann 1982). None of the slag was a product of lead or copper alloy working, though it may have been formed by thermal processes reacting with the clay, naturally occurring iron ore and other geological or biological material.

The prills of copper alloy found adhering to the sherds of a baked clay crucible (*see* Russell, below) provided the only slag that was metallurgical. Two of the prills were removed for analysis by Dr Northover, but the slag has not been identified further (Table 2.19: Samples 1a and 1b). The analysis shows the prills to be of differing metallic composition, suggesting the melting of scrap of different types. Compositions of this type are not unusual in the Wilburton Phase of the LBA.

### Conclusion

The site at Mile Oak, Trench K, was obviously an area of some industrial process during the LBA. This process may have been charcoal burning and metalworking, or some other process with metalworking as a minor activity.

There is little further evidence of Bronze Age metallurgy from the immediate vicinity of Mile Oak. The droplet, lump of dross and crucible fragments found while fieldwalking on the route of the Brighton Bypass from Southwick Hill and Holmbush (Hartridge *et al.* 1989) were all re-examined by the author in 1990. The droplet and dross are considered to be modern, possibly representing droplets of green paint with soil attached, similar to those confused for copper alloy at Slonk Hill in 1988 (O'Shea pers. comm.). It is very unlikely that the identified crucible fragments were used for any metallurgical process, and certainly not in the Bronze Age. In contrast, the site at Highdown Hill, West Sussex, has produced a number of lead and copper alloy splashes (Wallis 1989) together with various pieces of Later Bronze Age metalwork. Owing to the disturbed nature of the site these pieces remain largely undated, but it is likely that they fall into the LBA, suggest-

ing that Highdown may be identified as another zone of Bronze Age metalworking.

There are, in addition, a number of hoards from the Sussex area which have produced Bronze Age metallurgical debris. The Forty Acre Brickfield hoard from Worthing is considered to be that of a smith because of the presence of 'cakes' of bronze found together with 28 palstaves, one winged axe and 11 socketed axes, all contained in a pot (Wilson 1963). A hoard from Madehurst contained 10 lumps of melted scrap and fragments of two late palstaves (Aldsworth 1983a). There are also hoards containing scrap and ingot fragments from Yapton (Curwen 1954), Lewes (Curwen 1954), Hove (Grinsell 1931), Flansham (Hearne 1940), Ditchling Common (Grinsell 1931) and Brighton (Rowlands 1976). A piece from the St Leonards Marina hoard (Rowlands 1976) may be viewed as either the remains of an anvil or a fragment of casting residue (Ehrenberg 1981).

The only other casual finds from Sussex associated with Bronze Age metallurgy include a casting jet from Possingworth Park, Framfield (Tebbutt 1979), a 'cake' of bronze from Yapton (Aldsworth 1983b) and a bronze bivalve mould from Castle Road, Worthing (Green 1973). The Castle Road piece is of particular interest due to the concretion of lead on its inner faces. This is not uncommon in bronze moulds of this period (Allen *et al.* 1972; Tylecote 1986) and it is thought that a process similar to the lost-wax casting technique was employed, embedding the lead axe in clay and then firing to remove the lead before the bronze was poured (Hodges 1964).

### Iron Age coin

David Rudling

Atrebat: Verica, c. AD 10–20.  
Silver Unit. Weight: 1.28g. Diameter: 13mm. Die axis: 90°. Plate 2.11.

#### Obverse

COW.L. (i.e. COM. F. in retrograde), outline crescent and pellet above and below COW.L., pellet border.

#### Reverse

Boar standing right on exergual line, five-pointed star above boar, partly legible inscription below exergual line: VI.



Plate 2.11 Mile Oak, Trench K: Iron Age silver coin of Verica. (Photo: UCL Institute of Archaeology)

#### Condition

Very good, with few signs of wear to the raised surfaces.

#### Reference

Van Arsdell (1989) 470-5 variant; Mack (1975) 115 variant.

#### Context

Trench K, topsoil of Mound II.

Many similar coins (i.e. Van Arsdell Types 470-5/7 or 470-5/7 variants) were found at Wanborough in Surrey (Cheesman 1994: 49). No parallel has been found for this distinctive obverse with retrograde lettering.

### Roman metalwork

David Rudling

Copper alloy 'dolphin' brooch (Collingwood and Richmond 1969: 295: Group H; Hattatt 1982: 64–8). The spring and pin are missing. Decoration consists of a vertical groove at each wing tip, a row of small punched lines at a sloping angle each side of the central ridge running the length of the bow, and a perforated catch-plate. Mid-first to mid-second century AD. Trench H, surface find. Fig. 2.38.

### Post-Roman metalwork

Luke Barber and Miles Russell

A complete list of all post-Roman metalwork recovered from the Mile Oak excavations has been archived. A catalogue of material has been included in Appendix 4 to present a more complete picture of the range of metal forms recovered from the immediate vicinity of the prehistoric metalworking zone recorded from within Trench K.

### Prehistoric toolmarks

Rob Sands

#### Introduction

It is apparent that the means of manufacture and adaptation of post-holes, pits and ditches can often be preserved on chalk

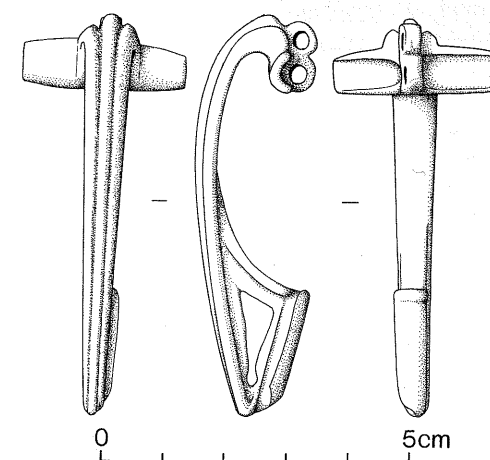


Fig. 2.38 Mile Oak, Trench H: Romano-British copper alloy brooch.

surfaces. It is also clear that these traces can be overlooked during excavation, either as a result of the cleaning process or because it is more usual to concentrate on describing the fill of a feature than it is to record the surface of the cut.

Possible toolmarks were found in two situations at Mile Oak; on the interior sides of a number of Trench 27 MBA post-holes and upon a section of ditch 243. The former were characterised by facet-like surfaces terminating in a curvilinear ridge, while the latter consisted of a series of striations in parallel groups around the sides of the north-eastern terminal of ditch 243. It should be noted that these surfaces were carefully uncovered and the marks observed were not the product of over-zealous cleaning of cut edges during archaeological excavation.

### Toolmarks in the post-holes

A number of references exist to both the axe and the adze being used on chalk. On occasions the form of the original tool has been suggested, as at the LBA settlement of Itford Hill where a series of toolmarks was uncovered and described in the following manner: 'In the base and sides of this pit the marks of an axe-like implement could be clearly seen. Plaster casts were made of these and the fineness of the edge suggests that the implement was a bronze palstave rather than a stone axe' (Burstow and Holleyman 1957: 177).

Marks on chalk have also been categorised more closely. At the Bronze Age enclosure site on Rams Hill, Berkshire, for example, toolmarks have been carefully recorded with tool edge and facet profiles being illustrated (Bradley and

Table 2.19 Mile Oak, Trenches J and K, topsoil. Metal samples: X-ray fluorescence analyses by Dr J. P. Northover

Sample	Sample type	Components												
		Fe	Co	Ni	Cu	Zn	As	Sb	Sn	Ag	Bi	Pb	Au	S
1a	crucible	0.03	0.01	trace	88.77	0.25		0.03	10.74	0.05		0.07	0.05	0.04
1b	crucible	0.02		0.02	95.10	0.03		0.08	4.61		0.03	0.12		0.01
2	droplet	trace	0.01	0.03	79.32	trace	0.07	0.03	0.02			20.44		0.25
3	droplet	0.02	0.01	0.05	79.56		0.46	0.09	11.18	0.09	0.05	8.15		0.33
4	droplet	0.07		0.02	84.26	0.11	0.52	0.26	14.33	0.04	0.01	0.30	trace	0.02
5	droplet		0.01		43.07	trace	0.52		0.05	0.01		56.25		0.09
6	stud	0.08	0.01	0.01	93.32	0.33	0.44	0.08	5.07	0.03	0.02	0.56		0.02
7	tweezers	0.06	0.01	0.09	98.84	0.02		0.02	0.01	0.01			0.01	0.92
9	droplet	0.01	0.04	0.16	84.62		0.05	0.41	7.05	0.15		7.39	0.02	0.10

Ellison 1977: 90–91). Here the authors went as far as to comment that individual tools may be identified and that further observation from a completely excavated site might help in interpreting how site construction was organised.

While the work at Rams Hill suggests that the examination of toolmarks on chalk could be taken further, it is worth pointing out that a toolmark on this material is unlikely to give the same resolution of information as that found on wood. A toolmark on wood can record any imperfections in the original blade edge, as a series of ridges or grooves running down the long axis of the facet. Such patterns are referred to as 'signatures' and provide a unique means of identifying the tool used (Sands 1997). While signatures will certainly be produced on chalk when it is worked, it is highly unlikely that any would survive solution and abrasion effects. Wood is also likely to be a more sensitive recording medium when it comes to preserving the exact blade edge dimensions and shape.

The recording of marks on chalk is important in at least one respect. Such marks suggest that tools, that might ordinarily be considered solely for use in woodworking, have a much broader range of uses on certain prehistoric sites. Clear axe marks have also, for example, been found on the sides of the Bronze Age Wilsford shaft in Wiltshire (Ashbee *et al.* 1989: 33–5), while the use of iron adzes has been suggested for the production of some of the pits at the Iron Age hillfort site of Danebury, Hampshire (Cunliffe 1977: 201).

The marks at Mile Oak are not as clearly or sharply defined as those described at Rams Hill, Itford Hill, Wilsford or Danebury. From those observed, however, it is tentatively suggested that the tool employed to produce the holes was made of metal in an axe-like form. Given its use in the production of post-holes, where access is restricted, it is arguable that the tool was mounted like a large chisel.

### Marks from ditch 243

These marks consist of a series of linear striations running in parallel groups vertically or up to about 45 degrees to the long axis of the ditch. In form they seem to resemble those found on the sides of the Wilsford shaft (Ashbee *et al.* 1989: Fig. 26), which have been attributed to a mechanical rather than an anthropogenic cause. Ashbee *et al.* explain such marks as the product of falling debris as the shaft starts to collapse. This explanation does not seem to fit the Mile Oak ditch given the limited height from which any material might be falling. An alternative suggestion – that water flow created channels in the chalk – may, given the discontinuous nature of the striations and the differing angles displayed, perhaps be discounted. The final possibility is that the marks are produced by people using branches, possibly in the form of a besom, in order to keep the chalk white. Such a suggestion, however, is only theoretical and further testing would be required to see if such actions can produce similar marks.

### Conclusion

Post-holes forming part of the MBA settlement within Trench 27 contained marks that can be interpreted as the product of metal tools, possibly reused axes. The ditch forming part of the Trench 27 henge/enclosure contains marks that could possibly be interpreted as the product of brushing by a besom-like broom, but this requires testing.

### Baked clay

Miles Russell

### Daub (Fig. 2.40)

Trench 27

1. Large fragment (810g) of wall daub with smoothed, concave face. Buff/orange matrix with chalk and flint grit inclusions. Preserved on the reverse are the impressions of at least five wattles, a stake upright of circular section and two squared laths. The wattles, where measurable, vary between 11mm and 16mm in diameter and are set 8mm or less apart. The laths, which possibly represent a section of ground/sill plate, measure 45mm and 38mm in width and are set 19mm apart.

The upper section of the daub fragment measures 38mm from the smoothed face to the central point of the stake upright. A further 410g of baked clay/daub was recovered from this context (details archived). Fill 1525 of post-hole 1526, Round-house I.

2. Fragment of wall daub (325g) preserving an area of smoothed, concave face. Buff/orange matrix with small to medium chalk and flint inclusions. The impressions of at least five wattles of circular section and a single squared lath are preserved on the reverse. The wattles, where measurable, are 11–13mm in diameter. The full width of the ground/sill plate cannot be determined. A further 30g of baked clay/daub was recovered from this context (details archived). Fill 347 of pit 348, Round-house I.

Other fragments of baked daub preserving wattle impressions were recovered from pits 634 (75g), 1429 (30g), 1561 (50g) and terrace fills 1409 (20g), 1419 (25g) and 1423 (5g) of Round-house I, terrace fill 1505 (20g) of Round-house II, and the upper fill 1482 (5g) of ditch 245. Three fragments (45g) of calcareous baked daub, displaying a smoothed, slightly concave face, were recovered from fill 1503 of cut 1504. No wattle impressions were recorded from the material and it is not possible to say with any certainty whether the daub represents the original 'lining' of the feature, or a part of a rubbish deposit.

Daub is a material which is preserved if wholly or partially baked; such baking generally occurs when the structure, of which it forms part, is destroyed by fire (Russell 1990: 96–7). Wall daub from Bronze Age downland contexts is rare and the quantity and quality of the Mile Oak material is exceptional. An attempt to reconstruct the basic framework of the wattle wall, as preserved in the daub of Round-house I, is shown in Fig. 2.40: 3. It is uncertain exactly how the stake uprights were fitted into the ground plate, although they may originally have been inserted into ready-cut holes within a third plank or lath (*cf.* Therkorn *et al.* 1984: 337; Pryor *et al.* 1986: 10–11), the impression of which has not been preserved.

