

**Channel Tunnel Rail Link
Union Railways (South) Limited**

Project Area 430

**TUTT HILL, WESTWELL, KENT
ARC 430 83+800-84+900 99**

**TARGETED WATCHING BRIEF
ASSESSMENT REPORT
FINAL**

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SUMMARY

As part of an extensive programme of archaeological investigation carried out in advance of the construction of the Channel Tunnel Rail Link (CTRL), the Oxford Archaeological Unit was commissioned by Union Railways (South) Limited to undertake a watching brief at Tutt Hill, Westwell, Kent. The watching brief revealed a series of artefacts and features which have been assigned to eight ceramic phases, from the Neolithic to the late Iron Age-early Roman period. Due to the scarcity of datable artefacts, the paucity of stratigraphic relationships, and the distribution of features of several phases over the same area, a relatively high proportion of features cannot be assigned to phases.

Two flint scatters provide evidence of activity which can be broadly dated to the Neolithic-early Bronze Age. The middle-late Neolithic period is represented by two pits, with two more possibly of similar date.

Four large ring ditches, interpreted as plough-levelled roundbarrows and associated with Beaker pottery, were cut across the site in the late Neolithic-early Bronze Age. As with most other features on the site they were badly truncated and no clear evidence of associated burials was found. A single cremation dated to the early-middle Bronze Age lay near the ring ditches. A single pit was also dated to the early Bronze Age. Three sub-rectangular pits and a cremation pit containing an inverted bucket urn date from the middle Bronze Age.

In the late Bronze Age a few pits and a field system, tentatively reconstructed from truncated ditches, mark a change in the character of activity on the site. Activity appears to decline at the beginning of the Iron Age: two isolated pits can be dated to the early and middle Iron Age respectively and a pit and a cremation to the Iron Age generally. A complex furnace-like feature at the western end of the watching brief area also contained late Iron Age pottery, but this may be residual and the feature could be much later in date.

Relatively little artefactual and ecofactual material was recovered from the site, the most significant perhaps being the flint, the metalworking debris from the possible furnace, and the charcoal from the cremations. Only small quantities of pottery, cremated human remains and charred plant remains were found and almost no animal bone.

Because of the truncation of the site, the paucity of artefactual and ecofactual evidence, and the small numbers of features which can be assigned to each phase, the remains are of little significance in isolation. The ring ditches, for example, are severely truncated and thus reveal little of their original form or use and the late Bronze Age field system can only be tentatively reconstructed. Although a few details of the cremations can be observed, five of the eight examples on the site remain undated. The metalworking debris is of some interest in technological terms, but its potential is again vitiated by the poor dating and contextual evidence.

The site does, however, provide a sequence of activity of great length. Those features which have produced prehistoric pottery in primary contexts may, in conjunction with other CTRL sites, contribute significantly to ceramic chronology in the region although this aim would require extensive radiocarbon dating to be fully realised. Comparable sequences have been observed at several other sites along the CTRL (Northumberland Bottom, Eyhorne Street, Sandway Road, Saltwood Tunnel) and elsewhere in Kent (Chalk Hill). The site also provides an opportunity to consider evidence for continuity and change in the ritual use of the landscape: the remains of past activities, such as the ring ditches, may have influenced later use of the site as, for example, in the placing of the later Bronze Age cremations near the ring ditches.

1. INTRODUCTION

1.1 Project Background

- 1.1.1 The Oxford Archaeological Unit was commissioned by Union Railways (South) Limited (URS) to maintain a targeted watching brief at Tutt Hill, Westwell, Kent (Figure 1). The site originally formed part of the general watching brief maintained in Project Area 430, stretching from URL grid points 77100, 27000 to 77870, 26300 (OS NGR TQ 9577 4700 to 9787 4639). However, following the discovery of extensive significant remains part of this area was subsequently designated as a targeted watching brief. The targeted watching brief was maintained between chainages 83+800 and 84+900. Archaeological features were concentrated in an area c 200 m by c 150 m (1.7 ha), centred at URL grid point 77520, 26600 (OS NGR TQ 9752 4660).
- 1.1.2 A number of features found beyond the area of the targeted watching brief have also been incorporated into this assessment. The results of an archaeological evaluation (ARC TUT 98) and of previous geophysical surveys (ARC THL 95) have also been considered but not incorporated in detail (Table 1). This work formed part of an extensive programme of archaeological investigation carried out in advance of the construction of the Channel Tunnel Rail Link (CTRL).
- 1.1.3 The archaeological Written Scheme of Investigation (URS 1998b) was prepared by Rail Link Engineering (RLE), and agreed in consultation with English Heritage and Kent County Council (KCC), on behalf of the Local Planning Authority.

Table 1: List of fieldwork events

Fieldwork event name	Fieldwork event code	Contractor	Dates of Fieldwork
Tutt Hill Targeted Watching Brief	ARC 430/99 83+800 - 84+900	OAU	12/3/99 - 27/8/99
Tutt Hill evaluation	ARC 430/99/84+320	OAU	8/3/1999 - 18/3/1999
Tutt Hill evaluation	ARC TUT 98	MoLAS	1998
Tutt Hill geophysical survey	ARC THL 95	A. Bartlett & Associates	27/11/1995 - 4/12/1995
Tutt Hill geophysical survey	ARC THG 99	Geophysical Surveys of Bradford	1999

1.2 Geology and Topography

- 1.2.1 The site lies on the Folkestone Beds near to their northern boundary with the Gault Clay. This geological substrate is covered with sandy silt soils.
- 1.2.2 The area of the targeted watching brief lies not far from the top of a gently sloping hill, between c 85 and 75 m OD. A stream runs roughly north-west - south-east, a short distance to the north-east of the site.
- 1.2.3 Prior to work on the CTRL the site was under pasture.

1.3 Archaeological and Historical Background

- 1.3.1 Few archaeological remains have been identified in the area of Tutt Hill. The only remains identified in the CTRL *Assessment of historic and cultural effects* were a scatter of prehistoric flint *c* 0.5 km to the east of the site (URL 1994, no. 1352), near to an area of undated ring and linear cropmarks, and a further area of soilmarks indicating the presence of two rectangular and three possible circular undated features *c* 0.75 km further east (URL 1994, no. 1168).
- 1.3.2 An evaluation (URS 1998) carried out to the north-west of Westwell Lane revealed a low density of archaeological features, consisting of a small quantity of prehistoric pottery, and several shallow linear features. A further evaluation (URS 1999) carried out immediately to the north-west of the area at Tutt Hill, subsequently subject to the targeted watching brief, revealed late Bronze Age-early Iron Age pits, and a small number of other features.
- 1.3.3 Geophysical surveys conducted to the north-west of the area of the targeted watching brief (ARC THL 95) and to the north-east (ARC THG 99) did not clearly reveal any archaeological features (URL 1995, URS 1999).
- 1.3.4 Watching briefs and other archaeological investigations carried out in other locations along the CTRL route have identified a sporadic scatter of features. A loose cluster of four late Iron Age-early Roman pits, including one cremation, were found in the Westwell Leacon and Leda Cottages watching brief just over 1 km to the north-west of Tutt Hill. Further pits of similar date and a scatter of Neolithic flint were found 2 km further west at Leacon Lane (URS 2000a). A thin scatter of other features at Newlands Stud, East of Newlands and Hurst Wood, which are the subject of a separate report (URS 2000a), were found to the west of these sites. Around 1 km to the south-east of Tutt Hill, at the South of Beechbrook Wood site, a middle Bronze Age pit, and a complex of late Iron Age-early Roman features, including postholes, pits and a field system, were the subject of detailed excavation (URS 1999b).

2. ORIGINAL PRIORITIES, AIMS AND METHODOLOGY

2.1 Landscape Zone Priorities

2.1.1 The area of study is located within the Wealden Greensand Landscape Zone. Tutt Hill was identified as a targeted watching brief in the course of the construction programme, following the unexpected discovery of significant archaeological remains. The remains discovered relate to the following periods as defined in the CTRL Archaeological Research Strategy:

- Early agriculturalists 4500-2000 BC
- Farming communities 2000-100 BC.

2.1.2 Within these time periods, the following Landscape Zone Priorities are relevant:

Early agriculturalists

- The definition of the contemporary environment
- Determining the nature and effect of clearance for agricultural activity
- The definition of ritual and economic landscapes and their relationships
- Determining the nature of, and changes in, economic lifeways

Farming communities

- Determining the spatial organisation of the landscape
- Environmental change resulting from landscape organisation and reorganisation

2.1.3 In addition to these general priorities, the following specific Landscape Zone Priorities were established for the Project Area 430 watching brief:

- changes in the earlier Neolithic arising from the adoption of agriculture
- changes to the organisation of the landscape, and its division
- continuity or change in late Iron Age and Romano-British burial practices.

2.2 Fieldwork Event Aims

2.2.1 The primary fieldwork aims for the watching brief in Project Area 430 in general were to record any significant archaeological structures, features or deposits, and to retrieve environmental and economic evidence and artefacts from those archaeological contexts, as well as any other artefacts disturbed during construction work.

2.3 Fieldwork Methodology and Summary of Excavation Results

2.3.1 Throughout the watching brief all groundworks were carefully observed. In targeted watching brief areas stripping was carried out by the main contractor using a 360° excavator fitted with a toothless bucket, under the direct control of an archaeologist. Where archaeological features were revealed, they were excavated by hand, pits being half-sectioned and ditches being sectioned at appropriate points. All features

were recorded using a single context recording system, were drawn in plan and section, and were photographed. Samples for environmental analysis were taken from appropriate contexts. A daily record of all activity related to the watching brief was maintained.

- 2.3.2 Artefacts and features discovered during the watching brief have been assigned to eight partially overlapping phases, mostly dating from the Neolithic to the late Iron Age/ early Roman period, but with a scatter of Roman and medieval pottery also present. Many of the features, including five of the eight cremations (23, 44, 98, 266, 269), cannot be dated by artefactual evidence. The remaining three cremations were dated to the middle Bronze Age (301), the early/ middle Bronze Age (46) and the late Iron Age/ early Roman transition (70) respectively (figures 1 and 2).
- 2.3.3 Two pits (143, 145), perhaps associated with two more, are the only features which date from the middle-late Neolithic. Two extensive flint scatters (19, 20) provide evidence for activity broadly dated to the Neolithic-early Bronze Age (figure 1).
- 2.3.4 In the late Neolithic-early Bronze Age, four large ring ditches (81, 89, 90, 156), interpreted as ploughed-out roundbarrows, were constructed. A single pit was the only other feature which could be dated to this phase. A single cremation (46), dated to the early-middle Bronze Age was the only burial which might be associated with the primary period of use of the ring ditches, although as it did not lie within a ring ditch it is perhaps more likely to be a secondary feature. No other clear evidence for burials or for other activity associated with the ring ditches was found. Some of the undated pits and cremations may have been associated with the ring ditches, even if not with their primary period of use. Three sub-rectangular pits (57, 117, 142), a cremation pit containing an almost complete bucket urn (301), and a short stretch of ditch are the only features dated to the middle Bronze Age (217).
- 2.3.5 In the late Bronze Age the site seems to have changed in character. Alongside a few pits, a field system or set of rectilinear enclosures can be tentatively reconstructed from stretches of similarly aligned, but poorly dated ditches in several parts of the site (76, 78, 190, 201, 286, 308, 310, 345).
- 2.3.6 Activity falls off at the beginning of the Iron Age; only isolated pits dating from the early and middle Iron Age, and a cremation (106) and a pit to the late Iron Age-early Roman period were recorded. Late Iron Age pottery found in a complex furnace-like feature (336) may be residual, the furnace perhaps being much later in date.

2.4 Assessment Methodology

- 2.4.1 This assessment report was commissioned by URS to the specification provided by RLE, as discussed with English Heritage and KCC. This specification follows national guidelines prepared by English Heritage and provides additional information regarding the level of detail required in the report and its format. Stuart Foreman (project manager) and Chris Hayden (team leader) managed the production of the report. The specialist work was undertaken by appropriately qualified specialists. Because the quantity of finds was relatively small all material was assessed.

3. FACTUAL DATA AND QUANTIFICATION

3.1 The Stratigraphic Record

Stratigraphy

- 3.1.1 Almost all of the features on the site are stratigraphically isolated. The only significant relationships occur where a pit cuts the fill of a ring ditch, and where ditch 190=201 cuts three features, pits and tree-throw holes. These very limited stratigraphic relationships are of very little help in dating and phasing the site.

Phasing

- 3.1.2 The dating of features thus depends almost entirely upon the pottery found within them. Unfortunately only a small proportion (24%) of the excavated features contained any pottery at all, and, with the exception of the cremations, those that did produced very little, most of which was found in the upper fills (Table 2). It is impossible to reliably assess the degree of residuality affecting the site from such small samples of pottery and there must, therefore, be some doubt concerning the reliability of the pottery as dating evidence. Nonetheless, the ceramic assemblages within individual features are not obviously residual or intrusive material, and several of the features belong to types widely attested elsewhere for which broad date ranges can be assumed with a reasonable degree of confidence.

Table 2: Summary of context types in which pottery occurs

Phase	No. contexts with pottery	No. features with pottery	Mean no. sherds per feature	Location of pottery (% of all sherds in phase)				Total no. sherds
				Primary fill	Single fill	Upper fill	Other	
MN-LN	4	4	3	9	45	45	-	11
LN-EBA	7	5	4	-	20	20	55	20
MBA	7	7	13 (3)*	19	11	70	-	91
LBA	7	5	73 (8)*	4	1	96	-	365
IA-Rom	3	3	2	-	33	33	33	6

* (excluding large sherd counts from cremations)

- 3.1.3 Phasing is made even more difficult by the fact that activity in all phases is concentrated in the same limited area (Figure 2). It is thus largely impossible to assign features to particular phases on the basis of their location and spatial associations, although in a few cases the form and location of features is suggestive. This fact, combined with the lack of significant stratigraphic relationships means that a large proportion of features remain undated.
- 3.1.4 Eight partially overlapping ceramic phases can be distinguished:
- Middle-late Neolithic
 - Late Neolithic-early Bronze Age (including Beakers)
 - Early-middle Bronze Age
 - Middle Bronze Age
 - Late Bronze Age
 - Early Iron Age

- Middle Iron Age
- Late Iron Age-early Roman.

Neolithic-Early Bronze Age flint scatters

- 3.1.5 Two scatters of flint (19 and 20 see Appendix 2), covering areas 100 m by 40 m and 40 m by 40 m respectively were found to the south-east of the area of the targeted watching brief. The flint assemblages were recovered from the ploughsoil and the stripped surface during machining and are therefore unstratified. However, they occurred in distinct concentrations and there is no reason to believe that they have moved very far from the locations in which they were originally deposited. The flint assemblages can be dated only broadly to the Neolithic-early Bronze Age on technological grounds and provide little information on the nature of the activities represented, but they do appear to represent significant foci of Neolithic-early Bronze Age activity in the vicinity of the barrows.

The Middle-Late Neolithic

- 3.1.6 Small numbers of sherds dated to the middle-late Neolithic were retrieved from two pits (145 and 150), both of which contained charcoal. Two further pits (143 and 148) also containing charcoal, but no pottery, were found near pit 145 and may be of the same date. Pits 148 and 150 were recorded during sub-soiling operations under conditions of poor visibility. Their plans and sections were not recovered and they are located only in relation to the project chainage (pit 148 lies at 84+390 and pit 150 at 84+480). These features nevertheless suggest a wide area of limited middle-late Neolithic activity.
- 3.1.7 The only other evidence for activity in the area of the targeted watching brief in this phase is provided by residual pottery found in ring ditches 89 and 90.
- 3.1.8 A few probably middle Neolithic sherds were, however, also found in a tree-throw hole (337) to the south-east of the area of the targeted watching brief. It is impossible to determine whether these sherds are residual or not.

The Late Neolithic-Early Bronze Age

- 3.1.9 Four large ring ditches (81, 89, 90 and 156; diameters 15 m, 22 m?, 22 m and 26 m respectively) are almost the only features which can be assigned to the late Neolithic-early Bronze Age with any certainty, small numbers of Beaker sherds having been found in the fills of all four. Most of this pottery was, however, found in the uppermost surviving fills where it may have accumulated long after the barrows were originally raised. It seems likely that the middle-late Neolithic pottery found in the primary fill of ring ditch 89 is residual. It is possible that the two sherds of middle Bronze Age pottery found in the uppermost surviving fill (179) of ring ditch 156 reflect the date at which the ditch was in-filled, as may the single late Bronze Age sherd in the upper fill (107) of ring ditch 90. However, since the ditches are all truncated, the surviving fills may represent comparatively early silting episodes.
- 3.1.10 Many of the cuts across the ring ditches revealed a characteristically 'Y' shaped section with a flattish base and sides which are near vertical at the base but which flare outwards at more or less steep angles above a certain depth. This profile matches closely that observed at the experimental earthwork at Morden Bog, also

cut into sandy sediments, where this shape developed following completely natural erosion of an originally vertical-sided ditch (Evans and Limbrey 1974).

- 3.1.11 No traces of a central barrow were noted within the ring ditches which were themselves more or less severely truncated.
- 3.1.12 No clear evidence for late Neolithic-early Bronze Age burials was found associated with these ring ditches. Burnt deposits were found in the middle fills (68, 74 and 187) of ring ditches 89 and 156 which do not, however, appear to have derived from cremations and are not associated with any artefactual evidence. They were, in any case, deposited some time after the ditches had begun to fill. A roughly sub-rectangular pit (170) was found near the centre of ring ditch 156 where one might expect to find a central burial, of which, however, there was no trace. A number of irregular features (172, 174 and 209) found within this ring ditch and ring ditch 90 (130 and 132) appear to be of natural origin.
- 3.1.13 A group of early Bronze Age pottery (55), recovered during machine stripping in the course of the watching brief at chainage 84+400, was thought derive from a further pit, although due to poor stripping conditions at that location, the plan of the feature was not discernible. The group comprised eleven sherds from an early Bronze Age vessel which, although possibly contemporary with the latter phases of the Beaker ring ditches, may be slightly later in date.

The Early - Middle Bronze Age

- 3.1.14 A single cremation (46) is the only feature which can be assigned to this phase. It lay a short distance to the south of ring ditch 90. The remains of several vessels and a large quantity of cremated human remains were recovered from the roughly oval pit. This cremation is thus the burial closest in date to the ring ditches. Since most of the other cremations found on the site were undated, they are discussed in more detail below with the other undated features (see 3.1.34).

The Middle Bronze Age

- 3.1.15 The small number of features which can be assigned to the middle Bronze Age were scattered thinly across the site. The most characteristic features of this phase were sub-rectangular pits, between 2 m and 3 m long, which contained small numbers of middle Bronze Age sherds. Two of these (117 and 142) were aligned similarly in the eastern corner of the site not far from the early-middle Bronze Age cremation (46). The other (217) lay some distance to the south. Their function is unclear but their elongated shape suggests that they might represent truncated remains of segmented ditches.
- 3.1.16 A cremation pit (301) containing an almost complete inverted bucket urn, found to the south of ring ditch 89, also dates from this phase.
- 3.1.17 The only further evidence for activity in this phase in the area of the targeted watching brief consists of two sherds of middle Bronze Age pottery found in the upper fill of ring ditch 156, which may be intrusive or reflect the date at which this layer of fill was deposited. It is possible that a number of the undated features also belong to this phase.
- 3.1.18 A short section of ditch (152) at some distance to the south-east of the ring ditches also contained a small number of middle Bronze Age sherds.

The Late Bronze Age

- 3.1.19 Late Bronze Age activity on the site is characterised by a system of ditches which perhaps formed a field system. The ditches, however, were very fragmentary. Ditch 190 was the only component of the system associated with pottery, with thirty-nine sherds of late Bronze Age pottery recovered from its upper fill. The association of the other components is based solely on their similar alignment.

- 3.1.20 The surviving stretch of ditch 190 runs roughly north-east - south-west. Further stretches of ditch on similar alignments were found in the north-eastern corner of the site (78=345) and to the south (286). Together these ditches may have defined a boundary on this alignment, although because of truncation it is unclear whether this was continuous.

- 3.1.21 This north-western boundary appears to have been associated with a series of other ditches running off it at right-angles at intervals of around 27 m and 52 m. At its southern end a short stretch of ditch 190 turns to the north-west, forming a right angle. At its northern end ditch 190 is associated with ditch 201 which runs to the south-east, also forming a right angle. To the north, a further ditch (76) runs at right-angles from ditch 78, on a similar alignment. More speculatively, to the south, gully 236, although curved in shape, follows a broadly similar alignment and may be related to the same system (see below 3.1.23). A further short stretch of ditch (308), oriented roughly north-west - south-east, lying much further to the south-east could also have formed part of this system, although how it may have connected with the other ditches is unclear. Overall, if these ditches were associated, they would have formed a slightly irregular system of rectilinear fields or enclosures.

- 3.1.22 Traces of further ditches aligned north-east - south-west were found to the north-west during the evaluation (figure 2; see URS 1999, ditches 12 and 18 for detailed plan). Most contained no dating evidence but were located near two pits containing late Bronze Age and early Iron Age pottery (5, 14). A further stretch of ditch (11115) did, however, contain some possibly late Bronze Age pottery. Their association with the ditches found during the watching brief cannot, however, be established with certainty.