Trench K

3. (Not illustrated) Fragment of baked daub (195g) with a buff/pink matrix and heavy flint grit and chalk inclusions. Roughly flattened surface (probably not original) with the impression of a single wattle of circular section (17mm diameter) preserved on the reverse. A further

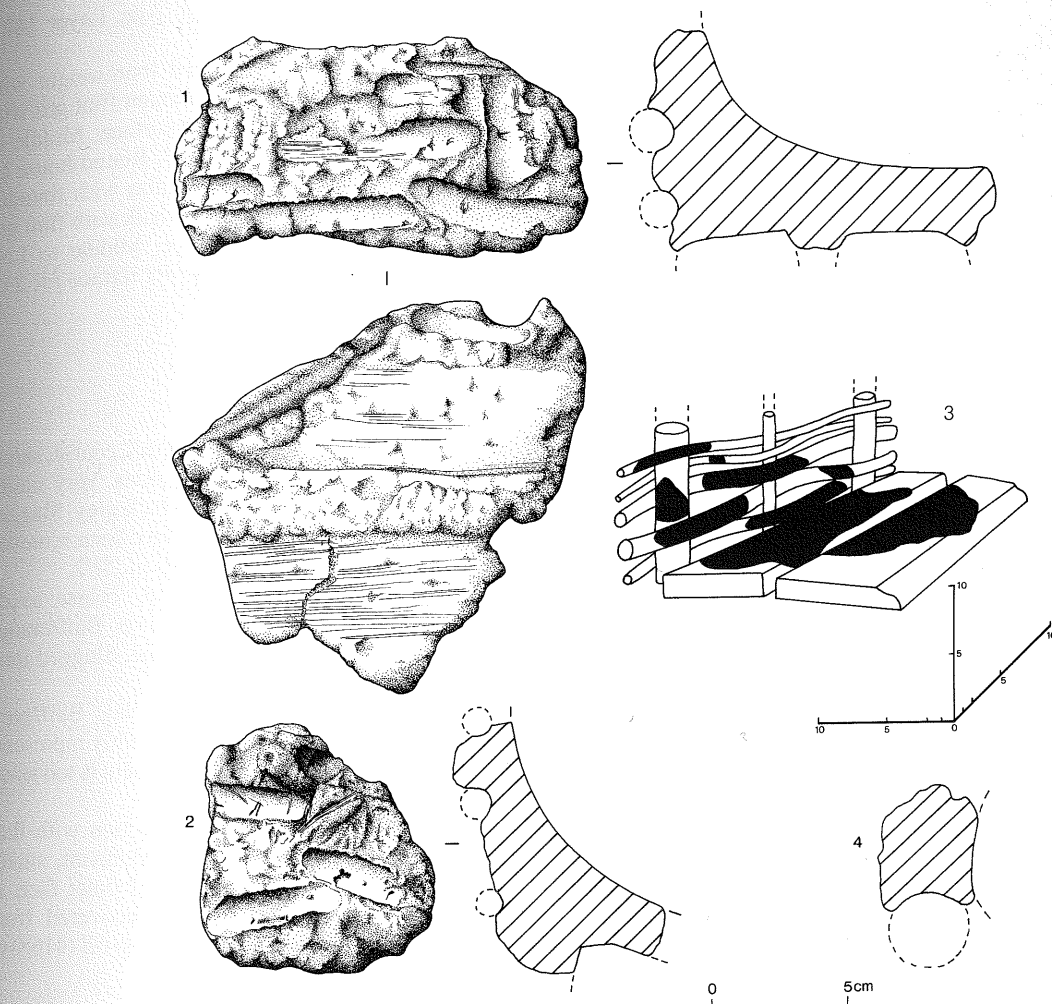


Fig. 2.40 Mile Oak, Trench 27: Daub.

520g of baked clay/daub was recovered from a 1.5m radius (details archived). Topsoil overlying post-hole 607.

4. Fragment of daub (80g) with a cream fabric and heavy chalk and occasional flint grit inclusions. A section of smoothed, slightly concave face is preserved, together with the impression of a single upright stake of circular section (diameter 23mm). The fragment measures 21mm in width from the smoothed face to the central point of the stake upright. A further 110g of baked clay/daub was recovered from this context (details archived). Fill 4075 of plank/post-hole 4074.
5. (Not illustrated) Small fragment (20g) of daub. Buff/orange fabric with chalk and flint grit inclusions. The impressions of three wattles, set 14mm or less apart, are evident, the central wattle measuring c.12mm in diameter. A further 105g of baked clay/daub was recovered from this context (details archived). Layer 320 of Mound II.

Further fragments of baked daub preserving wattle impression were recovered from pit 4077 (5g) and clearance layers 216 (30g) and 4021 (20g).

The material from Trench K is harder to quantify than that from Trench 27. This is mainly due to the more complex arrangement of post structures and surface features recorded from K. It is possible, however, that the material from Con-

texts 4074, 4077 and 320 (being a layer preserved beneath Mound II), represents daub from speculative round-house structure A. The baked daub from Context 376 could have originated from Mound III (although, it has to be said, no comparative piece was recovered from within the mound itself), four-post structure 2, or the outer wall of Round-house A.

### Objects

Trench 27 (Fig. 2.41)

1. Cylindrical, perforated loomweight. Rectangular section with rounded edges. Buff/orange fabric. Medium – large chalk and occasional flint grit inclusions. Smoothed outer surface. Middle to Late Bronze Age. Layer 1421, Round-house III.
2. Cylindrical perforated loomweight. Square section with rounded edges. Buff/orange fabric. Medium – large chalk and medium fire-cracked flint inclusions. areas of original, smoothed outer face survive. Middle to Late Bronze Age. Layer 1421, Round-house III.
3. (Not illustrated) Fragmentary remains of an apparently cylindrical perforated loomweight with smoothed outer surface. Buff/orange fabric. Medium – large chalk



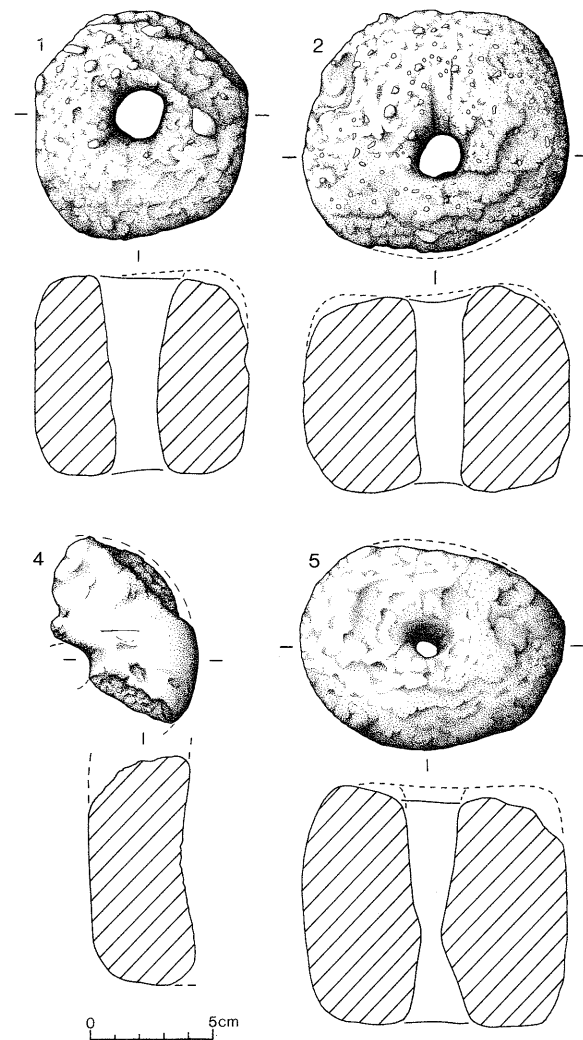


Fig. 2.41 Mile Oak, Trench 27: Clay loomweights.

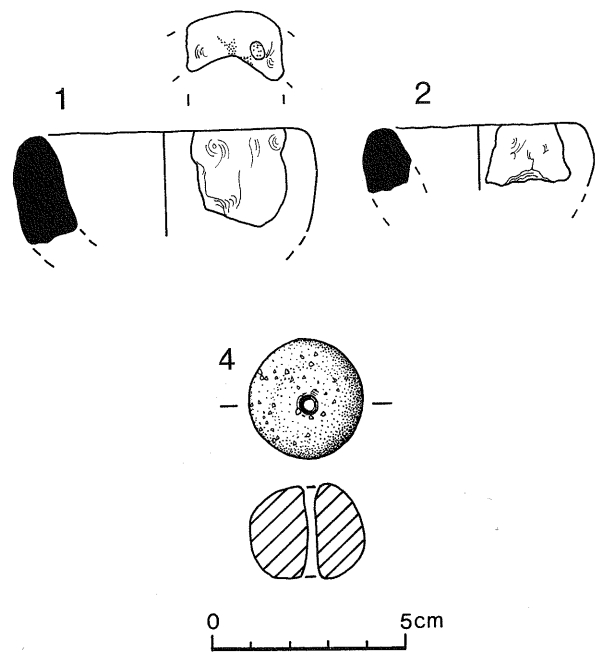


Fig. 2.42 Mile Oak, Trench K: Clay crucibles and spindle whorl.

- inclusions. Middle to Late Bronze Age. Layer 1421, Round-house III.
- 4. Fragment of cylindrical perforated loomweight with rounded edges. Cream fabric. Dominant flint grit with chalk inclusions. Smoothed outer surface. Middle to Late Bronze Age. Fill 348 of pit 347, Round-house I.
- 5. Perforated loomweight. Square section with rounded edges. Buff/pink fabric. Dominant chalk with flint grit inclusions. Smoothed outer surface, Middle to Late Bronze Age. Machine-disturbed lower terrace fill 233, Round-house I.

Trench K (Fig. 2.42)

- 1. Rim of a thick-walled crucible. Compact, coarse, sandy fabric with sub-angular quartz inclusions. Very sandy, buff/brown core, surface reduced to dark grey. Slagged interior. Two prills of copper alloy have been removed for analysis (see Wallis, above). Topsoil. SF2.
- 2. Well-rounded crucible rim. Compact, coarse sandy fabric with sub-angular quartz inclusions. Buff/orange core. Red, cupreous glaze on outer face. Slagged interior. Topsoil. SF26
- 3. (Not illustrated) Fragment of baked clay. Buff/grey, fine sandy fabric. Slagged interior. Possibly represents part of a clay mould, although the fragment is too small for precise identification. Topsoil.
- 4. Perforated spindle whorl. Rounded section with flattened edges. Cream orange fabric. Dominant, small-medium flint grit inclusions. Smoothed outer face. A chalk spindle whorl has also been recovered from Trench K (see Laughlin *et al.*, below). Top fill (4168) of possible solifluction hollow 4169.

Geological material

Alyn Laughlin, Michael Laughlin and Miles Russell

Trench 27

- 1. Large, roughly rectangular block of pale grey, fine-grained sandstone (malmstone). One side has been roughly dressed with a series of toolmarks being evident upon the lower half. Crudely rounded at base, top is defaced and broken, probably as a result of later agricultural activity. Upper Greensand. Recovered from an upright position within pit 601, Area C (Fig. 2.43).
- 2. Light pinkish/grey sandstone (possibly a fine-grained malmstone) with a high content of mica and some quartz. Fragment of a saddle quern. Upper Greensand. Charcoal layer 1423 at base of terrace 234, Round-house I (Fig. 2.44).
- 3. (Not illustrated). Light pinkish/grey, medium-grained malmstone. Single smoothed, flat, outer face. Possible rubbing stone fragment. Upper Greensand. Layer 2639, Box 6.2, ditch 1557.
- 4. (Not illustrated). Pale brown, fine-grained sandstone. Single, partially smoothed, convex face. Possible quern fragment. Upper Greensand. Layer 3245, Box 8.2, ditch 245.

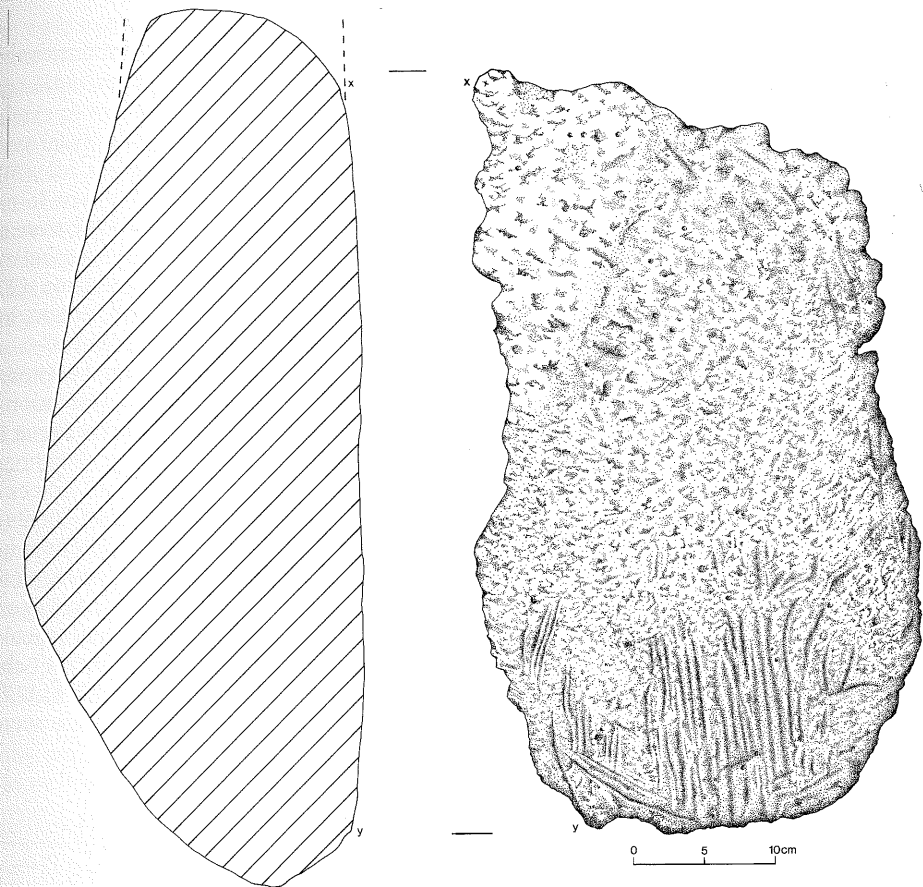


Fig. 2.43 Mile Oak, Trench 27: Block of dressed malmstone.

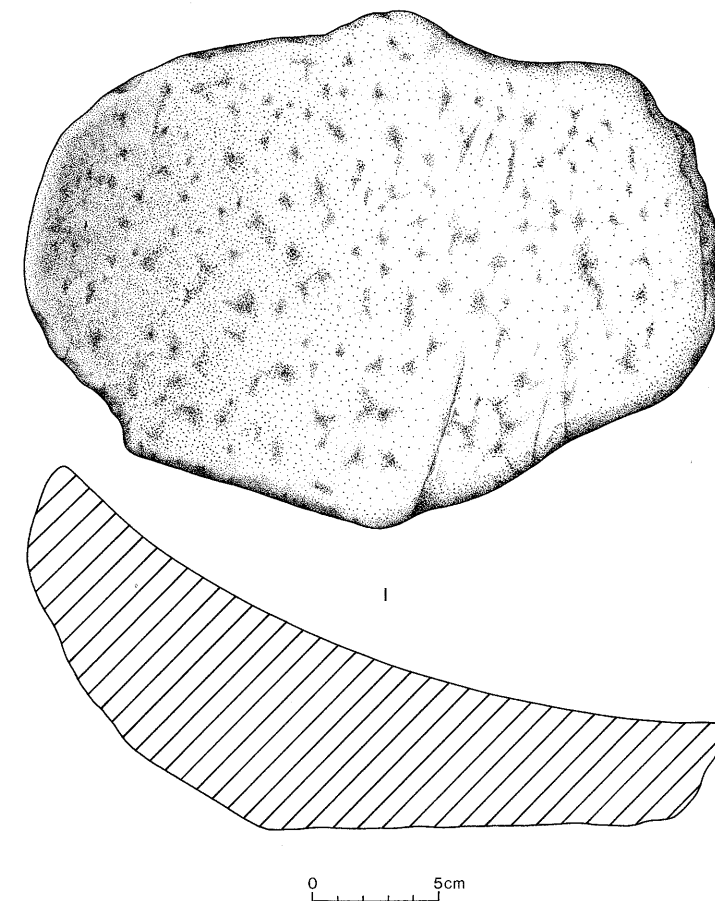


Fig. 2.44 Mile Oak, Trench 27: Fragment of a sandstone saddle quern.