- 3.1.23 The curved gully (236) found in the south-west corner of the site may not have been related to this system of ditches, but to some other structure. It is tempting to suggest that this was a hut circle, although there is no further evidence to support this interpretation and the gully does not appear to have originally been circular. Elsewhere penannular house gullies are rare in the late Bronze Age. There is no dating evidence for this gully which has been assigned to the late Bronze Age purely because of its proximity to ditch 286. A further feature, possibly a short section of a ditch (274), was found at the south-western end of the site. It may also be of late Bronze Age date, but does not appear to share its alignment with any of the other ditches.

- 3.1.24 Two further features can be dated to this phase. One is a small pit (42) near ditch 76 which contained a single late Bronze Age sherd. The other is a small pit (53) which contained some charcoal and was cut into the upper fill of ring ditch 89. This pit must have been cut when the ring ditch was already substantially filled, and it is unclear whether this location was deliberately chosen.

The Early Iron Age

- 3.1.25 The only feature dating to this phase is a small pit (5) found in the evaluation to the west of the area of the targeted watching brief.

The Middle Iron Age

- 3.1.26 A single pit (33) containing sherds from a decorated, probably middle Iron Age, vessel, can be dated to this phase.

The Late Iron Age-Early Roman Period

- 3.1.27 One feature in the area of the ring ditches can be assigned to this phase. It is a sub-rectangular cremation pit (70).

medieval

- 3.1.28 Pit 35, found to the north-west of the targeted watching brief area contained pottery which was described in the assessment as late Iron Age or Saxon in date. In order to clarify this uncertainty a C14 analysis was undertaken on charcoal (*Maloideae*),k which was part of a dump in the pit. This returned a date of cal Ad 1000 - 1170 (
- 3.1.29 Saxo-Norman ? sherds were found in the fill of a complex feature, probably a furnace (336), consisting of two pits, the sides of which were vitrified, cut into the fill of a larger pit, all of which had been subjected to considerable heat. The late Iron Age pottery is the only dating evidence, but may well be residual, the feature perhaps being much later in date.
- 3.1.30 Although no medieval features were revealed, medieval pottery was found in a localised scatter (32) to the north-west of the targeted watching brief area.

Undated Features

- 3.1.31 Over three-quarters of the features excavated contained no pottery. Since features of several phases were distributed across similar areas of the site, it is very difficult to assign features to phases on the basis of their spatial relationships. Some of the possible relationships - none very satisfactory - are discussed here.

Cremations

- 3.1.32 Eight cremations were found distributed widely across the site. Of these only three, discussed with the appropriate phases above, contained pottery (see 3.1.14, 3.1.16 and 3.1.27). An attempt was made to distinguish salient features and to establish spatial patterns which might allow the cremations without pottery to be associated with the dated examples and thus assigned to phases. However, although they vary in size, the undated cremations were all in simple, steep-sided circular or oval pits, generally containing rather small deposits of cremated remains and no associated artefacts. These are most similar to the early-middle and middle Bronze Age cremations (46 and 301), and in marked contrast to the sub-rectangular late Iron Age-early Roman cremation pit (70). However, evidence from other sites suggests that such simple cremations may just as well date from the later phases as to the Bronze Age.

- 3.1.33 Spatial associations are equally unhelpful. All three dated cremations lie in the north - north-eastern part of the site, in the area of the ring ditches, as do all but one of the undated cremations. The exception is a cremation deposit from a clay-lined pit (266) which lies to the south of the ring ditches. There are thus no clear spatial distinctions in the distribution of the cremations through which associations might have been made, apart from the association with the barrow cemetery in general.

Pits

- 3.1.34 A number of pits containing no pottery were found. Six of these (106, 114, 126, 133, 135 and 365) were distributed in the area of the ring ditches although none were found inside ring ditches. Pit 106 contained post-medieval pottery and fragments of a land-drain indicating very late disturbance of this feature.
- 3.1.35 Two of these pits (114 and 126) were sub-rectangular. A third (114), which lay to the west of ring ditch 89, was initially thought to contain the remains of a cremation since a circular deposit of charcoal was found within the pit. However, no cremated bone was found in the samples taken from the burnt deposit. The shape of the deposit of charcoal was thought to indicate that the cremated remains had been deposited in a basket or some other organic container, there being no pottery associated with the deposit. A flint blade was found positioned vertically in the middle of the burnt material. Both of these sub-rectangular pits are smaller than the middle Bronze Age pits of similar form, measuring only 0.7 - 0.9 m long. A further sub-rectangular pit (70), again smaller in size than the middle Bronze Age pits, was found near pit 114. It contained late Iron Age-early Roman pottery and the remains of a cremation and was similar in size to pits 114 and 126.
- 3.1.36 A further small cluster of three pits (342, 348 and 350) was found to the south of ring-ditch 90, near ditch 76, and another two (358 and 366) further south still. No ceramic dating evidence was recovered from any of them. Two of these pits (342 and 348) are noticeably deeper than the others and may well have been associated.
- 3.1.37 A further pit (259) was found in the south-western corner of the site, near to gully 236. There are no dated features in this part of the site, but it seems likely that gully 236 dates from the late Bronze Age. Pit 259 may also date from the same phase. There is no indication of the date of burnt pit 207 near the centre of the site.
- 3.1.38 Three pits (21, 23 and 26) containing no clear dating evidence were found to the south-east of the area of the targeted watching brief, near to flint scatter 20. Pit 23 contained much charcoal which appeared to have been burnt *in situ*. Pits 21 and 26 also contained charcoal which, however, did not appear to have been burnt *in situ*, and pit 21 produced much burnt flint.

Tree-Throw Holes

- 3.1.39 A large number of more or less irregular features were found, concentrated mainly in the more southerly part of the site. These have been interpreted as tree-throw holes, and consequently few were excavated. It should be noted, however, that it is difficult to draw a firm line between irregular pits and tree-throw holes and it is possible that some of these features were deliberately dug. The only evidence for the date of the tree-throw holes, other than some possible middle Neolithic pottery in tree-throw hole 337, is stratigraphic: Two (191 and 252) were cut by gully 190 and are thus probably late Bronze Age or earlier in date.

Truncation

- 3.1.40 The features have, in general suffered from severe truncation. This is revealed most clearly by the removal of sections of ring ditch 81 and of some of the late Bronze Age ditches. This truncation is, however, uneven. In a few places, notably ring ditch 156 and 89, the ditches are still preserved to depths of up to 0.8 m. Generally, however, the features do not survive beyond a depth of *c* 0.35 m and often much less.

Residuality and Disturbance

- 3.1.41 Given the small numbers of dateable finds the degree of residuality and disturbance affecting the site is difficult to assess. There are, however, few contexts other than topsoil and subsoil contexts in which material of differing date has become mixed. Where mixing has occurred, it suggests residuality rather than disturbance, a small number of early-middle Neolithic sherds being found in the upper fill of ring ditch 90, and small numbers of late Bronze Age sherds in the upper fill of late Iron Age pits 70 and 106 being the only cases. The post-medieval pottery and fragments of land-drain in pit 106 are the only clear indication of much later disturbance.

3.2 The Artefactual Record

Prehistoric Pottery (Appendix 1)

- 3.2.1 The prehistoric assemblage (2010 sherds, 7.6 kg) recovered has a wide date range (Neolithic to early Iron Age). The earliest material consists of mostly redeposited early Neolithic body sherds from Beaker associated contexts. There are small quantities of Peterborough Ware, Beaker, Biconical Urn, Deverel-Rimbury and late Bronze Age pottery. The latest material is of early Iron Age date. The pottery indicates small-scale funerary and domestic activity over a period of at least 3500 years.

Middle-Late Iron Age and Roman Pottery (Appendix 1)

- 3.2.2 The site produced just 61 sherds (568 g) of middle-late Iron Age pottery from four contexts. Thirty four of these sherds were found in Pit 33 and came from a single vessel, probably of middle Iron Age date, decorated with burnished spirals and dimples. Contexts associated with the possible furnace (Group 336) produced a further 26 sherds of late Iron Age character: two vessel rim fragments indicate that the pottery, if not the feature, can be more precisely dated to the period *c* 150 BC - AD 1.
- 3.2.3 Two further sherds from layer 330 (10 g) may conceivably be from a 3rd-century jar rim in a variant of Native Coarse Ware but the pieces are small and open to other interpretations. The 18 possible crucible fragments from Pit 35 (28 g) could be either Anglo-Saxon or late Iron Age in date but in this context are more likely to be Iron Age. Together with the furnace 336 (if this is late Iron Age in date), this material hints at some kind of industrial activity in the area. The problematic ceramic dating evidence for these features could be resolved by radiocarbon dating.

Medieval and Post-Medieval Pottery (Appendix 1)

- 3.2.4 The assemblage of medieval pottery comprised 116 sherds with a total weight of 842 g, dating from the 13th-14th centuries but including also one 19th century

sherd. All of the pottery was found redeposited in a subsoil context, but within a small area.

Ceramic Building Material and Fired Clay (Appendix 1)

- 3.2.5 A small quantity of building material and fired clay totalling 0.76 kg was recovered. The only securely identified material is post-medieval brick and field drain which indicates recent disturbance of pit 106. Some of the fired clay may be fragments of artefacts such as loomweights.

Worked and Burnt Flint (Appendix 2)

- 3.2.6 A total of 224 pieces of worked flint and 812 pieces of burnt unworked flint (weighing 5403 g) was recovered during the watching brief. Flint was recovered from a variety of contexts including pit fills, cremation fills, ring ditch fills, tree-throw hole fills and a subsoil flint scatter. With a few exceptions the flint was thinly spread within the contexts. It is generally of Neolithic to early Bronze Age date, but very few diagnostic retouched forms or debitage were recovered.

Metalwork (Appendix 3)

- 3.2.7 A total of 26 metal objects were found, consisting of fragments of iron nails and fragments of what may have been one copper alloy object incorporating small plates and rivets. All but one of these finds derived from the fill of pit 35, which is probably late Iron Age in date and which also contained metalworking debris. The fragments of the copper alloy object in particular may have been scrap awaiting reuse. The remaining object, an iron nail shank, was found in a disturbed pit (106) of uncertain date which, however, contained post-medieval pottery and fragments of a land-drain.

Iron Slag and Working Debris (Appendix 4)

- 3.2.8 Almost 3 kg of iron slag were recovered during the watching brief. Although not a large assemblage it is of interest because a small amount of smelting slag was found in a complex feature initially identified as a “furnace” or oven (336), the date of which is uncertain although late Iron Age pottery was found in one of its fills. The rest of the material from the site was either undiagnostic slag (i.e. could be produced by either smelting or smithing) or was waste from iron smithing.

Copper Slag and Working Debris (Appendix 4)

- 3.2.9 A small quantity (221 g) of copper working debris was found amongst iron working debris in context 36 (the fill of late Iron Age pit 35). The debris is of two types: one is probably low density crucible slag containing much entrapped gas, the other consists of coarse, sandy, iron-stained fragments of the furnace, to which fragments of copper slag adhere. The slag suggests that the debris derives from reworking of copper alloy rather than smelting.

3.3 The Environmental Record

Cremated Human Remains (Appendix 5)

- 3.3.1 Eight deposits of cremated bone in fourteen contexts were recovered from a variety of pits. Most of these pits contain no direct dating evidence, but three of the cremations can be dated by identification of pottery to the early-middle Bronze Age,

the middle Bronze Age and the late Iron Age-early Roman period. The quantity of cremated remains in most of the pits was very small, usually between 1 g and 7 g, although two contained much larger deposits. In only one case could a definite identification - of an adult male - be made, although three adults, two possibly male could be tentatively identified.

Animal Bone (Appendix 6)

- 3.3.2 A single fragment of tooth, probably from a cow, found in the middle fill of ring ditch 156 was the only animal bone recovered from the site.

Charred Plant Remains (Appendix 7)

- 3.3.3 A total of 25 samples were submitted for assessment of their charred plant macrofossil remains. The samples came from predominantly late Neolithic-early Bronze Age features associated with ring ditches, with occasional middle Bronze Age and Iron Age samples. Some of the samples, however, remain undated. While the charred remains are limited, some cereal grains were noted, particularly of *Hordeum vulgare* (barley), most of which were from probably late Iron Age pit 35. The cereal grain identified was predominantly of *Hordeum vulgare* (barley) with a single hulled wheat in a late Bronze Age ditch (190) and an *Avena* sp. (oat) in a probably late Iron Age pit (35). In addition to the cereal remains, occasional fragments of *Corylus avellana* (hazel-nut) shell were noted from a middle Bronze Age pit (217). The preservation of the grain is generally good and in some cases excellent. There is no evidence of intensive cereal agriculture at the site, although some reliance on cereal products is clearly suggested.

Charcoal (Appendix 7)

- 3.3.4 Nineteen samples from cremation pits, ring ditches and pits were submitted for the assessment of the wood charcoal. The features sampled ranged in date from the middle-late Neolithic to the early Roman period. Six taxa were identified - *Quercus* sp. (oak), *Alnus/Corylus* (alder/hazel), Salicaceae (willow, poplar), *Prunus* sp. (blackthorn, cherry), Maloideae (hawthorn, apple, pear etc.) and *Fraxinus excelsior* (ash). A limited range of taxa were identified at this site, which is to be expected in funerary contexts in which deliberate selection of fuelwood has been noted at other sites.

3.4 Archive Storage and Curation

- 3.4.1 The material recovered from the site has been stored according to the United Kingdom Institute for Conservation conservation guidelines. It requires no special conservation measures.
- 3.4.2 It is recommended that all artefacts are retained until analysis is complete, although finds with no intrinsic or interpretive value could eventually be discarded.
- 3.4.3 The archive index has been updated (Table 3).

Table 3: Archive index table

Item	Number of items or boxes or other	Number of fragments /litres	Condition (No. of items) (W=washed; UW=unwashed; M=marked; P=processed; UP=unprocessed; D=digitised; I=indexed)
Context records	363	-	I
A1 plans	13	-	I, D
A4 plans	37	-	I
A4 sections	120	-	I
Films (monochrome)	-	-	I
Films (colour)	-	-	I
Flint	4 size 3	1036	W, M
Pottery	2 size 1 5 size 2	1507	W, M
Fired Clay	See Misc	511	W, M
CBM	See Misc	4	W, M
Metalwork	1 size 4	27	W, M
Slag	1 size 3	3145 g	UP
Animal Bone	See Misc.	1	W, M
Human bone	1 size 2	14	P
Misc	1 size 3	-	-
Soil samples (bulk)	-	2.075*	P

* flot size

Key to box sizes

Cardboard boxes

Size 1 = Bulk box	391mm x 238mm x 210mm	0.02 m ³
Size 2 = Half box	391mm x 238mm x 100mm	0.01 m ³
Size 3 = Quarter box	386mm x 108mm x 100mm	0.004 m ³
Size 4 = Eighth box	213 mm x 102 mm x 80 mm	0.002 m ³

4. STATEMENT OF POTENTIAL

4.1 Stratigraphic Potential

Continuity

- 4.1.1 The Landscape Zone Priorities relevant to Tutt Hill are set out in section 2 of this document, above. The following section considers the potential of the stratigraphic data to contribute to further research in pursuit of the Landscape Zone Priorities.

Truncation

- 4.1.2 The severe degree to which the site has been truncated reduces its potential for more detailed analysis. Some details of the site's layout and perhaps all trace of shallower features have been lost. This is particularly significant with respect to the possible late Bronze Age field system, the exact form of which is unknown because of the removal of sections of its ditches. The reconstruction of this system, although not implausible, cannot be more than tentative.
- 4.1.3 Truncation has also affected other parts of the site. The significance of the curved gully (236), for example, is unclear. The forms of the barrows which may have accompanied the ring ditches, as well as some more superficial burials including any inserted into the barrow itself, have been lost. It has been speculated on the basis of other ring ditches associated with well preserved barrows (Drewett *et al.* 1988, 84) but lacking burials, that, like churches, rather than being specifically burial monuments, barrows may have been primarily ritual monuments which could be used for burial. At Saltwood Tunnel (URS 2000b), for example, only one of the ring ditches had a primary Bronze Age burial. Because of truncation, it is impossible to be certain that the ring ditches at Tutt Hill were not originally associated with burials. This limits the potential of this evidence for defining ritual landscape.
- 4.1.4 Despite these drawbacks, numerous details of the development of the site can be perceived. This is discussed at the conclusion to this section (see 4.4 below). A few additional observations are, however, relevant here.

The Flint Scatters

- 4.1.5 The flint scatters were not *in situ* and can, at best, only provide evidence for activity in the general area.

The Filling of the Ring Ditches

- 4.1.6 The ring ditches themselves had a characteristic 'Y'-shaped profile (see 3.1.10) which probably derived from the natural weathering of what were once steep-sided ditches. There was no clear indication that the ring ditches themselves were modified or renewed. The sequence of activity in this phase seems to have involved the addition of new monuments rather than modification of existing ring ditches.

The Chronology of Tree-Throw Holes

- 4.1.7 The more southerly part of the site was marked by many features interpreted as tree-throw holes. The chronology of these features is uncertain, but they may indicate an episode or episodes of land clearance. One example (338) contained middle

Neolithic pottery, which is thought most likely to be residual, although the quantity present (7 sherds, 25g) may suggest deliberate deposition. In the few cases where stratigraphic relationships between tree holes and dated archaeological features were discernible, the tree holes were always cut by late Bronze Age features.

Dating

- 4.1.8 Because features of all phases were distributed over similar areas, spatial associations cannot be used to assign dates, and there were also few significant stratigraphic relationships. Since pottery was relatively scarce, many of the features thus remain undated. This is particularly unfortunate in the case of the cremations, five out of eight of which are undated, but also affects other features, some of which, such as the late Bronze Age field system, can only be tentatively reconstructed.
- 4.1.9 Only an extensive programme of radiocarbon dating could remedy the difficulties in dating many of the features on the site. Samples of charred plant remains and charcoal were taken from many features, but much of the charcoal, in particular from the cremations, consists of wood charcoal which is unsuitable for radiocarbon dating. With careful selection, however, it may be possible to obtain dates for all of the cremations and a few pits, but for only a very restricted part of the possible late Bronze Age field system. Such a programme would require the submission of a large number of samples, which would be unjustifiable in terms of the interpretation of the site. However, radiometric dating may be justifiable in the case of the cremations, as part of a wider study of prehistoric burial practises in the region. Such a programme would be an addition to the original fieldwork aims.

4.2 Artefactual Potential

Prehistoric Pottery (Appendix 1)

- 4.2.1 The main interest of the pottery assemblage is that it indicates use of the site from the early Neolithic through to the early Iron Age. Despite the overall size of the assemblage (2010 sherds), the material consists of many small groups of varied date. Since a high proportion of the material derives from placed deposits such as cremation vessels, this may reflect continuity in the use of the site for ritual purposes over a period of perhaps 3500 years. The presence of a diverse range of prehistoric pottery, on a single site, offers considerable potential for refining the regional ceramic sequence in terms of changes in style and technology over this very long period. Although such a study at a regional level would fall outside the CTRL research strategy it is recommended that the material from Tutt Hill is recorded in full and the data made available for any future research in this area. The chronological significance of the data would be greatly enhanced by a programme of radiocarbon dating, using sample material securely associated with the pottery, such as residues adhering to the sherds.
- 4.2.2 The CTRL project as a whole has produced one large prehistoric pottery assemblage covering a similar timespan (White Horse Stone) and a series of small assemblages, offering scope for comparisons within the CTRL project, for at least some of the Tutt Hill material (South of Eythorne Street, South of Beechbrook Wood, Saltwood Tunnel).

Late Iron Age and Roman Ceramics (Appendix 1)

- 4.2.3 The amounts of pottery recovered from the site are generally insufficient for anything other than providing broad indications of date for individual deposits. The presence of possible industrial activity in this period is, however, worthy of note and it is recommended that the crucible fragments be examined by a specialist in prehistoric bronze-working techniques, who may suggest the use of metallurgical or residue analysis to shed light on the technologies used. The dating of the pit which contained the crucible fragments (35) is at present problematic, as the associated pottery could be either Iron Age or Saxon, but this issue could be resolved by radiocarbon dating.

Post-Roman Pottery (Appendix 1)

- 4.2.4 All of the wares recorded from the site are well-known in the area, although little has been published. Although the pottery is not in its primary context, and is of little significance in terms of the interpretation of the site, it is nonetheless of some interest in terms of the ceramic chronology of the area and it is recommended that its presence is noted in a publication.
- 4.2.5 The difficulty of distinguishing certain middle-late Iron Age and Saxon wares is a problem encountered on a number of CTRL sites. Further research is required to resolve the issue. It is possible that Anglo-Saxon pottery is under-reported in published sources, as such material of uncertain date is most likely to be assigned to the Iron Age by default.

Ceramic Building Material and Fired Clay (Appendix 1)

- 4.2.6 The quantity of material is too small to justify further analysis. However, in the light of the evidence for prehistoric metal-working on the site, it is recommended that the fired clay is re-examined by a specialist in that field, to check for the presence of crucible and furnace fragments.