**Trench K (Fig. 2.45)**

1. Roughly tooled chalk spindle whorl. Topsoil. SF30.
2. Grey/red, fine-grained sandstone whetstone/rubber fragment. Upper Greensand. Topsoil Mound III. SF31.
3. Grey/brown sandstone whetstone/rubber fragment with medium to fine mica and quartz inclusions. Upper Greensand. Topsoil. SF32.
4. Fine-grained, internally grey sandstone (silt stone). Whet/touchstone fragment. Upper Greensand. Topsoil. SF33.
5. Dark grey/brown, fine-grained sandstone Whet/touchstone fragment. Upper Greensand. Topsoil. SF34.
6. Light brown/grey, fine-grained malmstone. Possibly represents part of a hammer/anvil (?). Upper Greensand. Topsoil. SF35.
7. (Not illustrated) Light grey, fine-grained sandstone fragment with one smoothed, partially convex face. Possibly Upper Greensand. Topsoil. SF36.
8. (Not illustrated) Light brown, medium- to fine-grained sandstone fragment. Single smoothed, flat outer face. Upper Greensand. Layer 316, Mound II. SF37.
9. (Not illustrated) Light brown, medium-grained sandstone. Single, roughly smoothed, convex face. Upper Greensand. Layer 316, Mound II. SF38.

**Trench M**

10. (Not illustrated) Dark grey/light brown, partially weathered, fine-grained sandstone. Single, roughly smoothed flat face. Topsoil.

The geological samples recorded represent the utilisation of local resources throughout all phases of site use. No foreign/exotic stone types were recovered. The concentration of whet/touchstone fragments from the area of Trench K presumably relates to the area of Later Bronze Age metalworking activity.

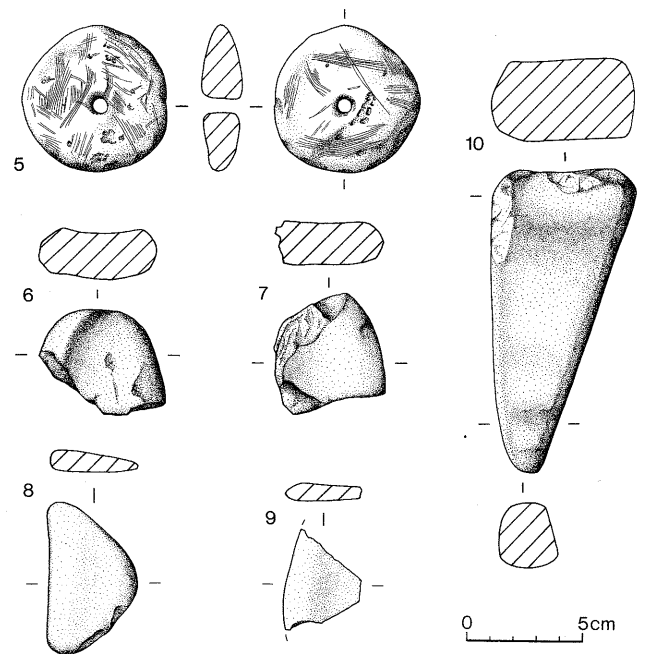


Fig. 2.45 Mile Oak, Trench K: Objects made of stone.

**Human remains****Sue Browne****Trench 27**

The human remains from Mile Oak were recovered from a pit (2705) in Area D. The archaeological evidence suggests that it is LBA in date. The skeleton (2707) is virtually complete and in good condition, although the feet are less well-preserved than the rest of the body.

The skeleton is of a female aged between 17 and 25 years and 1.60m (5ft 3in.) tall. Epiphyseal union is completed but the line of union is still visible in the femur head and the iliac rim. The cranium falls into the dolichocephalic category (see Table 2.20 for the skeletal indices and Table 2.21 (Appendix 4) for the list of measurements).

The cranium is not metopic and shows no wormian bones or tori. There is a supra-orbital foramen on the right side, a supra-orbital notch on the left side and a parietal foramen on the right side only. The epipteric articulation is sphenoparietal. No post-cranial non-metric characters usually scored by the writer (cf. Browne 1996: 117-21) are present.

No anomalies nor pathology were seen in the teeth (all are present) or the bones.

Table 2.20 Mile Oak: Skeletal indices for skeleton 2707

Cephalic index	Platymeric index	Platycnemid index
73.3	70.0	72.4

**The animal bones****Patricia Stevens**

The animal bones from Mile Oak were recorded using methods devised by A. J. Legge, Birkbeck College, Centre for Extra-Mural Studies, and adapted by the author.

A total of 597 bone fragments from 104 contexts were identified to species or family (Table 2.22). A large number of contexts had one small unidentifiable fragment each, which have not been recorded.

Table 2.22 Mile Oak: Summary of the animal bones.

Species	No.	%
Cattle ( <i>Bos</i> sp.)	90	11
Sheep/Goat ( <i>Caprine</i> )	488	61
Pig ( <i>Sus</i> sp.)	5	1
Horse ( <i>Equus</i> sp.)	6	1
Red Deer ( <i>Cervus elaphus</i> )	3	
Rabbit ( <i>Oryctolagus cuniculus</i> )	1	
Hare ( <i>Lepus</i> sp.)	1	
Fox ( <i>Vulpes vulpes</i> )	1	
Badger ( <i>Meles meles</i> )	1	
Mole ( <i>Talpa europaea</i> )	1	
Large ungulate	46	6
Small ungulate	156	19
Total number of species	10	
Total number of bones	799	

Table 2.23 Mile Oak: Cattle bones by context.

Context	Bones
<b>Trench 27</b>	
Enclosure Ditch (Secondary Deposits)	
3125	1
3186	3
3251	5
3413	1
3446	1
Enclosure Ditch (Midden Deposits)	
1572	1
2625	4
3042	1
Terrace 234 (Secondary Deposits)	
1451	3
Terrace 1421 (Secondary Deposits)	
1421	7
Pond (1504)	
1503	5
<b>Trench K</b>	
4106	1
Mound II	
323	1

The remainder were examined and recorded by species and part of the skeleton where possible, and by further examination for possible butchery cuts and chops, gnawing by canids and rodents as well as any evidence of pathology. Measurements were taken whenever possible following von den Driesch (1976), for comparative purposes and to help give an estimation of size of the animals present. Mandibular teeth were recorded for wear, after Grant (1982) and fusion data of all bones recorded, after Silver (1969); both giving an indication of the age of animals at death.

Approximately 75% of the bones recorded were identified to species, with 25% being recorded as either large or small ungulate. Large or small ungulate means that the bone fragment recorded can only be attributed to size rather than species, i.e. cattle, horse or red deer fragments are classed as large ungulate and sheep, goat or roe deer fragments as small ungulate.

It can be seen from Table 2.22, that the major species present is sheep/goat (61%), followed by cattle (11%), with pig and horse (1%). All other species are represented by one bone each, apart from red deer with three bones. The two major species are considered in more detail below. All bone fragments recovered from topsoil contexts have been disregarded and are not included in the following species assessment.

Cattle fragments are few in number with the greatest frequency from loose teeth and a small number of post-cranial bones, mainly single elements. Although some measurements were taken, there are none present that would indicate the size of cattle present.

There is no evidence of butchery on any of these bones, but as several bones are very fragmentary and eroded this may have destroyed any such marks.

**Ageing**

The remains of three mandibles gave some indication of the age of cattle present. All three would suggest that the cattle were more than two-and-a-half years of age. Unfortunately, the bones with fusion data present are all from early fusing elements (Table 2.24 (Appendix 4)), which fuse from between 7 and 18 months of age, suggesting that the cattle were certainly not less than 18 months old at time of death. Owing to the lack of information from the other bones present, it is not possible to suggest a possible age range.

**Gnawing**

Several bones show evidence of having been gnawed by dogs: one mandible, two scapulae, two distal humeri and one proximal radius.

**Sheep/goat**

The sheep are represented by some 488 fragments, the majority of which come from juvenile animals recovered from six Post-Medieval contexts within Mound III, Trench K: Contexts 330 (30 bones); 625 (167 bones); 4010 (26 bones); 4133 (13 bones); 4135 (86 bones); 4136 (26 bones).

Practically all of the Mound III contexts produced juvenile unfused bones (see Table 2.25 (Appendix 4)) and examination of the jaws present (after Legge 1991a) shows that some 11 lambs were most likely the result of a first autumn kill at around the age of 6-8 months. One other mandible suggests a probable second autumn killing at around the age of 18-20 months. Ageing of the animals was also calculated using fusion data and Table 2.25 (see Appendix 4) in part confirms the data suggested by mandible wear. Some 96% of bones remained unfused from those which fuse by the age of 10 months, with 83% of those fusing by the age of 28 months and a further 97% remaining unfused by the age of 36 months. The remaining sheep/goat bone fragments come from contexts (see Table 2.26) containing less than ten bones or single loose teeth.

**Other species**

Apart from noting their presence, very little can be stated about the other species present from the site (see also Table 2.22).

Pig is represented by a shaft fragment of tibia which has been gnawed by dogs and two teeth. The red deer is represented by three tibia fragments, two of which were freshly broken, two humeri, a femur and six fragments of skull (R. O'Shea 1990, pers. comm.). Of the five remaining species, three may well be from modern intrusions, but as they are all only represented by one bone no further statement can be made.

**Discussion and conclusions**

If the Middle and Later Bronze Age settlement phases at Mile Oak are considered in comparison with a number of other Bronze Age sites it appears that they are somewhat similar when the major species of animal are examined. Phases I and



**Table 2.26** Mile Oak: Sheep/goat bones by context (excluding Trench K, Mound III).

Context	Bones
<i>Trench 27</i>	
Enclosure Ditch (Primary Deposits) 2708	2
Enclosure Ditch (Secondary Deposits) 2658	1
Building Terrace 234	
348	2
1576	14
1578	2
Terrace 234 (Secondary Deposits)	
1409	8
1419	9
Terrace 1425 (Secondary Deposits)	
1454	4
<i>Trench K</i>	
4106	1
Mound II	
323	1

**Table 2.27** Mile Oak: Bones of other species by context.

Context	Bones
<i>Pig</i>	
Trench 27:	
Terrace 234 (Secondary Deposits) 1419	2
Trench J:	
260	1
<i>Horse</i>	
Trench K:	
387	5
4062	1
4083	1
Mound II	
343	11
377	1
4057	3
<i>Red deer</i>	
Trench 27:	
Enclosure Ditch (Primary Deposit) 2642	1
Enclosure Ditch (LBA Midden Deposits) 2625	4

II at Down Farm, Wiltshire (Legge 1991a,b) produced 48% of cattle bones compared to 45% of sheep/goat bones and 4% of pig. At Runnymede (Done 1980) cattle represent a much higher percentage: 57% compared to 27% of sheep/goat and 14% of pig. Grimes Graves produced similar numbers: 53% cattle, 39% sheep/goat and 5% pig.

As stated previously, there is not enough evidence to indicate the size of the cattle, and from the available data none of the cattle appear to be less than 18 months of age. There is some indication that these remains may have remained exposed prior to burial as 22% of post-cranial material has been gnawed by dogs.

Very little can be said as regards the fragmentary sheep remains recovered from Bronze Age contexts, although the occurrence of 18 fragments from features within Round-house I, Trench 27, is noted.

The pig remains are so few as to be insignificant.

The horse, certainly domesticated by the Bronze Age, was a very important animal and would have been used for transport purposes. It is interesting, in this respect, to note that all horse remains were recovered from within and around the Trench K LBA settlement and metalworking area. The estimated size of a 13hh-horse present at the site would correlate with the suggested size of Bronze Age horses (Legge 1992).

### Marine shell

#### Penelope Hasler

A total of 6,769 marine shell valves or molluscs were recovered during the excavations. These were all classified by species. Shell was recovered from most areas of the site.

#### Trench 27: ditch 243/245/1557

Huge quantities of marine shell were recovered from this feature, totalling 6,481 recorded valves or molluscs. This material was not evenly distributed either stratigraphically or spatially, and was subjected to statistical analysis.

#### Stratigraphical analysis

As can be seen from Table 2.28, more marine shell was recovered from the upper two phases of this ditch, with 6,459 valves or molluscs; whereas the earlier and lower two phases produced only 22 valves or molluscs.

#### Spatial analysis

In addition shell deposits were concentrated in the ditch terminal fills adjacent to the south-eastern causeway, and in the fills of the remaining terminal adjacent to the north-west causeway. Other areas of the ditch produced smaller quantities of shell. There are four contexts in the ditch that represent the vast majority of the assemblage.

#### Species analysis

The vast majority of the shells from this feature were edible mussel (*Mytilus edulis*) with 6362 individual valves in total. A breakdown of species number in each ditch phase is shown in Table 2.28.

Species diversity increased from three species in the lowest unit (E) to five species in the Unit B/A at the top (see Fig. 2.46 for unit divisions). Mussels were present in all phases, increasing in number towards the top of the ditch. Cockle (*Cardium edule*) species followed the same general pattern, but were much less common. Only three oyster (*Ostrea edulis*) valves were recorded from the ditch; one

was from the very bottom fill and the others were from the uppermost fill. Periwinkle (*Littorina littorea*) and scallop only occurred in the uppermost surviving fill.

#### Shell from other cut features in Trench 27

Twenty-one cut features contained shell, most with no more than a few fragments of mussel. These were post-holes and pits from Areas A and E. Some features are, however, worthy of individual mention:

- The fill of a post-hole (1463) in Area D (Round-house III) contained the most marine shell found in a single feature on this site other than the enclosure ditch. The 24 mussel valves, and the single oyster and cockle valves may have been used as post-packing.
- Pit 2705, which contained the contracted human burial, also produced one mussel valve and a mussel fragment.
- Feature 1504, a possible pond, produced two mussel valves.
- Feature 1455, a pit, produced five mussel valves.
- Unstratified finds from Trench 27 included: nine mussel; two cockle; three oyster; two carpet shell (*Venerupis pullastra*) and one scallop (*Pecten maximus*) valves/molluscs.

#### Trench K: cut features

Shell within cut features was limited to one fragment of oyster shell in post-hole 4084 and one fragment of oyster from pit 4109.

Marine shell was also recovered from Mounds II and III and the numbers and species are summarised in Tables 2.29 and 2.30.

It is noticeable that no mussel fragments were recovered from sealed contexts in this area. One, along with 14 cockle, 27 oyster, 20 carpet shell and 2 scallop shell fragments, was recovered during topsoil clearance.

#### Lynchets

The other trenches (F, J, M, N, P and W) that produced shell (see Archive) were all in the valley catchment that contained Trenches 27 and K. They are located either on the same contour level as Trenches 27 and K, or lower than these known sites. As no shell species were recovered from the lynchets at a higher level, it is possible that where lynchets have yielded shells these may have come from the two known sites.

#### Discussion

A comparison of the shell assemblages from the two loci of activity at Mile Oak is shown in Table 2.31.