Worked and Burnt Flint (Appendix 2)

- 4.2.7 The flint from Tutt Hill is generally of Neolithic to early Bronze Age date, but a very limited range of diagnostic retouched forms and little debitage was recovered. Although the assemblage is only broadly dated to the Neolithic-early Bronze Age it seems unlikely that any of the material is contemporary with the later Bronze Age ceramics recovered. The flintwork was generally thinly spread across the contexts. Given these limitations the flint nonetheless provides evidence for earlier prehistoric activity in this area. It is unfortunate that the activity associated with the flint scatters (19 and 20) cannot be more accurately dated, since they provide potentially interesting evidence of prehistoric activity not far from the ring ditches.
- 4.2.8 With the exception of a group of cores and flakes from a flint scatter (20) which may refit and which would provide further evidence for the knapping strategies employed, no good groups were identified for further analysis. A programme of refitting on this small group, if successful, would demonstrate that the flint has not moved far from the point of original deposition and would suggest the presence of a knapping site in the vicinity of the barrows, potentially contemporary with their primary construction and use. This would help to define the range of activities associated with the barrow cemetery. While not necessarily indicating domestic

occupation, the presence of a knapping site would at least suggest that the location was a focus of activity, such as a temporary campsite or a meeting place.

- 4.2.9 Some evidence for usewear has been identified but, given the lack of good groups and the number of pieces involved there is no potential for further work in this area.

Metalwork (Appendix 3)

- 4.2.10 The metalwork is significant primarily as evidence for the possible reworking of scrap. It otherwise contributes little to the interpretation of the site or to the research aims of the CTRL, and no further work is recommended.

Iron Slag and Working Debris (Appendix 4)

- 4.2.11 The small group of smelting slag, in itself, would usually not merit further work. However, its provenance within a feature which may be a smelting furnace is of some interest. Although the feature falls outside the main prehistoric range of interest for the site, it has the potential to contribute to study of the Late Iron Age/Roman rural economy, for the research period Towns and their Rural Landscapes, sub-period 1 (100 BC - AD 410). The CTRL fieldwork has recovered numerous examples of Roman rural ironworking, including similar sites in Kent such as Beechbrook Wood and South of Snarkhurst Wood. Evidence for iron working on a larger scale has been recovered at Westhawk Farm, Ashford. In this context, the evidence from Tutt Hill can contribute to a broader understanding of the range and type of features to be associated with iron exploitation and working in the Weald of Kent in the Iron Age and Roman period, and certainly deserves further work to determine its type and to locate similar examples.

Copper Slag and Working Debris (Appendix 4)

- 4.2.12 The small assemblage of copper working debris has the potential to provide more detailed information on the kind of copper working being undertaken on the site which will complement the evidence for iron working retrieved from the same pit (see 4.2.11).

4.3 Environmental Potential

Cremated Human Remains (Appendix 5)

- 4.3.1 Although the site contained eight cremations, they are mostly undated. The three dated examples will allow comparisons to be made with other sites, and thus have some potential to contribute to our understanding of burial practices in the relevant periods. However, their potential is severely limited by the poor dating evidence and the very small amounts of cremated human bone found in all but two of them. The latter point casts some doubt on these deposits as being funerary in character. They could represent some other form of ritual activity but, given the severe degree of truncation the features have suffered, a definitive interpretation is unlikely. The two larger deposits that may be confidently identified as funerary in character (44, 46), have potential for comparison with similar features from other sites for refining knowledge of funerary practises.

Animal Bone (Appendix 6)

- 4.3.2 The single fragment of tooth identified from the site has no potential in terms of the interpretation of the site or of the CTRL research aims. No further work is recommended.

Charred Plant Remains (Appendix 7)

- 4.3.3 The range and quantity of charred seeds and chaff within the samples is such that further analysis is unlikely to extend the species list much further. However, given the paucity of charred macrofossil assemblages of the period from the late Neolithic to the middle Bronze Age within Kent, it is recommended that the assessment results are considered in the overall synthesis. As a minor contribution to a wider regional study, this would contribute to determining the nature of, and changes in, economic lifeways of 'Early Agriculturalist Communities', as defined in the CTRL research strategy.

Charcoal (Appendix 7)

- 4.3.4 Four of the cremation pits (46, 98, 269 and 301) produced assemblages of reasonable size with varied taxonomic composition. These have potential to shed light on funerary practices in the periods represented, specifically on the selection of wood for pyres. However, the realisation of the potential will depend upon further dating evidence being available.

4.4 Overall Potential

- 4.4.1 The potential of the site derives primarily from the long sequence of activity in the same location, stretching from the Neolithic to the late Iron Age-early Roman period thus potentially allowing changes in the use of the landscape over time to be examined. Although features can be dated to each of the phases distinguished within this long period it is impossible to determine the degree of continuity. There is no strong evidence for permanent occupation at any period, the principal landuse being ritual/funerary in earlier periods, with a possible shift in character, from the late Bronze Age and later, to agricultural and low level craft industrial activity. However it seems that the site continued to provide a focus for burial at least until the late Iron Age.
- 4.4.2 In terms of the CTRL Research Strategy, the evidence from Tutt Hill falls into two categories: that which contributes to understanding of the site at Fieldwork Event Aim level, and that which contributes to broader study at Landscape Zone Level. In the case of Tutt Hill, most of the evidence falls into the latter category, and there is little potential for further detailed analysis at site level.
- 4.4.3 Largely because of the difficulties of dating and the severe truncation much of the site has suffered, the features and finds from each individual phase are of quite limited potential. At best they are of only local or regional significance and even then only because of the relative scarcity of finds of comparable date elsewhere in the region.

Landscape Zone Priority: Early Agriculturalists (4500-2000 BC)

- 4.4.4 There is little indication of the kinds of activities to which the few Neolithic pits and flint scatters were related. They thus have little potential except as evidence of some level of activity in this area which, when compared with the wider distribution of similarly dated sites across the landscape, may provide some insight into patterns of land-use.

Landscape Zone Priority: Early Agriculturalists (4500-2000 BC) into Farming Communities (2000-100 BC)

- 4.4.5 The late Neolithic-early Bronze Age ring ditches give a slightly clearer, albeit rather broad, indication of the kinds of activities which may have been carried out on the site, and suggest that there was a strong ritual component. Their potential is, however, limited by their severe truncation. For this reason we cannot be sure whether the absence of burials within the ring-ditches is real or simply the result of post-depositional disturbance. The only details they reveal are the apparently natural processes of filling in the ditches and the already very widely evidenced repetition of similar forms of monument in one location. The distribution of barrow groups may be related to the definition of social territories, and the Tutt Hill group therefore has some significance as an addition to the growing distribution of roundbarrows in Kent. This study would contribute in particular to recognition and definition of ritual and economic landscapes and their relationships.
- 4.4.6 The flint scatters provide evidence for further foci of activity not far from the ring ditches. The possible significance of this as evidence for domestic activities at an adjacent, but discrete site, is limited firstly by the difficulty of assigning a more precise date to the worked flint and secondly by the fact that the material was unstratified. However, the assemblages occurred in two distinct concentrations, recovered during machining from the ploughsoil and the stripped surface and there is no indication that they have moved very far from their original point of deposition. In general terms, the absence of recognisable features coinciding with the flint scatters emphasises the point that settlement sites contemporary with the barrows may have left traces so ephemeral that they will only survive in exceptional circumstances. However, as noted above, a flint concentration does not necessarily indicate the presence of a permanent settlement, but might instead represent an activity focus with a short or sporadic lifespan, such as a temporary campsite or meeting place. A refit analysis would confirm whether the flint scatters derive from the immediate locality, although use-wear analysis is unlikely to provide much useful information. This would add to the evidence for the definition of ritual and economic landscapes and their relationships.
- 4.4.7 Although the flint scatters may reflect occupation during the Neolithic-early Bronze Age, it is noticeable that the ring ditches were constructed close to the small number of middle-late Neolithic features. Residual sherds of early-middle Neolithic pottery suggest that activity in this area could have commenced at an even earlier date. There is little clear evidence for the character of the earlier Neolithic activity in this area, but the selection of the site as the location for the ring ditches in the late Neolithic/early Bronze Age may suggest the introduction of new ritual forms to a site of long-established ritual significance.
- 4.4.8 There is no clear indication that the ring ditches themselves were modified or renewed following their initial construction. The sequence of activity in the late

Neolithic-early Bronze Age seems to have involved not changes to the ring ditches but the addition of new monuments.

Landscape Zone Priority: Farming communities (2000-100 BC)

- 4.4.9 Although the ring ditches themselves appear to have been left to erode naturally, their remains may still have marked out the site as an area of special significance. The two dated early-middle and middle Bronze Age cremations, most of the undated cremations, and most of the other middle Bronze Age features, were concentrated around the ring ditches. This may mark a significant shift in the use of the site since there was no clear evidence for burials directly associated with the primary construction and use of the ring ditches. However, the very small size of most of the cremation deposits casts some doubt on their identification as specifically funerary deposits and the sub-rectangular middle Bronze Age pits also suggest that activity in this phase was not only funerary in character. Because of the relative scarcity of similarly dated cremations, these burials may be of regional significance, but they reveal little detail of the practice of cremation and there is therefore no justification for further detailed analysis. The quantity of human bone in most of the cremations of all periods was very small, usually between 1 g and 7 g, with only two (cremation 46, dated to the early-middle Bronze Age and 44, undated) containing much larger deposits. This raises the possibility that such features represent some other form of ritual activity than simply disposal of the dead.
- 4.4.10 Bronze Age burials have been excavated at a number of CTRL sites including an early Bronze Age double inhumation at Northumberland Bottom and a primary early Bronze Age inhumation associated with a barrow at Saltwood Tunnel. Further evidence for Bronze Age activity in association with ring ditches, including possible human cremations, has been excavated at Beechbrook Wood. The presence of middle Bronze Age cremations at Tutt Hill, apparently in secondary association with the barrows, is of value for comparative purposes. The data will assist in defining characteristic features of the ritual and economic landscapes in the 'Early Agriculturalists' and 'Farming Communities' periods. Consideration of the topographical setting and frequency of the barrow cemeteries may assist in determining the spatial organisation of the landscape, as such sites may have played a role in defining settlement territories, either as boundary markers or focal points. Variation in burial practice over time, such as the positioning of burials in relation to the barrows, may reflect changes in the significance of the site to the community.
- 4.4.11 The character of the site appears to have changed more radically in the late Bronze Age. Although fragmentary, a rectilinear system of fields or enclosures can be plausibly reconstructed. This is perhaps the most significant transformation in the use of the site, from ritual and funerary activity to simple agricultural land management. It is nonetheless noticeable that the late Bronze Age ditches skirted near to but did not cross the area of the ring ditches. There may have been practical reasons for this, the remaining mounds perhaps providing an inconvenient location for such boundaries, but it may also reflect the lingering significance of the ring ditches, even if only as boundary markers. Although difficulties of dating and truncation limit the potential of the late Bronze Age features, the assessment has provided valuable data concerning the layout and chronology of late Bronze Age field systems which can inform further study at Landscape Zone Level. Unfortunately the palaeoenvironmental and artefactual evidence associated with this field system is too fragmentary to give any indication of the range of activities which took place within it.