**Table 2.28** Mile Oak: Trench 27, ditch 243/245/1557. Numbers of valves or shells of each marine mollusc species.

Species	Ditch Unit E	Ditch Unit D	Ditch Unit C	Ditch Unit B/A	Total
Mussel	6	13	1959	4384	6362
Cockle	1	1	20	28	50
Oyster	1	0	0	2	3
Carpet shell	0	0	39	0	39
Periwinkle	0	0	0	26	26
Scallop	0	0	0	1	1
Total	8	14	2018	4441	6481

**Table 2.29** Mile Oak, Trench K: marine shell from contexts within Mound II.

Species	Number of valves/molluscs
Cockle	2
Oyster	15
Carpet shell	2
Scallop	1
Whelk	2
Total	22

**Table 2.30** Mile Oak: Trench K: marine shell from contexts within Mound III.

Species	Number of valves/molluscs
Cockle	11
Oyster	6
Carpet shell	7
Scallop	1
Whelk	0
Total	25

**Table 2.31** Mile Oak: Comparison of the total marine shell assemblages from Trenches 27 and K.

Species	Trench 27	Trench K
Mussel	6512	1
Cockle	52	27
Oyster	6	50
Carpet shell	41	29
Scallop	2	4
Periwinkle	28	0
Whelk	0	4

The much larger shell assemblage Trench 27 may be a result of the good conditions for preservation within the deep ditch fills. The species diversity is the same for both sites, with periwinkles absent from Trench K, and whelks (*Buccinum undatum*) absent from Trench 27. The large number of mussel shells within the enclosure ditch show that one use of the ditch was waste disposal. The widespread distribution of the shells in many contexts suggests that these were not the waste from only a few dumping events. In contrast, mussel shells were apparently deposited over a period of time and in different locations. The majority of shell species represented in Trench 27 were possibly collected from a rocky shore, whereas the majority of those from Trench K could have been collected from an estuarine environment.

## The wood charcoal

### Valdez Berzins

The following text is a summary, with some additions and modifications, of a dissertation that formed part of a BSc course at the Institute of Archaeology, University College London. The full report (Berzins 1992) is included in the site archive.

### Methods

Most of the material collected by hand (39 samples), as well as 21 flotation samples, were examined. Fragments of 4mm or larger were fractured with a razor blade, mounted in plasticine (Leney and Casteel 1975:158) and viewed under an epi-illuminating microscope, mainly using magnifications of 60x, 100x, 240x and 400x.

Problems were encountered in distinguishing hazel from hornbeam, since the scalariform perforation plates, which are the main distinguishing feature between the two, were difficult to find. Specimens that did not appear to have scalariform perforation plates could be fragments of hornbeam, but equally the perforation plates could have been obliterated by mechanical disturbance of the charcoal. Because of this, fragments of hazel/hornbeam without scalariform perforation plates were recorded as 'indeterminate', so effectively excluding hornbeam from the results of the identification - if indeed any hornbeam wood is present.

It was not always found possible to distinguish between blackthorn (*Prunus spinosa*) and wild cherry (*Prunus avium*), so that identification is only given to genus level. However, at least some of the material was clearly blackthorn.

An attempt was made to distinguish immature wood, where the growth-ring boundaries are visibly curved and where the rays appear to converge, from mature wood, where there is no visible curvature of the growth-ring boundary and where the rays run more or less parallel. However, the smaller the fragments, the fewer will have noticeable curvature. In order to eliminate this bias, the following procedure was followed: the lens of the microscope was scanned across the whole of the charcoal fragment, but only that part of the transverse section visible in the field of view at one particular place at 60x magnification was taken into account when assessing whether there was discernible curvature of the growth-ring boundary and whether the rays appeared to converge. If curvature of the growth-ring or convergence of the rays was visible, then the fragment was designated as 'twiggy'. Otherwise it was regarded as 'not twiggy' or, if wood structure could not be seen across the whole of the field of view (because the fragment was too small or too poorly fractured), then the fragment was regarded as 'unclear'. Admittedly this is a somewhat subjective method, but it largely excludes the bias caused by different sizes of fragments. Experimental work showed that the 'twiggy' wood occurred within a radius of about 1cm from the pith. This method was applied to all the identifiable specimens from the flotation samples, except (since time was short) for oak.

## Results

Table 2.32 is a list of the taxa identified, together with a list of the native British species that these taxa include.

Table 2.33 (Appendix 4) gives the weights of charcoal of the various taxa found in each context which produced identifiable charcoal. The only taxa found to have a large proportion of 'twiggy' wood were Pomoideae and *Prunus*. Because of the small size of the sample (much of the material was 'unclear') the results of this analysis cannot be considered very meaningful and so have not been included here.

## Discussion

### Trench 27

The charcoal in the upper fill layers of the enclosure ditch 243/245/1557 is generally associated with other sorts of prehistoric rubbish (worked flint, burnt flint, bone, pottery), suggesting that the charcoal too represents domestic debris rather than material from destroyed structures or from vegetation clearance by fire. Although only a very small number of fragments were identified from each ditch fill, making it impossible to draw any definite conclusions, there does not appear to be any dramatic increase or decrease in the presence of any taxon between the first and fourth ditch fills (see Table 2.34). The three taxa that are most commonly found - hazel, maple and Pomoideae - are present in both the first (?EBA) and fourth (MBA) fills, and in most of the fill layers in between. Thus the analysis of charcoal from the ditch suggests that the pattern of use of the different taxa did not change substantially between the Early and Middle Bronze Age.

If all the contexts that can be related to the MBA settlement phase are considered together, that is all the contexts from Round-houses I-III, along with the fourth fill of the enclosure ditch, then two types of samples can be distinguished.

The first type contains small amounts of charcoal (lg), with the weight of oak not being more than that of other taxa. This type includes Contexts 3023, 3372, 3002 and 1650 from the fourth ditch fill, which are considered to be rubbish deposits, as well as fill 1576 of cut 1577 in Round-house I and pit fill 1463 in Round-house II. The charcoal in these samples can be considered to be material accompanying domestic rubbish.

The second type of sample contains large amounts of oak (>lg) and in most cases no material of other taxa. This type includes: in Round-house I - destruction layer 1642, post-hole fills 1643, 394 and terrace fill 2334-1409-1419; from Round-house II - post-hole fill 1535, apparent post-hole fill 1523; from Round-house III - the hand-picked sample of terrace fill 1421. It seems that this can only be explained as representing the construction material of the buildings. Round-house I was clearly destroyed by fire (see also Russell above), and this can be assumed to have produced the large amounts of oak charcoal in the destruction layer 1642 and probably in the other features of this structure. The fact that samples belonging to this type were found in Round-houses II and III as well points to the conclusion that all three round-houses burnt down.

Fragments of pottery, bone and flint were present in many samples of the second type, suggesting that domestic

rubbish also contributed to these samples. The absence of charcoal taxa other than oak in most of these samples probably reflects the fact that the fragments of charcoal accompanying domestic rubbish are small and so were not found in the hand-picked material. (NB for most of these contexts flotation samples were not available.)

There are a number of contexts in the round-houses that cannot be clearly assigned to either of the two assemblage types. Most of these show a similarity with the second type in that they contain exclusively or mainly oak, but do not contain such large amounts of it.

The idea that hazel, maple and species within the subfamily Pomoideae and the genus *Prunus* were important fuel woods, and that oak was used for constructional timbers, fits quite well with the historically attested use of wood. Pedunculate oak, maple, hazel, as well as ash are all strongly associated in coppiced woodland today (Peterken 1981: 114) so that it seems quite likely that they grew together. Such woods are included in Peterken's woodland classification in 'stand group 2' (Peterken 1981: 125-30) and are discussed

Table 2.32 Mile Oak: The wood charcoal by taxa and native British species.

Identified to genus	
Oak ( <i>Quercus</i> )	pedunculate oak ( <i>Q. robur</i> L.) sessile oak ( <i>Q. petraea</i> (Matt. Liebl.)
Maple ( <i>Acer</i> )	field maple ( <i>A. campestre</i> L.)
Ash ( <i>Fraxinus</i> )	ash ( <i>F. excelsior</i> L.)
<i>Rhamnus</i>	blackthorn ( <i>R. catharticus</i> L.)
Hazel ( <i>Corylus</i> )	hazel ( <i>C. avellana</i> L.)
Beech ( <i>Fagus</i> )	beech ( <i>F. sylvatica</i> L.)
<i>Prunus</i>	blackthorn ( <i>P. spinosa</i> L.) wild cherry ( <i>P. avium</i> L.) bird cherry ( <i>P. padus</i> L.)
Elm ( <i>Ulmus</i> )	English elm ( <i>U. procera</i> Salis.) wych elm ( <i>U. glabra</i> Huds.)
Identified to higher levels of classification	
Leguminosae	many species, including common gorse ( <i>Ulex europaeus</i> L.)
Pomoideae	common hawthorn ( <i>Crataegus monogyna</i> Jacq.) woodland hawthorn ( <i>Crataegus oxyacanthoides</i> Thuill) crab apple ( <i>Pyrus malus</i> L.) pear ( <i>Pyrus communis</i> L.) whitebeam ( <i>Sorbus aria</i> (L.) Crantz) rowan ( <i>Sorbus aucuparia</i> L.) wild service ( <i>Sorbus torminalis</i> (L.) Crantz)
Salicaceae	many species of willow ( <i>Salix</i> ) aspen ( <i>Populus tremula</i> L.) black poplar ( <i>Populus nigra</i> L.)

Table 2.34 Mile Oak: Trench 27. Number of contexts from each fill layer of ditch 243/245/1557 in which charcoal taxa were found.

	1st (5)	1st/2nd (1)	2nd (3)	3rd (3)	3rd/4th (1)	4th (5)	Total
Hazel	2	1	2	2	1	1	9
Maple	3			1	1	2	7
Pomoideae	3		1	2		1	7
Oak	1		1			1	3
<i>Prunus</i>	1				1		2
Ash	1				1		2
Beech			1				1
Elm						1	1

The number in brackets indicates the total number of contexts from each fill layer that produced identifiable charcoal.

by Rackham in his chapter on ash-maple-hazel woods (Rackham 1980: 210-15). In these woodlands pedunculate oak usually occurs as standard trees which have not been coppiced, but have been left to grow for use as timber.

Coppicing involves regularly cutting back the wood almost to ground level. The coppice stool then produces a number of fairly straight poles that can again be cut on a shorter or longer rotation. These poles can be used for various purposes, among which firewood is the most important. There is no evidence that woodland was being managed in this way at this site, but there is considerable evidence from other areas, notably the Somerset Levels (Coles and Orme 1985), that coppicing was practised from the Neolithic onwards.

Hawthorn, white beam (of the Pomoideae) and blackthorn (of the genus *Prunus*) are also found in mature woodland, but are usually more important in scrubland and in the early stages of woodland regeneration. Oak, ash, hazel and maple, as well as crab apple and rowan in the Pomoideae, and wild cherry in the genus *Prunus*, are also found in scrub communities (Smith 1980: 337, 353; Rackham 1980: 349). However, the charcoal of calcicole shrubs that are particularly characteristic of scrub communities on the chalk (Smith 1980: 318) is absent, with the exception of one piece of buckthorn. Firewood can also be obtained from hedge-trimming, and hazel, maple, elm, oak and ash, but especially hawthorn and blackthorn, are all important hedgerow plants (Pollard *et al.* 1974: 72).

Maple prefers base-rich, calcareous soils (Jones 1944; Rackham 1980: 204, 207) and is likely to have been growing either on the chalk itself or possibly on thin caps of Clay-with-Flints overlying the chalk. The other trees and shrubs represented in the charcoal occur over a wider range of soils and so are not useful indicators in this respect.

Beech is not considered to be a pioneer tree, but instead forms mature woodland, where it tends to create a dense canopy, shading out most other vegetation (Smith 1980: 353-7). The reason why beech is not well represented in the charcoal may be that the woodland used for fuel was still in an early stage of regeneration, or because of factors associated with climate or with lack of soil disturbance by man, as suggested by Thorley (1981). There is evidence that soils on the chalk slopes and hilltops were deeper and less calcareous before clearance for agriculture (Bell 1981: 84; Allen 1988: 83), and such soils would probably have allowed oak to compete better with beech than it does today.

### Trench K

The Leguminosae charcoal in Mound II is most likely to be gorse. It is associated with large amounts of fire-cracked flint and would have provided good firewood.

Much of the material from the features below the mounds is concentrated in the suggested entrance area of the LBA Round-house B. Considerable amounts of oak were found here (fills 4106, 4108 and 4119), and by analogy with the material from Trench 27 it could be suggested that this represents the timbers of the building, charred either in construction or destruction.



## Conclusions

### Regarding ecology and use of wood

1. Oak was the main timber used for the construction of the three MBA round-houses.
2. In both the EBA and MBA phases hazel, maple and species within the Pomoideae (probably mainly hawthorn) were among the most commonly used fuel-woods.
3. It seems quite likely that oak, maple, hazel and ash all belonged to one plant community, either as mature woodland or (less likely) as scrub. Bearing in mind the soil preferences of maple, such a community is likely to have been growing either on the chalk itself, or on thin layers of Clay-with-Flints overlying the chalk.
4. The presence of blackthorn, and almost certainly also hawthorn, in the charcoal, suggests that scrub, woodland margins or even hedges were also being exploited for fuel.

### Regarding events on the site

The analysis of the charcoal suggests that all three MBA round-houses in Trench 27 may have been destroyed by fire.

## Charred plant remains

Pat Hinton

### Introduction and methods

The samples were received as packets of dried 'flot', from some of which charcoal fragments had previously been extracted. Most samples contained modern roots and seeds, and much fine silt or clay which adhered to some of the charred seeds making examination of finer surface details difficult.

The larger mats of dried modern roots were teased out over a stack of sieves (2–0.5mm) which also removed most of the loose sediment. Samples from 66 contexts were searched, of which 35 included charred plant material other than charcoal. This was sorted by stereo microscope at 7–40x magnification.

### Identification

When the samples were originally searched for charcoal (see Berzins, above) several charred root fragments were extracted and passed to Dr Jon Hather (Institute of Archaeology, UCL), and during the sorting for other plant macrofossils further fragments of roots and tubers were found. Among these Dr Hather has identified tubers of *Conopodium majus* (pig nut), *Arrhenatherum elatius* (onion couch) and possibly *Ranunculus ficaria* (lesser celandine). Some other tubers and tuber-like fragments (Trench K, Contexts 327, 337 Mound III, parts of what may be secondary roots, similar in size to those of the wild parsnip) (Trench K, Contexts 325, 4010: Mound III) and fragments of possible

tap root of another dicotyledenous species (Trench K, Context 4010: Mound III) are as yet unidentified.

Many of the cereal grains and the other few seeds from the building terraces, post-holes etc. of Trench 27 were only moderately well preserved, but those from the larger deposits under Trench K, Mound III were in good condition, some of the docks being represented by achenes still retaining part of their surrounding perianth with tubercles.

All the barley caryopses which are sufficiently well preserved and undistorted show the angular outlines of hulled barley and the presence of some apparently naturally asymmetric grains indicates the presence of 6-row barley. There was no evidence of naked barley.

Some seeds in very poor condition remain unidentified and also some fragments from Context 1576, Trench 27, Round-house I. These measured c.4.0mm x 4.0mm – c.8.0mm x 15.0mm and appeared an amorphous mass of charred starchy material. No recognisable plant matter could be seen.