- 4.4.12 It has been suggested that late Bronze Age field systems elsewhere were laid out with boundaries roughly 30 m or multiples of 30 m apart (Yates 1997). There are only two instances at Tutt Hill where distances between broadly parallel ditches can be measured, the intervals being 27 m and 52 m respectively, and the evidence is probably insufficient to allow any conclusions. At a Landscape Zone level, however, this site and others along the CTRL (West of Blind Lane and possibly Church Lane, South of Beechbrook Wood and Boys Hall Balancing Pond) will provide useful data for the study of spatial organisation of the landscape in the 'Farming Communities' period. Prehistoric field systems have previously been poorly known in the Kent region..

Landscape Zone Priority: Farming Communities (2000-100 BC) into Towns and their Rural Landscape, sub-period 1 (100 BC - AD 410)

- 4.4.13 There is little evidence for activity after the late Bronze Age, which effectively forms the end of the significant sequence of activity on the site. Elsewhere it has also been noted that prehistoric field systems tend to fall out of use at the end of the Bronze Age. Tutt Hill thus has potential to contribute to a wider comparison with sites elsewhere along the CTRL which may show a consistent chronological pattern in the development of landscape organisation.
- 4.4.14 Activity in the Iron Age was evidenced only by single early and middle Iron Age pits. Given the apparent decline in activity, the use of the site again in the late Iron Age-early Roman period for the burial of cremations may be fortuitous, although barrows often attracted secondary funerary activity up to the Anglo-Saxon period (cf Saltwood Tunnel, URS 1999) perhaps in connection with their frequent use as estate boundary markers.
- 4.4.15 The isolated pits provide little clear indication of the activities to which they were related. The one exception to this is pit 35 which contains a good assemblage of iron and copper working debris. Its significance is, however, vitiated by the uncertainty regarding the dating of the associated pottery. This is probably late Iron Age in date, but uncertainties regarding fabric identifications in the region mean that the possibility of an early Saxon date cannot be entirely ruled out at this stage. The form of the furnace, however, is suggestive of a Roman date.
- 4.4.16 The small group of smelting slag, in itself, would usually not merit further work. However, its provenance within a feature which may be a smelting furnace is of some interest. The CTRL fieldwork has recovered numerous examples of Roman rural ironworking, including similar sites in Kent such as Beechbrook Wood and South of Snarkhurst Wood. Evidence for iron working on a larger scale has been recovered at Westhawk Farm, Ashford. In this context, the evidence from Tutt Hill can contribute to a broader understanding of the range and type of features to be associated with iron exploitation and working in the Weald of Kent in the Iron Age and Roman period, and certainly deserves further work to determine its type and to locate similar examples.

The Overall Significance of the Sequence

- 4.4.17 This sequence of activity is perhaps more important in raising issues than in resolving them. In some respects it is typical of much wider changes which occurred across southern England. The placing of middle Bronze Age burials near earlier ring ditches, for example, has been noted elsewhere, and the major transformation from

ritual activity and burial to an organised, apparently agricultural land usage is also typical. The site itself provides little additional evidence for the significance or causes of these changes. The sequence at Tutt Hill may make more sense if the changes here can be related to better evidence from other sites. How, for example, does the distribution of barrow groups relate to earlier features at a regional level? Does the construction of barrows reflect a wider change in the definition of social territories and of landuse? Do other sites provide clearer evidence for changes in agro-pastoral strategies at the transition from the middle Bronze Age to the late Bronze Age?

- 4.4.18 The site does provide a body of evidence from which it is possible to speculate on continuity in landuse at particular locations. The site suggests that old monuments and features exerted influence over, and were reinterpreted by, later activities. Partially comparable sequences of activity have been noted elsewhere along the CTRL, at for example Eythorne Street, Sandway Road (URS 1999c), and Saltwood Tunnel (URS 2000b), as well as elsewhere in Kent at, for example, Chalk Hill (Dyson *et al.* 2000). Several of these sites provide evidence for late Bronze Age field systems or enclosures being sited near earlier barrows, and at Chalk Hill the barrow was constructed not far from a major concentration of Neolithic features which may have been ritual in function. In combination with other sites on the CTRL and further afield, Tutt Hill can therefore contribute to the identification of regional patterns in landscape organisation and development.

Additional research aims

- 4.4.19 The length of the sequence adds to the significance of the ceramic evidence: Although the prehistoric pottery assemblages from each phase are relatively small, the wide range of dates and styles present provide an opportunity to examine change, on a single site, over a period of perhaps 3500 years. Radiocarbon dating of appropriate contexts could help to enhance regional pottery dating for this period, as well as aiding in the interpretation of the site. The most direct method of achieving this would be to date residues adhering to the pottery sherds themselves, although dating of securely associated material, such as the middle Bronze Age cremation, would also provide useful information.

4.5 Updated Research Aims

- 4.5.1 Tutt Hill has the potential to contribute to the CTRL Research Strategy at Landscape Zone Level in respect of a number of time periods, which are set out in the following section.

Early Agriculturalists and Farming Communities

- 4.5.2 Changes in the earlier Neolithic arising from the adoption of agriculture:
- Is there evidence at Tutt Hill and elsewhere that the definition of ritual foci is related to the adoption of agriculture?
- 4.5.3 The definition of ritual and economic landscapes and their relationships:
- What is the evidence at Tutt Hill and elsewhere for barrow cemeteries being sited on earlier Neolithic foci?

- How typical are the Tutt Hill barrows in terms of form, function and the range of associated artefactual evidence?
- Are barrows funerary monuments? If not, what is their primary function?
- Does the distribution of barrow groups in Kent support the suggestion that such monuments reflect social/territorial organisation?
- What patterns can be seen in the reinterpretation and reuse of such monuments by later communities?

4.5.4 Determining the nature of, and changes in, economic lifeways:

- To what extent does the evidence support the theory that field systems first appear in the early Bronze Age?
- Do field systems reflect intensification of agriculture and/or territoriality in this region?
- Does the evidence suggest that barrow groups mark focal points for economic and social activity, as well as funerary practice, in the light of evidence such as the flint scatters from Tutt Hill?

4.5.5 Determining the spatial organisation of the landscape:

- To what extent does the recorded evidence demonstrate the existence of field systems at Tutt Hill and elsewhere in the Bronze Age?
- What common patterns can be discerned in the chronology and organisation of such field systems?

4.5.6 Changes to the organisation of the landscape and its division:

- What evidence is there, if any, for the organisation and division of the landscape before the establishment of the field systems?
- What evidence is there, if any, for the organisation and division of the landscape after the field systems have gone out of use?
- What does this imply about the way in which the landscape was organised and divided in these different time periods? Are we seeing real changes, or are the observed patterns a result of taphonomic processes?

Towns and their Rural Landscapes, sub-period 1 (100 BC - 410 AD)

4.5.7 Continuity or change in late Iron Age and Romano-British burial practices:

- What is the evidence for late Iron Age burial practice at Tutt Hill? How does this compare with evidence from elsewhere for burial practice in the Iron Age and Roman period?

4.5.8 The rural economy, emphasising natural resource exploitation, early industrialisation, trade and the effect of the Roman administration:

- To what extent was small-scale iron and copper exploitation carried out as a normal part of rural activity at this time? Is there evidence for intensification of

exploitation following the Roman conquest, or did this occur earlier during the late Iron Age? What light does the Tutt Hill evidence shed on the organisation and technological basis of the industry? For example, does the occurrence of iron and copper working evidence from the same site indicate a low level of craft specialisation in rural areas?

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APPENDIX 1 - CERAMICS

1.1 Assessment of the Prehistoric Pottery

by Alistair Barclay

Introduction

- 1.1.1 A comparatively small but diverse assemblage of Neolithic to early Iron Age pottery was recovered during the targeted watching brief at Tutt Hill.
- 1.1.2 The bulk of the pottery was hand retrieved on site, from sections across the ring ditches and from cremations pits and enclosure boundary ditches. Smaller quantities of material were recovered during the sieving of environmental samples in the laboratory after the excavation. The retrieval of pottery was undertaken in accordance with the Fieldwork Event Aims for the site, which are set out in section 2 of the main report, above. The recovery of this material was undertaken primarily to establish the date and function of the features, in order to refine understanding of the various prehistoric activities represented.

Methodology

- 1.1.3 All of the material was examined. The assemblage was quantified by count and weight and a note was made of principal fabrics, forms and decoration. Spot dates were based on the presence of diagnostic forms and particular fabrics. Early and middle Neolithic pottery is principally tempered with ill-sorted fine to coarse angular flint. Late Neolithic-early Bronze Age pottery, mostly Beaker, tends to be thin-walled and grog tempered. Early-mid and late Bronze Age pottery tends to be tempered with either grog, flint or a mixture of the two. Biconical vessels generally have bipartite profiles, everted rims and tend to be grog tempered. Bucket Urns are characteristically thick-walled and tempered with dense, often coarse, calcined flint. Globular Urns tend to be thin-walled with finer flint but still often quite dense. Late Bronze Age pottery is often thinner-walled but can occur in similar fabrics. Forms tend to be simple jars of straight or ovoid form and shouldered bowls and jars of bipartite form. Early Iron Age fabrics can be either flint, shell or sand tempered or can contain a mixture of sand and flint.

Quantification

- 1.1.4 Table 1.1 gives a breakdown of the assemblage by context.
- Neolithic, 4000-2750 cal BC
- 1.1.5 A small number of flint-tempered sherds are thought to be of early Neolithic date. There is also a small quantity of middle Neolithic Peterborough Ware, which includes two simple rims, a decorated shoulder and a decorated body sherd. One of the rims is plain, incurving and pointed and of a type that can be assigned to the Ebbsfleet sub-style (Burchell and Piggott 1939, fig. 8).

Late Neolithic/Early Bronze Age, 2400-1750 cal BC

- 1.1.6 A small number of principally grog tempered thin-walled sherds can be described as Beaker, some of which have impressed comb decoration. A large base fragment could belong to a Beaker or to other styles of vessel such as an Urn or Food Vessel.

Early-Middle Bronze Age, ?1750-1150 cal BC

- 1.1.7 Early-Middle Bronze Age pottery is represented by Biconical Urn and Deverel-Rimbury type pottery. The latter consists of Bucket Urn forms and more rarely Globular Urn. All occur in flint or flint and grog tempered fabrics. Bucket Urn sherds were generally thick-walled with finger-tip impressed decoration on rims and cordons. The Biconical Urn could be earlier or contemporary with the Deverel-Rimbury pottery but as one style is thought to evolve out of the other it is not unusual to find so-called sub-biconical forms or later forms with Biconical Urn traits (Tomalin 1988). One near complete Bucket Urn also had multiple perforations below the rim and a 'potters' mark. Similiar material to this urn occurred at Barrow 2, Bridge (Macpherson-Grant 1992, fig 3). Un-urned cremations from the Bridge site are associated with a bulked C14 date of 980±60 bc (1246-1066 cal BC).