## Results

Except for the cultivated cereals and beans, the order and nomenclature in Tables 2.35 and 2.36 follow Clapham *et al.* (1989). The total of barley grains in Context 1421 within ditch 243, Trench 27, was reached by estimating the number of grains represented by identifiable fragments in a sub-sample, and adding this estimate to the number of whole grains. The ten beans, in Context 1421 comprise seven more or less whole beans and three non-matching halves. The many culm and root fragments which comprise the bulk of the samples from Trench K, Contexts 4006, 4010 and 4110 (Mound III) are recorded by weight.

## Discussion

### Trench 27

The results from the majority of the samples, which are small amounts of cereal grains and few other seeds, probably reflect the background scatter of charred fragments commonly found on sites. The sample from Context 1421 (Area D) however, with a larger number of cereal grains, and beans, does seem likely to be closely related to Round-house III. Apart from the cleavers (*Galium aparine*) and the onion couch (*Arrhenatherum elatius*) which may have been arable weeds, only cultivated food plants are represented. No cereal chaff was discovered and it may be that the grain had been prepared for consumption, and with the beans, represented part of a food store.

This assemblage of predominantly hulled barley with a few emmer and/or spelt grains and a few beans, is very similar to those from the much larger deposits of grain from LBA settlements at Blackpatch (Hinton 1982) and Itford Hill (Helbaek 1957), although no beans were found at the latter site. The grain recovered from the fill 2704 of the burial pit (2705) again is similar in being mostly hulled barley with only a few grains of wheat. The radiocarbon dates (see Section 9) indicate a Late Bronze Age date for this feature (GU-5675+GU5691; 1260–900 cal BC).

Table 2.35 Mile Oak: Trench 27. Charred plant remains by context.

	House I			House II			House III			Burial			Ditch fills			Post-hole		
	1525	1576	1463	1521	1559	2626	2629	2630	2674	3318	3371	3372	3393	3396	1516			
<i>Triticum dicoccum</i> Schubl. (emmer wheat)				1				1										
<i>Triticum dicoccum/spelta</i> (emmer or spelt wheat)																		
<i>Hordeum vulgare</i> L. (hulled barley)	1		2					1										
<i>Cerealia inde idet.</i> (unidentified cereals)			43*	2			2		3						3			
<i>Vicia faba</i> L. var <i>minor</i> (broad bean, horse bean)			1	3	1			1	1	2	1		1					
<i>Galium aparine</i> L. (cleavers)				10														
<i>Corylus avellana</i> L. (hazel) nut shell fragment				2			1											
<i>Arrhenatherum elatius</i> (L.) Beauv. (onion couch) culm bases				3														
Unidentified				1														
Sample volume (litres)	6	33	9	9	6	6	6	6	6	4	9	9	6	6	6			

Table 2.36 Mile Oak: Trench K. Charred plant remains by context.

	Round-house A				House B				Mound II				Mound III				Post-holes	
	4035	4063	4069	4176	4180	4083	4106	4016	4017	4049	325	327	4006	4010	4110	4005	4150	
<i>Hordeum vulgare</i> L. (hulled barley)	7	1	1	1	1	2	1						75	84	41		1	
<i>Triticum dicoccum</i> Schubl. (emmer)				1										2				
Cerealia indet. (unidentified cereals)			1	1		2	2			1				1				
<i>Ranunculus acris/bulbosus/repens</i> (buttercups)																		
<i>Ranunculus ficaria</i> L. tubers (lesser celandine)																		
<i>Papaver</i> sp. (poppy)																		
<i>Fumaria cf officinalis</i> L. (common fumitory)																		
<i>Brassica cf oleracea</i> L.																		
<i>Viola</i> sp. (violet, pansy)																		
<i>Cerastium</i> sp. (mouse-ear chickweed)																		
<i>Stellaria media/heglecta</i> (chickweeds)								1										
<i>S. cf graminea</i> L. (lesser stitchwort)																		
<i>Chenopodium album</i> L. (fat hen)																		
<i>Linum catharticum</i> L. (purging flax)																		
<i>Vicia cf tetrasperma</i> L. (four-seeded tare)																		
<i>Vicia/Lathyrus</i> sp.S (vetch or tare)																		
<i>Medicago lupulina</i> L. (black medick)																		
<i>Prunus spinosa</i> L. (sloe)																		
<i>Conopodium majus</i> (Gouan) Loret (pig nut) tubers								1										
cf <i>Daucus carota</i> L. (wild carrot)																		
<i>Polygonum aviculare</i> agg. (knotgrass)																		
<i>Fallopia convolvulus</i> (L.) A. Love (black bindweed)																		
<i>Rumex acetosa</i> L. (sorrel)			1															
<i>Rumex crispus</i> L. (curled dock)																		
cf <i>R. crispus</i> L.																		
<i>Anagallis arvensis</i> L. (scarlet pimpernel)																		
<i>Lithospermum arvense</i> L. (corn gromwell)			2															
<i>Veronica hederifolia</i> L. (ivy-leaved speedwell)																		
<i>Veronica cf serpyllifolia</i> (thyme-leaved speedwell)																		
<i>Plantago lanceolata</i> L. (ribwort plantain)																		
<i>Sherardia arvensis</i> L. (field madder)																		
<i>Galium aparine</i> L. (cleavers)																		
<i>Galium</i> sp. (bedstraw)																		
<i>Sonchus arvensis</i> L. (sow thistle)																		
cf <i>Festuca</i> sp. (fescue)																		
cf <i>Poa</i> sp. (annual grass)																		
<i>Bromus sterilis</i> L. (barren brome)																		
<i>Arrhenatherum elatius</i> (L.) Beauv. (onion couch) tubers caryopses																		
Graminae indet. caryopses																		
(unidentified grasses) culm fragments																		
Unidentified seeds																		
Unidentified tubers																		
Unidentified root fragments																		

## Trench K

The samples from three of the layers within Mound III are very different. There are no cereal grains and the bulk of the samples is made up of culm fragments (c.0.5mm–25mm in length) of Graminae species, with some root and tuber fragments. In this context the plants were probably used as fuel and the presence of the root fragments suggest that some were uprooted, by pulling or digging.

Tubers, or swollen basal internodes, of onion couch have been found frequently in prehistoric deposits, particularly Bronze Age cremations (Moffett 1991) and the inference is that the grass was gathered for fuel. Clumps of dried stems, together with their moister tubers, may be pulled up without great difficulty and at Mile Oak the quantity of accompanying seeds, particularly buttercups, fumitory and docks, does suggest that the gathering of grass and/or field weed plants took place in mid-to-late summer at a time when the grass stems were dead and dry and suitable for tinder.

Pig nuts, the tubers of *Conopodium majus*, on the other hand, are less easily extracted since they break readily from the stem. These tubers are edible and have a long history of being collected and eaten, and on the few occasions when they have been recovered from archaeological deposits, it has been considered that they must have been carefully dug out (Moffett 1991). In the Mound III contexts, however, it seems less likely that they represent a food resource, although this could have been the case in the Round-house III and ditch fill contexts in Trench 27.

It is only possible to speculate about the source of the plants probably used for fuel since some have not been closely identified and most could equally well have originated in grassland or cultivated fields. Plants which in more recent times have been regarded as typical of grassland may well have been common field weeds under earlier agricultural regimes. Onion couch is a grass whose occurrence is determined by the absence or irregularity of grazing (Robinson 1988), and is now a common component of way-side verges, but it can be a troublesome crop weed if viable root parts detached during ploughing become spread through a field. Possibly this light fuel was acquired by gathering plants from rough grassland bordering fields, and perhaps by digging up particularly troublesome weeds.

## Mollusc analysis

Keith Wilkinson

## Introduction

Three series of samples were taken from the Mile Oak site with the objective of reconstructing the site environment during its period of use. These comprised a suite of eight samples each from the buried soils beneath Mounds II and III in Trench K, and one further series of 17 samples from enclosure ditch Section 3.2 (Fig. 2.14: Section 3 and Fig. 2.46) in Trench 27. Unfortunately, preservation of shell was so poor in Trench K that a detailed environmental reconstruction was not possible (see Wilkinson 1993). This was probably a factor of the intense burning and associated decalcification present at these sites. However, shell preservation in the samples from the enclosure ditch, although

inconsistent, was generally good. The ditch fills also had the advantage of having a well-secured chronology. Thus radiocarbon dates for two bones recovered from the primary fills of the ditch provide a *terminus post quem* of 1690–1460 cal BC (see Section 9) for the construction of the enclosure and the initiation of sedimentation. The start of the overlying Bronze Age settlement has been radiocarbon dated to between 1550 and 1440 cal BC (see Section 9). These two dated events, the construction of the enclosure ditch and the start of the settlement, could be as close in date as between 1 and 200 years at 95% confidence (see Section 9).

## Methodology

Samples were taken on a volumetric basis after principles outlined by Carter (1987); and a standard 25 × 25 × 6cm sample was aimed for. However, where this 60 mm depth would cross a stratigraphic boundary a thinner sample was taken. Processing of the samples followed the methods of Evans (1972) but, prior to the discarding of the sieve residues larger than 0.5mm (+1.0 φ), a simple particle size analysis was carried out. This consisted of sieving the material for 20 minutes on a sieve shaker through meshes –4.0 φ (16mm) to +1.0 φ (0.5mm), at 0.5 φ intervals. The results of this analysis are archived.

Following the extraction of all snail apices greater than 0.5mm, identification was carried out using a binocular microscope. Identification to species level was possible for most specimens except small apices of *Cochlicopa*, *Oxychilus* and *Cepaea*, which are listed to genus in Table 2.37 (Appendix 4). ‘Limacidae’ is the category into which all slug plates have been placed. Nomenclature is after Walden (1976) and Kerney and Cameron (1979). The results are presented in Table 2.37 (Appendix 4) and as histograms (Fig. 2.47a and b).

## Ditch stratigraphy

A total of 19 stratigraphic contexts were identified by the excavator in the area of the snail column (Fig. 2.46). The accumulation of sediments has been interpreted as coming largely from the outside of the enclosure (i.e. from to the north of the area studied), except for the topmost contexts, which have been interpreted as midden deposits. The various units of ditch infill are as follows:

- 0–2cm Fine sandy silt containing some large flint and chalk nodules. Probably some kind of occupation deposit built up during MBA occupation – Context 3059.
- 2–18cm Very stony layer made up of large flint and chalk nodules, which were possibly dumped prior to construction of the MBA settlement. Almost no other matrix, except eroded fragments of chalk – Context 3060.
- 18–84cm Successive sandy silt fills from the outer side of the ditch. Eight different contexts have been recognised: 3061, 3062, 3096, 3084, 3091, 3086, 3092, 3053, representing different phases in the silting process. There is a high proportion of large chalk pieces, but generally speaking there is a fining downwards in particle size.
- 0.84–1.02m Layer of large chalk boulders with little



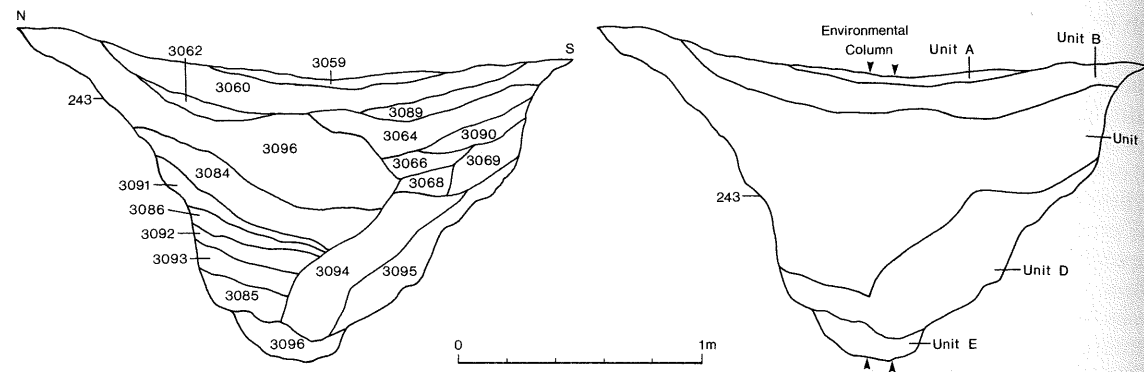


Fig. 2.46 Mile Oak, Trench 27: Ditch Section 3.2.

in the way of a matrix. This unit, represented by Contexts 3085 and 3094, seems to be the only one derived from inside the enclosure (i.e. to the south) and seems to have been deposited at a higher energy than any other layer. The cause of this is not known.

E. 1.02-1.07m Sandy silt with large amounts of chalk and flint nodules. There is a greater finer component, and a lighter colour than silts above - Context 3096.

These fills can be interpreted according to the models of ditch fill accumulation proposed by Evans (1972, 1990).

Unit E is probably a primary fill and as such would possibly have formed from eroding turfs of the contemporary land surface, or soil from the outside of the ditch, very soon after construction of the monument. Evans (1972, 1990) has found that there is often a period of stability following deposition of the primary fill, and indeed at Stonehenge (Evans 1984) and Mount Pleasant (Evans and Jones 1979), buried soils marking soil 'stand-still' phases were found within the ditch fill sequences. However, at Mile Oak, far from stability, there appears to have been a period of considerable erosion with a source from inside the enclosure and represented by Unit D. This possibly coincided with a period of abandonment and disuse of the site. Nevertheless, Unit D was probably formed over a short period of time as there are few preserved mollusc shells.

Unit C, is almost certainly a secondary fill formed over a relatively long period of time. There seems to be a pattern of fining downwards in sediment size, contrasting with Evans' (1990) observations of ditch fills in Wessex, where the opposite was observed. Cause of deposition is almost certainly due to low energy soil creep and erosion as a result of human activity.

Units A and B are probably both associated with the MBA settlement, although Unit A may be a tertiary fill caused by still later ploughing.

**The mollusc assemblages**

Results of the mollusc analysis are represented as histograms (Fig. 2.47a and b), and in tabular form (Table 2.37 (Appendix 4)). Figure 2.47 combines a percentage histogram with the data represented as an index of mollusc shell density, i.e. the number of molluscs of a particular species/mass of sample <math> < 3.0 \theta < /math> (kg)/sample thickness (cm). This method of plotting was used as a check on the percentage

frequency diagram and also as a way of broadly estimating the rate of deposition. It was suggested by Dr K. D. Thomas following the production of the percentage frequency histogram which appeared to show rapid environmental changes in a sequence that can have accumulated in 250 years at a maximum. As there was no buried soil beneath a bank, no direct evidence as to the pre-enclosure environment was available.

The primary fill (Unit E) contained a distinct mollusc assemblage dominated by species of open country preferences, and in particular *Vallonia costata* and *Vallonia excentrica*. There were also shade-loving species present, but in low numbers, perhaps suggesting an early colonisation of the ditch, and exploitation of the shaded, damp micro-environment. This in itself indicates that refugia for shade-loving species must have been available locally if shaded habitats had been removed a long time prior to construction. The presence of a single specimen of *Cochlodina laminata* may indicate that these refugia were in woodland, but as all other shade-loving species present commonly inhabit long grassland (Cameron and Morgan-Huws 1975) or scrub, this is perhaps unlikely.

Thomas (1982) by reference to Evans' results from both buried soils and ditch fills, has demonstrated that the primary fill of a ditch is usually deposited soon after construction. Therefore the fauna in the primary fill is often similar to that of a buried soil below associated banks. If this model represents the situation at Mile Oak, construction would appear to have taken place in an open environment, but perhaps with areas of longer (grassland) vegetation close by.

Above the primary fill the open country component appears to decline in Figure 2.47a. However, Figure 2.47b shows this decline is a result of an increase in the shade-loving component rather than any real decline in the input of open country shells. In particular *Carychium tridentatum* and *Discus rotundatus* are present in high frequencies. It may be that the period of time represented is a time of site abandonment, as the ditch has by this point almost certainly been colonised by species of long grasses. However, by reference to Figure 2.47b it can be seen that the input into the ditch sediments of the *Vallonia* sp. remains the same as for the primary fill, and *Helicella itala*, a species intolerant of shade, actually increases. Therefore in this and sedimentary units above there are two populations represented. First there is the mainly open country assemblage, whose origin is probably from areas adjacent to the ditch and which became deposited within as a result of erosive processes

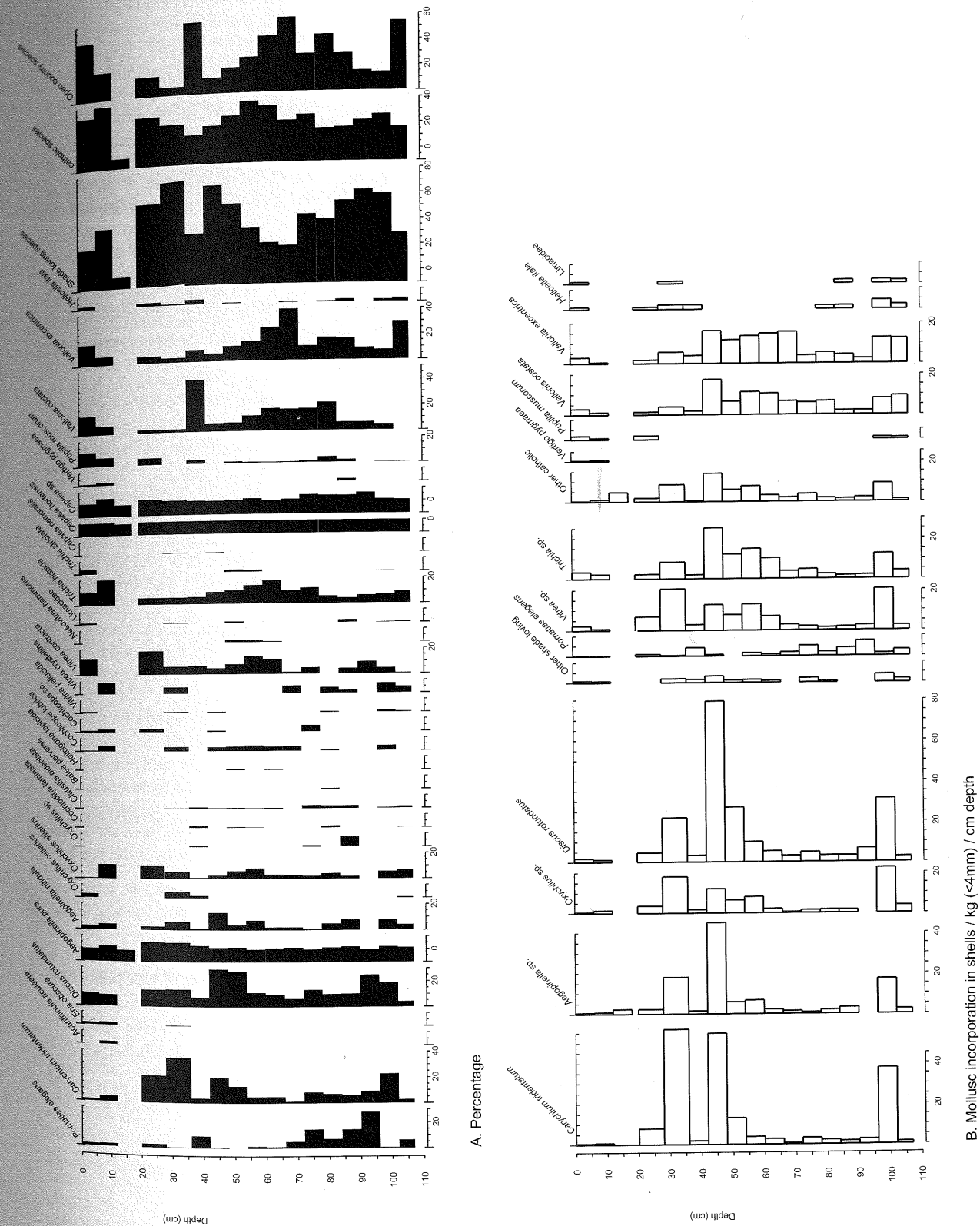


Fig. 2.47 Mile Oak, Trench 27: Histograms of land molluscs from Section 3.2, ditch 243. A: percentage histogram. B: index of mollusc shell density.

such as plough wash. The second population, mainly comprised of shade-lovers, is from the actual ditch itself, utilising the damp shady environment present there. That these shade-lovers do not represent a woodland environment can be seen in the lack of 'arbophiles' such as *Cochlodina laminata*, *Balea perversa* and *Helicigona lapicida*. Thus in the earliest secondary fills conditions outside the ditch appear to have remained open, while vegetation colonised the ditch itself.

After the initial increase in shade-lovers above the primary fill there is then an apparent decrease in frequency of both shade-lovers and *Vallonia* sp., represented in Figure 2.47a and b. It could be that this is due to poor shell preservation, but from 72cm (below the surface) upwards shell numbers increase yet the shell incorporation rate does not similarly change. Another cause could be an increase in the sedimentation rate, effectively diluting shell input. When shell numbers increase at 720mm there is an apparent faunal change and both *Vallonia excentrica* and to a lesser extent *Vallonia costata* increase in frequency. Also at this depth *Helicella itala* makes a reappearance. These changes suggest an increased openness of conditions around the ditch, and possibly inside it as well, as the shade-lovers seem to decrease in number. Those that are present, e.g. *Vitrea crystallina* and *Vitrea contracta* which both increase in frequency at 720mm, are commonly found in grassland habitats (Cameron and Morgan-Huws 1975; Carter 1990). It would also seem from Figure 2.47b that input from outside the ditch increases at this point, suggesting increased erosion.

From 66cm to 42cm there is a steady increase in the quantity of species of shade-loving preference, but in particular *C. tridentatum*, *D. rotundatus* and *Aegopinella nitidula*. In Figure 2.47a this seems to be associated with a decrease in percentages of open country types. However, Figure 2.47b shows this to be a factor percentage calculation as this diagram shows the input of *V. costata* and *V. excentrica* to remain constant, while that of *Trichia hispida*, a species characteristic, together with the previous two, of colluvial grasslands, increases. These apparent contradictions are not easy to explain, except as an increase in shading within the ditch and a resultant shade-lover population increase. However, fragments of *Helicigona lapicida* and two apices of *Cochlodina laminata* were found in samples from between 66cm and 48cm, perhaps suggesting the presence of nearby woodland. These shells could, however, also

have been reworked, as all fragments mentioned were small (<0.00), while *C. laminata* has a particularly durable apex. If the ditch was experiencing a period of increased shade there can be little doubt that the enclosure was not being utilised for settlement purposes. Above 42cm, Figure 2.47a and b shows a decline in the frequencies of species of open country preference, although there is no corresponding decrease in the frequencies of shade lovers, except for *D. rotundatus* and *Aegopinella* sp. This suggests that if input from outside the ditch remained at a constant level (which it appears to have done from 72cm to 42cm), some of this input must have been of shade-loving species and therefore argues for a shaded environment outside the ditch. This is unlikely to have been woodland as the species present at high frequencies are *Vitrea* sp. and *Carychium tridentatum*. The former has already been shown to inhabit grassland environments, while on the European mainland Lőzek (1986) also classifies *C. tridentatum* as a species of grassland preference. Therefore it is probably long grassland which was present at this time outside the ditch as well as within. This indicates that there was little human utilisation of the site at this point. The decline of *D. rotundatus* and *Aegopinella* sp. is probably due to a decrease of shade in the ditch itself as the infilling sediments would to a large degree have equalised shade inside and outside the ditch, while neither has been noted by Cameron and Morgan-Huws (1975) as inhabiting grassland environments.

The samples above 280mm all show an apparent increase in the frequencies of open country species, although Figure 2.47b shows an overall decrease in shell input. The decrease is probably a result of the reduction in the average particle size of the infilling sediments combined with greater shell fragmentation, perhaps caused by plough damage or construction of the Bronze Age settlement. Nevertheless, it is possible to say that this period was characterised by short grassland, with the vestiges of the ditch being inhabited by a few shade-lovers, perhaps suggesting slightly longer vegetation in these locations. The open country component is diverse, with *Pupilla muscorum*, *Vertigo pygmaea* and *Helicella itala* found, as well as *Vallonia* sp. Unit A was a deliberate deposition to level the ditch for construction associated with the MBA settlement, but the material used was presumably derived from the contemporary soil, so the reconstruction postulated would still hold true for the pre-leveling environment.

**Table 2.38** Mile Oak: Trench 27, enclosure ditch. Summary of the environmental changes which occurred during ditch sedimentation (from ditch 243).

Depth (cm)	Sedimentary Unit	Contexts	Shade-loving species	Open country	Environmental interpretation
0	A,B	3059, 3060	Very low	Low	Open country, settlement construction horizon
20	C	3061	High	Low	Shade both in and out of the ditch. Open country in the environs
40	C	3062	Low	Low	Open country outside ditch. Low mollusc frequency
60	C	3076	High ↑ Low	High	Increasing shade inside the ditch. Open country outside. Site out of use
80	C,D	3084, 3091 3086, 3092, 3093, 3085	Low	High	High mollusc diversity. Shade inside ditch, open country outside. Arable agriculture?
100	D	3094	High	High	Ditch colonised (shade), open outside
	E	3096	Low	High	Open country

## Conclusions

The results detailed above demonstrate that many subtle environmental changes occurred within the relatively short period of ditch sedimentation (Table 2.38). They suggest that the nature of site usage following the construction of the enclosure did not remain constant, and instead varied between total abandonment of the area and the practice of intense arable agriculture. These episodes cannot be securely dated although it seems likely that no one land-use regime lasted for very long. Despite these findings there is no evidence from the molluscan record for reuse of the site as a settlement prior to construction of MBA Round-house I, indicating that the area was either farmland or waste ground throughout the history of accumulation.

## An experimental assessment of the features and artefacts from Trench K at Mile Oak

Tristan Bareham

These observations are intended to offer an assessment from an experimental perspective of the archaeological evidence recovered from Trench K. It is hoped that this assessment supports the range of interpretations offered by Russell and Wallis, above. The evidence from Trench K will be compared with results from the experimental programme carried out by the East Sussex Archaeology and Museums Project at Michelham Priory over the last ten years. This programme has included approximately 150 pot firings, 40 bronze casting experiments and a number of charcoal burns. While the results of such work cannot be used to define the original function of archaeological features such as those found at Mile Oak, it can be used to create an evaluative and interpretative framework for this evidence. This in turn may help generate approaches which subsequently inform future excavation strategies for such sites.

## The features in Trench K

The following notes are based on the reports above produced by Russell, Wallis, Laughlin and Laughlin, four colour photographs of Mounds KII and KIII provided by Russell, and a brief site visit during the excavation by the author.

Mound KIII clearly shows layers of clay and charcoal-rich deposits. Russell's suggestion that this might possibly represent the site of charcoal production merits discussion. There are a number of methods by which charcoal can be produced. The recent indigenous tradition in southern England prior to the introduction of steel drums was by the use of circular earth-covered clamps. The wood to be converted was carefully stacked in a circular formation on the ground. This was then covered with a layer of vegetation which in turn was covered by a fine loam-rich soil. The clamp was usually lit from a central flue which was capped once the fire was well established. The clamp was then watched and managed during the duration of the burn. The covering and management ensured that a controlled amount of air entered the clamp. The rate and colour of the escaping smoke from the clamp could be used to indicate when the

wood had been converted. The clamp was extinguished at this point; the cover removed and the charcoal recovered. As the covering material could be reused, the same site was often chosen for subsequent clamps and a mound of small charcoal fragments, baked soil and dark loam was produced.

In a woodland context, direct strong winds do not pose a problem for the management of the clamp. In a more exposed downland context such as at Mile Oak, however, this could be highly problematic. It is conceivable that a layer of flint nodules placed over the wood with some soil and a subsequent plaster of the natural Clay-with-Flints could have formed a more suitable cover. This layer of flint would also prevent the charcoal from becoming contaminated with the clay cover. The relatively low maximum temperature (600–750°C) and slow rate of combustion in the clamp would produce fire-cracked flint of the type recovered from Mound KII. Reuse of the flint could produce differential levels of micro-crazing, once again observed on the site. If the clay cover is too rich in clay, then it will crack open upon heating and will not prove suitable for its purpose. The cover should not contain more than 30% clay. The rest of the mix can consist of soil and vegetation. The percentage clay composition of layer 327 (15–20% baked clay) is interesting in this regard. The size and shape of the mounds and the nature of their composition would support an interpretation that Mound KIII, in particular, had been used for charcoal production at some point in its existence.

The potential relationship and differential qualities of Mounds KII and KIII also merits consideration. Even allowing for the post-usage disruption, there are definite similarities in size and composition between both mounds. The differences are the higher levels of charcoal and baked clay in KIII and the amount of fire-cracked flint in KII. If KIII was used for charcoal production, as previously outlined, then KII could represent a dump of the covering flint and soil layer. In KIII, the burnt clay deposits could represent the clamp covers which had been baked and discarded after use. However, an alternative possibility for the burnt clay deposits in KIII should also be considered.

In the drawn east-west section of Mound KIII, layers 327 and 359 appear as discrete contexts (Fig. 2.19). The photographs of both the east-west and north-south aspects of the sections show, however, that these layers are part of one discrete lens-shaped feature approximately 1m in diameter and 300mm deep. This feature is clearly visible in the photographs and appears to have a charcoal deposit and then a clay rich layer (358) dumped over it. This feature could represent the residue of a charcoal clamp coating which, having been thoroughly baked and the clay having been fired, could no longer be reused. An alternative possibility is that this feature was used for melting scrap metal and re-casting it.

It is possible that if this feature was a casting hearth, then the nature of the evidence was such that it was not recognisable during excavation. The easiest method of creating a hearth suitable for such casting work is by making a bowl shape in a suitable clay mix, firing this lining and using it to hold the charcoal charge. If this feature is made into a pre-cut subsoil hollow, then it is relatively easy to recognise; it is possible, however, that many hearths were made in mounds set above the ground surface. The clay-rich lining contains the fire, provides insulation, and in turn radiates heat back into the hearth. If the induced air draught is through an aperture in the lining of the furnace, then this produces a 'hot-spot' adjacent to the lining. This almost



inevitably results in vitrification of an area of the lining; this does create a material which lasts and should be recognisable within the archaeological record. If, however, the air is passed in through a tuyere pushed into the heart of the charcoal then this surface vitrification does not occur.