Late Bronze Age, 1150-700 cal BC

- 1.1.8 This material was mostly flint or flint and grog tempered and included plain and decorated jar and bowl fragments some of which are of hooked-rim form. Similiar forms occur in northern and eastern Kent (Barclay 1994; Macpherson-Grant 1994).

Early Iron Age, 700-400 cal BC

- 1.1.9 This material includes part of a fineware bowl with linear decoration in a flint and glauconitic fabric and other coarser flint-tempered sherds.

Provenance

- 1.1.10 Early Neolithic sherds were recovered from ring ditch 90 (context 86) and subsoil layer 8103. Peterborough Ware was recovered from ring ditch 89 (context 65), ring ditch 90 (fill 97) a tree throw hole (fill 337), subsoil layer 8103 and pit 150 (fill 151). Other indeterminate Neolithic material of either mid or late date came from pit 145 (fill 147).
- 1.1.11 Definite and probable Beaker sherds were recovered from ring ditch 156 (fills 164 and 168), ring ditch 89 (fills 61 and 85) and ring ditch 81 (fill 92). This includes a base and comb decorated sherds. Early middle Bronze Age (Biconical urn) and middle Bronze Age (Deverel-Rimbury) came from cremation pits 46 (fills 47-50) and 301 (fills 298 and 300), pits 53 (fills 54-5), 217 (fill 219), 142 (fill 141), and 117 (fill 118) as well as ditch 153 (fill 152) and ring ditch 156 (fill 179) and the miscellaneous context 118.
- 1.1.12 Late Bronze Age pottery was recovered from pits 14 (fills 13, 15-6), 42 (fill 43), ring ditch 90 (fill 107), and ditch 190 (fill 200) and gully 11115 (fill 11114) in the evaluation.
- 1.1.13 Early Iron Age pottery was recovered from pit 5 (fills 7-10) and included part of a fineware bowl with linear decoration.

- 1.1.14 The remaining material was either of indeterminate prehistoric date (pit 37, fill 38) or occurred as residual material within a late Iron Age/early Roman cremation pit 70 (fill 72).

Conservation

- 1.1.15 The pottery is adequately bagged and boxed for long term storage and will require no further conservation. Consideration might be given to reconstructing the Bucket Urn from cremation pit 301, to aid analysis and illustration, and for public display.

Comparative Material

- 1.1.16 There is relatively little published material from this area of Kent and therefore much of the comparative material is likely to come from other CTRL sites (eg. White Horse Stone and Eyhorne Street). Comparable Neolithic material is rare but includes the assemblage of early Neolithic and Beaker pottery from the Chestnuts (Alexander 1961), Peterborough Ware from the Ebbsfleet (Burchell and Piggott 1939) and from Baston Manor in West Kent (Philp 1973).

- 1.1.17 For the Bronze Age and early Iron Age material, similar forms and fabrics occur at the excavated settlement site at White Horse Stone and reference should be made to this assemblage. Other published assemblages with comparable material are known from east Kent (Cunliffe 1974; Macpherson-Grant 1994) and there is a small group of mid to late Bronze Age material from north Kent (Barclay 1994).

Potential for Further Work

- 1.1.18 The assemblage will provide the principal means to date many of the features on the site. However, where possible, high quality radiocarbon dates should be obtained to test the date provided by the pottery. The multi-period nature of the assemblage suggests that its study will make a contribution towards understanding the development of earlier prehistoric ceramics in north Kent.

- 1.1.19 The pottery was recovered from a range of contexts that include deposits of domestic and funerary character and will aid the overall interpretation of the site.

- 1.1.20 In terms of new research aims for the CTRL project, the assemblage has the potential to contribute to a refinement of ceramic chronology in the prehistoric period for Kent. The fragmentary cremation urn from pit 301 is an unusual vessel in terms of form, decoration and the 'potters mark' and would repay special attention in this context, including a search for parallels in the published literature.

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1.2 Assessment of the Middle-Late Iron Age and Roman Pottery

by Malcolm Lyne

Introduction, Quantification and Provenance

- 1.2.1 Just 85 sherds (612 g) of middle and late Iron Age-early Roman pottery from seven contexts (Table 1.2) were recovered by hand excavation and sieving during the watching brief. The pottery was recovered to provide dating evidence for archaeological features and deposits. Thirty-four of these sherds were found in Pit 33 and came from a single vessel, probably of middle Iron Age date, decorated with burnished spirals and dimples. Contexts associated with the possible furnace (336) produced a further 26 sherds of late Iron Age character, including two vessel rim fragments indicating that the pottery, if not the feature, can be more precisely dated to the period *c* 150 BC - AD 1.
- 1.2.2 Two further sherds from subsoil layer 330 (10 g) may conceivably be from a third-century jar rim in a variant of Native Coarse Ware, but the pieces are small and open to other interpretations. The 18 possible crucible fragments from Pit 35 (28 g) are of uncertain but probable late Iron Age date and together with the furnace (if this is late Iron Age in date) hint at some kind of industrial activity in the area. There is, however, uncertainty regarding the date of the other pottery from this pit, which may be either middle-late Iron Age or early Saxon in date.

Potential for Further Work

- 1.2.3 The quantity of pottery is insufficient for anything other than dating, although the presence of possible industrial activity is worthy of note. As dating evidence the pottery should be retained. It is suggested that the crucible fragments from pit 35 could be subject to specialist analysis, which might include testing for residues and metallurgical analysis of metal adhering to the clay. The problematic ceramic dating evidence for pit 35 (the pottery could be either Iron Age or Saxon) could be resolved by radiocarbon dating.

1.3 Assessment of the Post-Roman Pottery

by Paul Blinkhorn

Introduction

- 1.3.1 The assemblage of medieval pottery comprised 115 sherds with a total weight of 865 g, dating from the 13th-14th centuries but including also one 19th century sherd. All of the pottery was recovered by hand from a subsoil context. It was retrieved in order to provide chronological evidence of activity on the site.

Methodology

- 1.3.2 The pottery was examined visually and recorded using the codes and chronologies of the Canterbury Archaeological Trust Fabric series for the county of Kent (Cotter forthcoming a and b), with the following types noted:

- EM3A, E Kent shelly-sandy ware 1075/1100-1200/25. 3 sherds, 60 g.

- M38B, N or W Kent fine sandy ware, 1225/50 – 1400. 94 sherds, 660 g.
- M38C, N or W Kent hard fine sandy ware, 1325/50 - 1400. 1 sherd, 13 g.
- M40B, Ashford/Wealden sandy ware, 1200/25 - 1400. 14 sherds, 69 g.
- LPM7BJ, Bone china, transfer printed, 1770-1925+. 1 sherd, 1 g.

Quantification

- 1.3.3 The pottery occurrence by number and weight of sherds per context is shown in Table 1.1.
- 1.3.4 The medieval pottery comprised two small subgroups from contexts 30 and 32 which form parts of the same pottery scatter. The larger, 30, comprised the fragmentary remains of a number of similar vessels in fabric M38B, all of which appear to have horizontal wiping/turning marks on the upper body and/or perfunctory thumb applied strip. The range of ware types present suggest that they are of 13th century date. The other group (32) is smaller, and appears later, possibly 14th century, assuming the small sherd of transfer-printed bone china is intrusive. However, some of the sherds in the group are quite abraded, and it is likely, given their subsoil context, that both groups of pottery have been redeposited. Sherds of post-medieval pottery and fragments of land drain were also found in the fill (105) of pit 106.
- 1.3.5 There is doubt concerning the dating of sherds from context 36 in pit 35 which may be late Iron Age or early Saxon in date (Table 1.2)

Comparative Material and Potential for Further Work

- 1.3.6 The difficulty of distinguishing certain middle-late Iron Age and Saxon wares in Pit 35 is a problem recognised on a number of CTRL sites, including White Horse Stone. Further research is required to resolve the difficulties. It is likely that Anglo-Saxon pottery is under-reported in published sources as, where identification is uncertain, such material is most likely to be assigned by default to the Iron Age.
- 1.3.7 All the identifiable medieval and later wares are well-known in the area, although little has been published. Although the pottery is not in its primary context, and is of little significance in terms of the interpretation of the site, it is nonetheless of some interest in terms of the ceramic chronology of the area. The assemblage should be retained for museum storage.

Acknowledgements

- 1.3.8 Grateful thanks go to John Cotter and Nigel McPherson-Grant of the Canterbury Archaeological Trust for their kind help in identifying and dating this material.

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1.4 Assessment of the Fired Clay and Ceramic Building Material

by Susan Pringle

Introduction

- 1.4.1 Very small quantities of ceramic building material (345 g) and fired clay (415 kg) were recovered during the watching brief. It was hoped that they would provide evidence for structures, activities and chronology.

Methodology

- 1.4.2 All the ceramic building material and fired clay from the site was examined for this assessment. Ceramic building material has been divided by form, and the fragments counted and weighed. The presence of distinctive fabric types has been noted and compared to the Museum of London ceramic building material fabric series, but no analytical work has been done on the fabrics from the site, as this task is more appropriately carried out at the next stage, should the material merit it. Other information recorded includes the presence of combing tally or signature marks, the presence or absence of glaze, and any complete dimensions.
- 1.4.3 The fired clay fragments have been counted and weighed, and notes made of the most distinctive fabrics and any unusual inclusions. Exceptionally reduced or vitrified material has been noted.

Quantification

Ceramic Building Material

- 1.4.4 Four fragments of ceramic building material with a total weight of 345 g were recovered from the site (Table 1.4). It is post-medieval in date. Material of two types is present: two fragments of post-medieval brick in a red, sandy fabric (MoL type 3033), which is dated in the London area to *c* AD 1450-1700 and two fragments of field drain in a fine, red fabric. This appears to be machine made and is likely to be of 19th or 20th century date. Both types come from context 105, the fill of pit 106, and, apart from demonstrating some post-medieval use and disturbance of the area, neither is of archaeological significance.

Fired Clay

- 1.4.5 The total weight of fired clay is 415 g. Two contexts (38, the fill of pit 37, and 43, fill of late Bronze Age pit 42) contained fired clay which appeared to be fragmentary artefactual material, possibly loomweights. Daub with wattle impressions was noted amongst the medieval pottery forming scatter 32.

Provenance

- 1.4.6 The post-Roman brick and tile comes from one context only, 105, the fill of pit 106, in the area of the ring ditches, which has clearly suffered from recent disturbance.
- 1.4.7 Although much derives from undated features, the dated features containing fired clay are mostly late Bronze Age and middle Iron Age. These are pits 33 and 42 and ditch 190, and the fired clay perhaps indicates the existence of some kinds of structures in the area in these phases. Probable clay artefacts, possibly loomweights,

come from pits 42 and 38. A fragment of wattle-impressed daub came from a medieval pottery scatter (32). A very small amount of fired clay was also found in the upper fill of ring ditch 90.