However, there is in turn a consequence of this method for the archaeological record. While bone, such as a hollowed out ox humerus, can be used as a tuyere, it is most likely that tuyeres were made from clay, similar to the one found at Ewanrigg in Cumbria (Craddock 1994: 75). When a clay tuyere is pushed into the charcoal, then its nozzle vitrifies and small lumps of slag form on it and can melt off. This is due to the thermally defined reaction between silica in the clay and fluxing agents such as iron, or wood ash from the fuel. To a lesser extent, slag can form on the surface of crucibles due to the same conditions. The large numbers of lumps of non-metallurgical slag found in Trench K is consistent with the use of a tuyere in the manner described. Part of a baked clay object recovered with slagging on its interior surface could have been part of the inner nozzle of a tuyere near its exterior aperture, although the fragmentary nature of this object makes any firm identification difficult.

As discussed, the method of inducing a draught into the hearth has a consequence for the survival of recognisable archaeological evidence. If tuyeres are used, then generally the lining is baked and not vitrified – this feature is therefore highly friable and does not last well. This, in part, is due to the nature of the mix used to create hearths. A suitable mix can be created with only 30% of the mix being made from clay, the rest from filling material such as soil and vegetation.

The shape and clay-rich composition of the possible hearth are not inconsistent with a casting hearth which has been used over a period of time. If, however, this feature is just a baked clay dump, then it is highly probable that a casting hearth did exist in the very near vicinity of Mounds KII and KIII. Support for this comes from the small finds found in Trench K.

### The finds from Trench K

The metal objects, the fragments of sheet metal, the metal droplets and the crucible fragments with the copper alloy prills are all consistent with re-melting and casting. Given that the main period of usage of the mounds appears to have been in the LBA, then the careful saving and reusing of scrap metal is consistent with the apparent relative scarcity of source materials for copper-alloys in this period (Northover 1995: 286). The significant presence of lead within the metallurgical assemblage is certainly consistent with casting technology from this period.

This interpretation of scrap re-melting is supported by a further evaluation of the finds. The differing alloy compositions is, in itself, suggestive of scrap melting; the presence of sheet metal, some of it possibly from the flanges of bi-valve castings, allied to the absence of mould fragments, suggests that these were scrap fragments brought onto site rather than by-products of on-site casting.

The absence of mould fragments from the site, given the putative interpretation of on-site casting, could be explained by the nature of the moulds used. Copper-alloy bi-valve moulds produce very little flange waste and do not generate the number and type of fragments which ceramic moulds of

the period produce. The interpretation of the geological material for hammering and grinding is consistent with the finishing of tools cast on site.

So in conclusion, there are a number of pieces of evidence from Trench K to suggest that this was an area where charcoal was being produced, scrap metal melted, and tools cast and finished off. The presence of features used for charcoal production is in itself highly supportive of on-site metalworking. It may be possible to melt copper alloys in a wood fire, but experiments carried out by the East Sussex Archaeology and Museums Project have only achieved the requisite thermal environment using charcoal. While charcoal may have been used for other functions, it was probably needed in metalworking.

The variety, type and strength of the other supporting evidence clearly all point to this being an area of metalworking. While a possible location for the casting hearth can be suggested, this interpretation must be tentative given that such a feature was not clearly identified during the excavation. Nevertheless, given the scarcity of identified sites of this type from this period, the discovery and investigation of this site is of archaeological significance.

## DISCUSSION

### The Late Neolithic

All areas of Late Neolithic activity recorded during the Mile Oak project were identified from topsoil finds recovered during the excavation of Trenches K and N upon the east-facing lower slopes of Cockroost Hill (Figs 2.2 and 2.48). Large quantities of Late Neolithic and EBA flintwork however have previously been recorded to the immediate north and south of the Mile Oak site (J. Gardiner 1984, 1988, 1990; East Sussex County Council Sites and Monuments Record; Brighton Museum Accessions Register). The small amount of material recovered from the machine-excavated topsoil of Trench N may represent hillwash accumulation, suggesting perhaps an area of Beaker activity, either from within the immediate area of Trench N, or from the higher ground, to the west, around Trench M.

The significance of the Trench K data is unclear as, although eight sherds of Beaker pottery were recovered from within and around the area of Mound II (see Hamilton, above), no obvious pieces of contemporary flintwork were recorded (D. Underwood 1991, pers. comm.). The pottery material may therefore be residual, perhaps indicating a second area of as yet undetected Beaker activity (settlement/burial) to the north or north-west of the excavated trench. At least four beakers are known to have been recovered from within a 5-km radius of the Mile Oak site, at Kingston Buci (E. Curwen 1931: 189), Slonk Hill (Grinsell 1931: 39), Shoreham (Witten 1978) and Beggars Haven (Grinsell 1931: 39). The vessels from Slonk Hill, Shoreham and Beggars Haven all apparently accompanied burial deposits.

### The Early Bronze Age

The recorded has suggested that the oval enclosure ditch recorded from within Trench 27 represents the remains of an EBA Class II henge monument (cf. Harding and Lee 1987: 11–56). Henges, as has already been noted, are enigmatic

sites, and full understanding of their purpose and function is always likely to elude a modern audience. Both Harding and Lee (1987) and Thomas (1991) have recently stressed that patterns of visibility and concealment may have been central to the construction and orientation of the monuments. The interior of most sites would, for example, only have been visible to those approaching along the axis of the monument (Thomas 1991: 48), while visibility from within the henge would have been seriously restricted by the prominent external banks (Harding and Lee 1987: 35). In such a way an observer's line of sight may originally have been directed either to activities taking place at the centre of the enclosure, or to a particular landscape or horizon feature outside (e.g. Harding 1981: 129; Bradley 1991: 136–9). In some cases basic astronomical alignments (solar/lunar) may have been

considered important (e.g. Thom 1967; Burl 1983: 16–20, 31–7), although this point has unfortunately, on occasion, been stated beyond the limits of archaeological inference (e.g. Hubbard 1907: 97–103; Vacher 1973). The presence of stone or timber uprights has been noted at a number of henge/henge-related sites (e.g. Old Yeavinger (Harding 1981); High Knowes 3 (Jobey and Tait 1966); Llandegai B (Houlder 1968); Stenness (Ritchie 1978)) and, if interpreted as focusing devices set deliberately upon the central axis of the monument in question (e.g. Burl 1969: 6; Harding 1981: 129), may underline the importance of site orientation and alignment.

It is evident that the Mile Oak enclosure, although constructed in relatively open conditions (see Wilkinson, above) was not designed to be viewed from any great

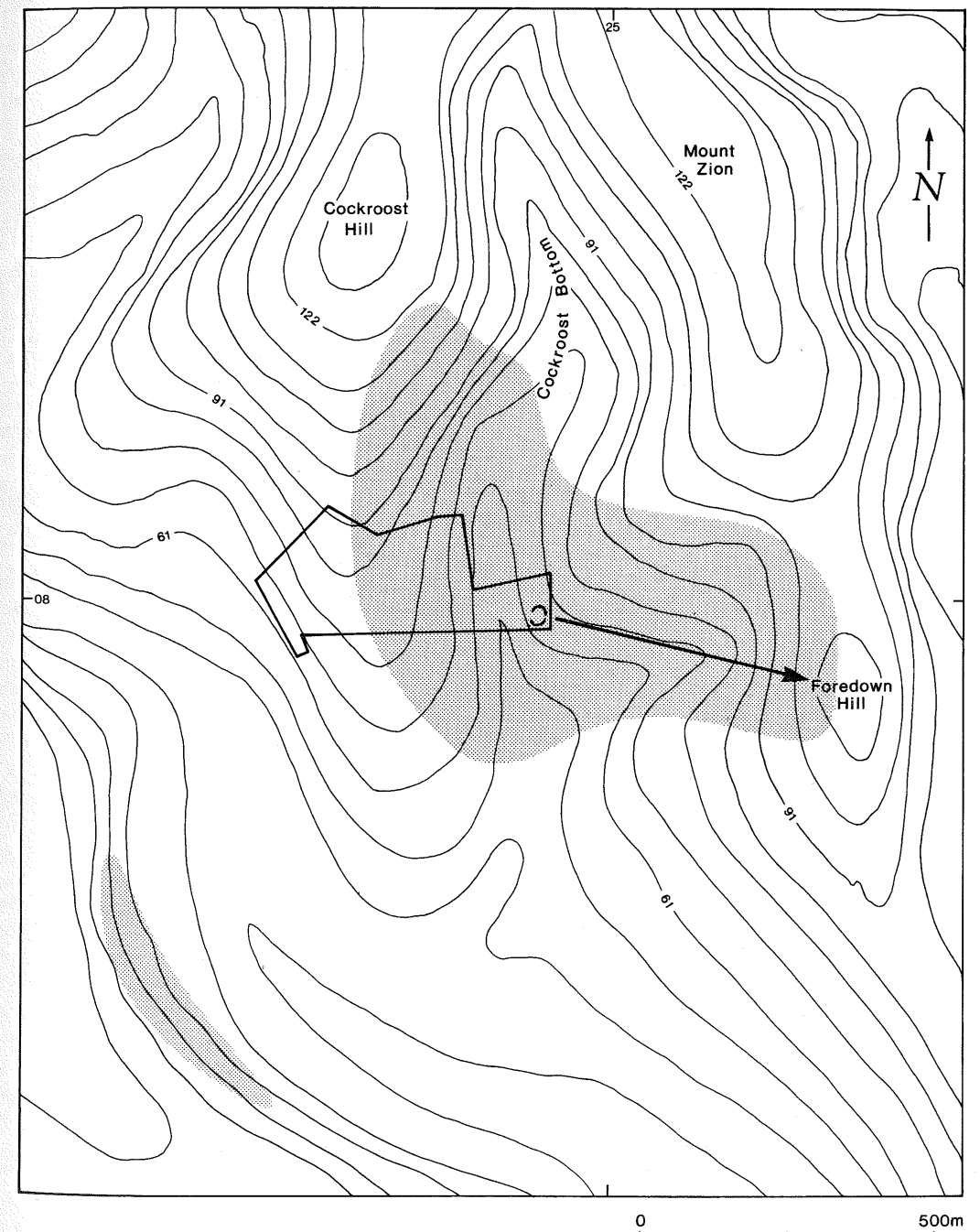


Fig. 2.48 Mile Oak: Area visible from the interior of the 'henge monument' with directional sight-line marked.



distance (Fig. 2.48). Neither was the view from the enclosure designed to be extensive. Had the monument been constructed upon the lower slopes of Cockroost Hill, 260m to the west, it would have possessed commanding views of the coastal gap towards Shoreham, Southwick and Portslade. As it was, the position of the site, close to the base of Cockroost Bottom dry valley, ensured that the view from the enclosure was one-directional (*cf.* Harding and Lee 1987: 36), the axis of the monument being aligned to the highest point of Foredown Ridge, some 600m to the south-east. The larger part of Foredown Ridge was, unfortunately, destroyed by the construction of the Brighton Bypass before any extensive archaeological work could be conducted upon it, although the potential for additional prehistoric remains within the immediate vicinity of the ridge should here be noted. In respect to this proposed alignment, it should also be noted that the single, partially dressed sandstone upright recovered from pit 601, Area C, lay on the central axis of the henge (Fig. 2.14) and may therefore be interpreted as a 'focusing device' (*cf.* Harding 1981: 129). Unfortunately, as both stone and stone pit could not be closely dated, an exact correlation between the upright and the surrounding ditched enclosure is likely to remain impossible to prove.

Henges, probable and possible, have been identified over a wide area of the British Isles, from the extreme south-west (Cornwall and Devon) to the Orkney Islands in the north (Burl 1969: 1–4; Harding and Lee 1987: 31–4) and a series of generalised regional groupings, some displaying distinct internal diversity, have been recognised (Harding 1991). There are, however, significant gaps in the overall distribution of sites and many authors have made note of the fact that the south-eastern counties of Britain (Sussex, Surrey, Hampshire and Kent), areas rich in communal monuments of the earlier Neolithic (Drewett 1978b; Holgate 1981; Robertson-Mackay 1987), apparently possessed no henge or henge-related enclosures (Burl 1969: 2; Wainwright 1969: 115; Drewett 1978b: 23; Megaw and Simpson 1988: 149). This apparent absence of site types has often been taken to imply a change in, or a collapse of, the basic structure of prehistoric social groups operating in the south-east during the later third millennium BC (Drewett 1977: 228; Drewett 1978a: 23, 29). The identification of the Mile Oak enclosure, when combined with the series of later Neolithic/EBA ceremonial sites provisionally identified from northern Surrey (Field and Cotton 1987; Merriman 1990: 23–4) and Kent (Macpherson-Grant n.d.: 9–11; Perkins n.d.: 16–17; Champion and Overy 1989: 25; RCHME 1989: 3.2.11; Perkins and Gibson 1990: 18) would, however, indicate that this model of prehistoric society deserves serious reconsideration.

An attempt to restate the social model for Neolithic and Bronze Age communities on the South Downs is at present being made by the author as part of the Chalkland Prehistoric Project, coordinated from Bournemouth University (Darvill and Baker 1996: 30–31). The preliminary results of this project appear to indicate a small, but discrete cluster of Late Neolithic/EBA communal or ritual enclosure sites at the margins of the Worthing and Brighton block of chalk Downs (Russell 1996a: 28–36; Russell 1997: 74–6; Russell 2001a: 115–16), an area already known for its elaborate flintwork and other stone tools (J. Gardiner 1984, 1987, 1988, 1990; Woodcock and Woolley 1986), early metalwork (Gerloff 1974; Ellison 1978) and exotic grave goods (Drewett *et al.* 1988: 80–85). The significance of this observation is as yet unclear, although it is possible that some form of intensive ceremonial activity was developing on the

chalkland in the later third and second millennium BC at the eastern margins of the Worthing Downs, an area where flint-mining and manufacture of prestige goods appears to have continued from the Early Neolithic into the Beaker period and beyond (Pull and Sainsbury 1928; Pull 1932; Russell 1996a: 36; Russell 2000: 54–9; Russell 2001a: 93, 106–8; Russell 2001b: 224–50). The continued importance and development of the Worthing flint mine sites, when combined with the observation that a number of large ditched enclosures appear to have been continually evolving and developing on the Sussex chalkland throughout the Neolithic (Russell and Rudling 1996: 56–60; Russell 2001a: 67–79), also appear to argue strongly against the postulated model of social collapse or fragmentation.

The date of the Mile Oak enclosure, a suggested primary phase with a *terminus post quem* of 2040–1620 cal BC (OxA-3153; 3480±80BP) and a substantial phase of redefinition with a *terminus post quem* of 1690–1410 cal BC (OxA-5106; 3250±60BP), places it within the final period of henge monument building in Britain (Harding and Lee 1987: 52). The nearby Hove Barrow (located some 5 km to the south-east; Fig. 1.1), a 60m diameter, 6m high earthen mound containing a rich 'Wessex-style' grave assemblage (Phillips 1857), has produced a radiocarbon date range of 1600–1400 cal BC (BM-682; 3189±46BP) and 1530–1320 cal BC (BM-680; 3169±51BP Cleal *et al.* 1995, 487), which, together with the Mile Oak enclosure, and when compared to similar developments occurring across the Wessex chalklands, would suggest a late flowering of the social elite within this particular area of the downs and coastal plain.

### The Middle Bronze Age

Over 30 areas of Middle/Late Bronze Age settlement activity have so far been recorded from the counties of Sussex (Grinsell 1931; Curwen 1954: 170; Ellison 1978: 31; Drewett *et al.* 1988), although most are only hinted at from aerial photographs, ground surveys or surface artefact scatters (e.g. Chuter 1987). As regards excavated units of Bronze Age settlement, much discussion has recently revolved around the identification of specific activity loci. For the prehistoric period in general, such identifications have out of necessity to rely on the location, identification and interpretation of rubbish. A series of basic factors relating specifically to the formation of rubbish material within hut structures of the British Bronze Age has already been noted (Russell 1996b: 33–4), although it is worth reiterating a few of the main points here.

The first concern with regard to the 'rubbish equals activity' equation is that many important human activities – such as sleep, conversation, religious belief, reproduction etc. – can leave little or no trace in the archaeological record and are, as a consequence, materially under-represented. Differential survival of artefacts on any one site is also an important issue as this may result in the recovery of potentially non-representative, durable remains (flint debitage and pottery) at the expense of organics (such as wood or leather).

With regard to the nature of the rubbish deposits themselves it should be noted that any material recovered from a house or hut structure may relate specifically to discard practices conducted at, or shortly after, the period of hut abandonment, rather than to material discarded during the

routine use of the structure. Few people live in very close association with their unwanted material and much rubbish may, if the hut or house in question was regularly cleaned out, have therefore ended up on middens or rubbish tips situated some distance from the main area of activity. Any speculative waste material, once deposited within the area of a hut, may furthermore be displaced by post-abandonment processes such as soil-creep or ploughing, or by later activities conducted at the site of the hut but unrelated to the structure's original function, such as the cremation burials from Cock Hill, Huts I and AIII (Ratcliffe-Densham 1961), the inhumation from Round-house III at Mile Oak, or the votive deposition of bronze finger rings at Black Patch, Hut I, Platform 4 (Barrett and Needham 1988: 136).

Despite the obvious limitations upon the archaeological data and their recovery, a number of attempts have been made to integrate the spatial distribution of archaeological artefacts within Bronze Age settlements, with structural interpretation. The most notable of these studies has been conducted by Ellison (1975, 1978, 1981) following the pioneering study of Clarke (1972) on Glastonbury. The results of Ellison's study of Bronze Age settlements within southern England appeared to suggest that the basic domestic unit comprised, at this time, a single residential hut coupled with one or more ancillary buildings or storage structures. Using this basic unit of settlement division, Ellison was able to reinterpret the 11-hut MBA 'nucleated village' of Itford Hill, East Sussex (Burstow and Holleyman 1957), as consisting of not one, but three successive settlement units. A similar 'phased' interpretation, consisting of two chronologically distinct settlement units, is also possible for the MBA 'nucleated village' recorded from Black Patch, Platform 4 (Russell 1996b).

Caution must be exercised before attempting to apply any similar interpretative model to the Trench 27 field data at Mile Oak, for it is possible that additional areas of archaeological activity originally lay undetected, beyond the confines of the excavated trench. Similarly, it is possible that not all of the structures forming the Bronze Age settlement unit may have survived into the archaeological record (some may never have penetrated the chalk subsoil) and that within the excavated area, erosion may have removed even the most substantial of structural features (*cf.* Reynolds 1982: 190).

It is further difficult to say, with any certainty, whether the recorded round-house structures from Trench 27 formed a contemporary group, or a series of successive settlement units (*cf.* Ellison 1978; Russell 1996b). The few radiocarbon determinations from the settlement area suggest a broad date range of between 1400 and 1030 cal BC (OxA-5108; OxA-5109; *see* Section 9), as the sample retrieved from cut 1579, Round-house I, is presumably a residual find from a disrupted layer of ditch fill (*see* above). Without the range of dates available for the Downsview settlement (*see* Section 9), it might be possible to suggest that the basic field data from Mile Oak may, for example, be treated as two distinct settlement units (constructional typology clearly differed between the huts, but this need not imply that the buildings in question were built at different times, merely that they were constructed for differing purposes):

Round-house I, a 'residential' structure with evidence of craft activities, such as weaving, and storage facilities; Round-houses II/III, a 'residential' hut and an ancillary structure/working area for craft activities.

The material assemblage recovered from all three areas, however, is broadly contemporary and the suggested reconstruction (Fig. 2.49) is that all elements formed a coherent entity:

Round-house I as the major residential porched structure with storage facilities, II as a porched ancillary structure, III as a semi-permanent craft hut/work area and cut 1504 (Area E) as a contemporary pond or water collection unit.

The settled area within Trench 27 appears, from the recorded charcoal, baked clay and extensive pottery assemblages (*see* above), to have ended relatively swiftly, probably at the same time as, or as a direct result of, the incendiary destruction of Round-houses I, III, and possibly II. The crouched inhumation from Round-house III could, if interpreted as a burial set down at the abandonment of the structure, but before any significant fill could accumulate within the terrace cut, provide a *terminus post quem* for the abandonment of Round-house III of 1260–900 cal BC (GU-5675+GU-5691; *see* Section 9). Alternatively the body may have been deliberately placed within the (still visible?) remains of the henge and later settlement, perhaps in the form of a votive deposit intended either to seal off the 'power' of the earlier site, or as an attempt by later communities to link with their ancestral past (possibly in the same way as the Iron Age coin recovered from Mound II: *see* below and Rudling above).

The material assemblage recorded from the upper levels of the henge ditch (Units B–A), consisting largely of marine shell, animal bone, baked clay, worked flint, fire-cracked flint, charcoal and pottery, appears to constitute a deposit of MBA secondary refuse (*cf.* Schiffer 1976; Bradley and Fulford 1980). The material, which concentrated noticeably within both terminals of ditch 243 and the northern terminal of 1557, may represent rubbish cleared directly from living or working areas (A, C and D: Round-houses I, II and III

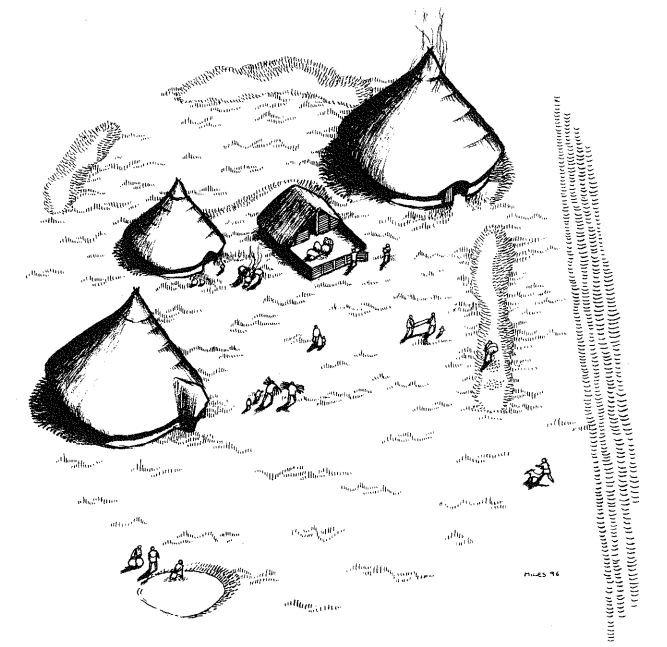


Fig. 2.49 Mile Oak: Suggested reconstruction, facing north, of Trench 27 Middle Bronze Age settlement complex (M. Russell).



respectively) and dumped into the nearest available redundant feature (cf. Needham and Sorensen 1988: 128). This would in turn suggest that, although the henge bank may have been levelled prior to the establishment of the MBA settlement (cf. Wilkinson above), the basic outline of the ditch remained visible. Refuse dumping may therefore have been conducted in a deliberate attempt to infill the surviving ditch irregularity.

Little can be said as regards the nature of the poorly preserved field systems from within and around the area of Trench 27. It is possible that some of the recorded fields (Fig. 2.2) were originally contemporary with the MBA settlement (Trenches M or 27), or with the Later Bronze Age settled area partially sampled by Trenches J and K, although without adequate dating evidence much reliance must be placed upon general surface associations (cf. Drewett 1978a: 68). Negative lynchets 1401 and 1403 may, for example, have originally formed part of a system of fields set out prior to the establishment of the Trench 27 MBA settlement. A similar interpretation may also be possible for negative lynchet 1449 and the areas of Later Bronze Age activity recorded within Trenches J and K.

### The Late Bronze Age

The areas of LBA activity recorded from trenches J, K and M are considerably more difficult to interpret and quantify than those recorded from within Trench 27 (this is especially the case with J and M as only a limited area was exposed in each case). Four possible readings of the Trench K field data have already been presented (Fig. 2.24), although, as has been noted above, these interpretations should not be thought of as being definitive. Of the four outline interpretations, that of Round-house A and four-post structures FP1 and FP2 would appear to be the most structurally coherent, but other independent units (e.g. the post or plank-slot fenceline and the more dubious Round-house B) are suggested from the basic field data. It is impossible to say how, if at all, these units related, although Mound II did at least appear to post-date Round-house A.

The few radiocarbon determinations from Trench K do not help resolve the chronological dilemma to any great degree (see Section 9), as cuts 386 and 4108 produced dates of 1520–1050 cal BC (OxA-3154) and 1430–900 cal BC (OxA-3155), which could mean that elements from the trench were, at least in part, contemporary with the Trench 27 Bronze Age settlement. A fragment of cattle bone from Mound II produced a date of 1130–840 cal BC (OxA-5110), which, if contemporary with the main phase of pyrotechnological activity here, could place a convenient date bracket for the metalworking (see Wallis, above). Unless the bulk of the Mound III charcoal samples, lost during post-excavation, become available for radiocarbon dating, however, the period of metallurgical activity within Trench K cannot be more closely defined than being within the Later Bronze Age.

The discovery of the Trench K Later Bronze Age metalworking debris itself, together with the two independent mounds containing charcoal, baked clay and fire-cracked flint, is extremely important as it represents not only the first conclusive evidence of *in situ* metallurgical activity so far recorded from a Later Bronze Age settlement site in Sussex, but also because Mounds II and III may represent the first

examples of Bronze Age bowl furnace sites yet recorded from the British Isles. That no comparable furnace structure has yet been securely identified from the British Bronze Age is hardly surprising, as the structures built for modern experimental metalworking (Bareham 1994: 115; see Bareham, above; Timberlake 1994: 127) are temporary and ephemeral and would certainly not survive for any length of time under conditions of modern intensive arable farming. Burnt mounds (or more accurately burnt-stone mounds), which are recorded throughout the British Isles (cf. Ehrenberg 1991: see Trench K interpretation for discussion), could in some cases be viewed as collapsed furnace structures, although the only certain metallurgical association so far recorded for such a mound appears to be that of a clay mould, for casting a bronze spearhead, found close to an example from Leckhampton in Gloucestershire (Darvill 1987: 113; Darvill 1993, pers. comm.).

A possible parallel for the KIII charcoal/baked clay mound as a metalworking furnace, may, however, already have been recorded in Sussex, at Burpham, 20km to the east of Trench K (see also the Trench K interpretation, above). The mound, excavated in 1893, is generally interpreted as a barrow (NB Although no central burial deposit was recorded, it conformed to the 'barrow' classification in that it was encircled, at least in part, by a ditch (Curwen 1922)). It is interesting, however, to note that the dense layer of charcoal recorded from the base of the Burpham mound contained 'a bronze loop with flat imperforate edges, some pieces of melted bronze, and a lump of opal glass' (Curwen 1922: 13). The loop, currently on display in Brighton Museum (acc. no. R1252), appears to represent a cut-off piece of Bronze Age metalwork, which raises the possibility that part of the mound, as excavated by Collyer, contained the residue of prehistoric metallurgical activity.

Although the KIII mound, as a possible Bronze Age bowl furnace, is a type of site which would at present appear unique in Britain, the overall significance of industrial processes in relation to the pattern of contemporary Later Bronze Age settlement should not be over-stressed, especially as the metallurgical evidence recovered may represent only a very limited casting episode (cf. Needham 1980a; Needham 1989: 28–9). Indeed if the process of Later Bronze Age bronze recycling was as efficient as some have suggested (Needham 1980b: 24–7; Barrett and Needham 1988: 139) it would be surprising if most settlement sites of this period did not, during their lifetime, experience at least one phase of metal reworking. The resultant metallurgical debris may, however, only have been slight (e.g. Bradley *et al.* 1980: 244; Champion 1980: 233–7; Gingell 1992: 105–11; Moore and Jennings 1992: 87–9) and, given the fragile nature of the evidence (areas of burning, baked clay crucibles, moulds and small droplets of molten metal) and the high levels of later agricultural activity experienced at most sites, would probably leave little trace in the archaeological record (cf. Wainwright 1979: 141).

It is interesting that the Mile Oak metallurgical debris was recovered from a prehistoric downland site for, despite claims to the contrary (Drewett *et al.* 1988: 133), evidence for Later Bronze Age metallurgy in the south-east of England is not restricted solely to the low-lying river valleys of the Thames. Indeed the corpus of material relating to bronzeworking on the South Downs and coastal plain, in the form of hoards, casual finds and pyrotechnological activity, is now extensive (see Wallis, above).

### Iron Age and Romano-British activity

Considering that the aim of the Mile Oak project had been to sample a series of vaguely defined field lynchets, presumed to be of Iron Age/Romano-British date, while at the same time hopefully locating areas of contemporary settlement, very little evidence of Iron Age/Romano-British activity was actually recovered. This perhaps outlines the dangers inherent in predicting the archaeological potential of sites from what data are known to have been recorded within the immediate vicinity. Little can therefore be said regarding the poorly preserved field lynchets/banks from within and around the area of investigation. Some may have had their origins in the Middle/Late Bronze Age, although others, in particular the bank recorded from Trench A, may originally have been of Iron Age or Roman date (see Section 6).

Iron Age/Romano-British material was restricted, almost exclusively, to topsoil pottery finds within Trenches A, J, K,

L, M, P and 27, perhaps representing the re-initiation of plough activity from an earlier period. The two exceptions to this were cuts 4033 and 4157 within Trench K. As the small assemblage of four Romano-British pot sherds were the only finds from cut 4157, its Roman date is in little doubt and its presence, at the western margin of Trench K may suggest an area of later activity at the edge of the known Later Bronze Age settlement.

Two exceptional finds from the Iron Age/Romano-British period recovered during the excavations at Mile Oak were a mid-first to mid-second century AD Roman copper alloy 'dolphin' brooch from Trench H (see Rudling, above), probably representing a casual loss, and an early first-century AD Iron Age silver coin of Verica retrieved from the upper levels of Mound II. The nature of this find and its position, at the top of an earlier, independent surface feature, may suggest a deliberate ritual or votive deposit.