- 1.4.8 The condition of the material is fairly abraded, but there is no risk to its preservation.

Conservation

- 1.4.9 There are no special requirements for long term storage, other than the use of robust packaging materials and a dry environment. At this stage, all the material should be retained. In the future, the majority can be discarded. Material to be retained includes the fired clay which has features of interest and is likely either to be of assistance in the interpretation of the site or to provide useful material for comparison with similar artefacts from other sites.

Comparative material

- 1.4.10 With the exception of the possible artefacts, there would be little to learn from comparisons of this material.

Potential for Further Work

- 1.4.11 The fired clay and daub is a potential source of information on the date and nature of occupation on the site, although given the size and nature of the assemblage there is no potential for further analysis. The ceramic building material is of significance only as evidence for disturbance of the site.

Table 1.1: Summary of prehistoric pottery

Context	Count	Weight (g)	Period	Comments
7	940	2482	EIA	F, FAB. Bowl frag with linear dec
8	146	230	EIA	FAB. Bowl frag with linear dec
9	62	255	EIA	F, FAB. Bowl frags
10	40	166	EIA	F, FAB. Bowl frags
13	123	872	LBA	GF. Plain Ware jar and bowl frags
15	2	35	LBA	GF.
16	10	59	LBA	F,GF. FW jar with finger-tip on rim
38	1	4	INDPREH	?fabric
43	1	1	EMBA	FG?
47	310	769	EMBA	FG? Neck cordoned jar
48	1	1	EMBA	FG
49	16	28	EMBA	F. FT dec rim from Bucket Urn
50	12	26	EMBA	FG. Rim from jar
54	1	2	LBA	F.
55	11	29	EMBA	G, GF, F. FT impressed and perforated rim
61	1	30	LNEBA	G. Base from Beaker or Urn/Food Vessel
65	1	8	MN	F. Dec shoulder from Peterborough Ware bowl
72	3	6	LIAER	G,F. Mixed BA, LBA, LIAER all very worn (also counted in Table 2 below).
85	1	2	LNEBA	G. Dec Beaker sherd
86	3	5	LNEBA	G, GF. Comb dec Beaker sherd and residual EN sherd
92	1	2	LNEBA	G. Beaker?
97	2	3	MN	F. Peterborough Ware dec body sherd
107	1	5	LBA?	F.
118	2	3	MBA?	F.
141	8	50	MBA	F. BU sherds including one with a FT impressed cordon
147	3	5	MLN	F, FG.
151	5	15	MN	F. Pet'ware rim
152	5	111	MBA	F. Bucket Urn base sherds and a decorated sherd from a globular urn
164	3	5	LNEBA	G. Beaker?
168	1	5	LNEBA	G. Beaker?
179	2	8	MBA	F.
200	39	130	LBA	F, G. Rims from two hooked rimmed jars
219	8	22	MBA?	F, G. FT dec rim
298	54	153	MBA	FT cordon and frag from LW
300	178	2024	MBA	FG. Cremation urn. Bucket urn with FT impressions on rim and cordon. Perforations below rim and 'potter's' mark
337	7	25	MN	F. Plain rim possibly from an Ebbsfleet Ware bowl
8103	2	5	EN?	F.
11114	4	3	LBA?	F.
Total	2010	7584		

Fabrics= F flint, G grog, FAB flint and glauconitic sand. Decoration= FT finger-tip

Table 1.2: Summary of middle-late Iron Age and Roman pottery

Context	No. of sherds	Weight (g)	Period	Comments
100	1	10	LIA	abraded fabric B2, field marling?
34	34	354	MIA	
36	18	28	mid-late Iron Age/ early Saxon?	inc. LIA? crucible fragments
72	3	6	LIAER	Mixed BA, LBA, LIAER, all very worn
329	17	144	LIA	Fabrics B2 and B3
327	10	60	Early LIA	fabric B2
330	2	10	c 170-300?	fabric R1 variant rim, uncertain
Total	85	612		

Table 1.3: Summary of post-Roman pottery

Context	No. of sherds	Weight (g)	Period	Comments
30	106	720	1225/50 - 1400	Fabrics M38B and M40B
32	7	83	Med/19 th C?	Fabrics EM3A, M38C, M40B, LPM7BJ
105	2	62	Modern	PM and land drain
Total	115	865		

Table 1.4: Summary of ceramic building material

Context	Count	Weight (g)	Type	Period	Comments
105	2	87	Field drain	Post-med	Fine, red fabric, unglazed. 19 th -20 th century
105	2	258	Brick	Post-med	Red sandy fabric (MoL 3033); 1 indented border. 15 th - 18 th century
Total	4	345			

Table 1.5: Summary of fired clay

Context	Count	Weight (g)	Type	Period	Comments
2	15	33	Fired clay	-	Orange lumpy, sandy fabric with organic temper?
24	474	137	Fired clay	-	Abraded scraps of gritty, iron-rich clay; natural or iron-working debris?
32	1	18	Fired clay	Med	Orange micaceous sandy fabric; all with wattle imprints
34	3	144	Fired clay	MIA	Orange micaceous sandy fabric; no impressions
38	4	43	Fired clay	-	Smoothed surfaces ?artefact
38	4	20	Fired clay	-	Loomweight? Fragmentary
43	2	10	Fired clay	LBA	Odd fabric - artefact? Loomweight??
43	1	1	Fired clay	LBA	Pale orange clay with mortared surface, abraded
86	3	5	Fired clay	LN-EBA	Scraps, abraded
212	4	4	Fired clay	LBA	Crumbs
Total	511	415			

APPENDIX 2 - LITHICS

2.1 Assessment of the Worked and Burnt Flint

by Philippa Bradley

Introduction

- 2.1.1 Assemblages of worked and burnt (unworked) flint were recovered during the watching brief. It was hoped that the flint would provide evidence for the date and character of prehistoric activities across the area.

Methodology

- 2.1.2 All of the flint was briefly scanned and recorded, with information regarding dating, technology and general condition being noted. The material was added to an Access database. All of the burnt flint was scanned and weighed; general comments on its condition were also made.

Quantification

- 2.1.3 A total of 224 pieces of worked flint and 812 pieces of burnt unworked flint (the latter weighing 5403 g) were recovered. This material is summarised below in Table 2.1 (worked flint) and Table 2.2 (burnt flint).

Provenance

- 2.1.4 Three of the four ring ditches (89, 90 and 156) produced small quantities of worked flint (ring ditch 89: contexts 60-1, 84-5; ring ditch 90: contexts 88, 96-7, 107, 111; ring ditch 156: contexts 158, 160, 166, 178-9 - see Table 2.1 for details). Debitage dominated this small group (flakes including several trimming flakes, a core fragment, a keeled core and a core rejuvenation flake were recovered). The only retouched piece was a retouched blade from context 166 (ring ditch 156); this piece may simply have been used rather than formally retouched. Possible usewear was identified on a flake from context 88 (ring ditch 90). The keeled core from context 85 may be of later Neolithic date. Several trimming flakes were recovered, which together with the core and core fragment might suggest that nodules encountered during the digging of the ring ditches were exploited and reduced on site. The retouched blade may have been used during this phase of activity or may have been associated with the funerary process itself, although no burials clearly associated with the ring ditches were found. There appeared to be little difference between the material from the various fills of the ring ditches, and no concentrations of material were identified. There is too little material to provide any secure dating although the flint is consistent with a broad Neolithic-Bronze Age date. Context 130, an organic layer associated with ring ditch 90 produced two flakes. Small quantities of heavily burnt flint were recovered from various ring ditch contexts (Table 2.2).
- 2.1.5 The fill (24) of cremation pit 23 contained a single flint flake and the fill (99) of a cremation pit (98) to the east of the ring ditches produced eight pieces of heavily calcined flint. A pit with a deposit of charcoal (14) produced a blade-like flake with used edges (Table 2.1). The blade-like flake was placed vertically within the charcoal deposit; unfortunately the blade-like flake is not closely datable. A number of pit fills produced small assemblages of worked flint (contexts 38, pit 37; context

54, pit 53; pit 106; upper fill 13, pit 14; 43, fill of pit 42; 118, fill of pit 117; 151, charcoal pit 150; 267-8, fill of pit 260). Generally the flint was fairly thinly spread across these contexts, and was relatively undiagnostic material including flakes and a core tablet from context 38, and a multi-platform flake core fragment from context 43 (see Table 2.1 for details). Three pieces of heavily burnt flint came from context 151, the fill of pit 150, and a single piece of burnt flint came from context 268, the fill of pit 260. The fill of pit 21 produced a large assemblage of heavily burnt flint (Table 2.2).

- 2.1.6 Contexts 19 and 20 consisted of two flint scatters, *c* 60 m apart, containing 106 pieces of worked flint (Table 2.1). The material from these scatters was heavily abraded and battered, as would be expected. Debitage dominated the group (Table 2.1), with flakes, cores and core rejuvenation flakes being recovered. A group of large cores and flakes was included in this group; some potential refitting material was identified although no actual refits were found. No small chips or flakes were found from the scatter but this may simply reflect post-depositional disturbance and/or collection methods on site. The retouched forms from the scatter include scrapers, a scraper or knife, a piercer and two retouched flakes. Typically the scrapers were neatly retouched and included a possible ‘thumbnail’ scraper of Beaker date. It is likely that this material is of mixed date and probably includes Neolithic to early Bronze Age flintwork.
- 2.1.7 A flake and a core fragment were recovered from the fill of ditch 201 (context 264). Three tree-throw holes (contexts 219, 337 and 349) produced small assemblages ofdebitage, including two blade-like flakes from context 337 with possible usewear (see Table 2.1 for details). Two pieces of heavily burnt flint came from context 219, the fill of tree-throw hole 217. Flint was also recovered from the topsoil, subsoil layers and other unstratified contexts (eg 100, 101 and 2, see Table 1 for details). The composition of this material is very similar to that from the flint scatters (contexts 19-20) and is similar in date range.

Conservation

- 2.1.8 Much of the flint has suffered some post-depositional damage; cortication is mixed. Several pieces of burnt unworked flint were also recovered. This material was very heavily calcined either grey-white or red. A few pieces of worked flint were also burnt. Some of the burnt unworked flint is beginning to disintegrate, but little can be done to prevent this. The burnt unworked flint could be discarded. The flint is adequately bagged and boxed for long term storage. There are therefore no storage or conservation requirements.

Comparative Material

- 2.1.9 The flint from Tutt Hill could be compared to material from other Neolithic to Bronze sites excavated along the route of the CTRL (eg Snarkhurst Wood, Sandway Road and Church Lane) and material from the County. Material from the surface artefact collection survey would also provide useful comparisons.

Potential for Further Work

- 2.1.10 The flint from Tutt Hill is generally of Neolithic to early Bronze Age date, but very limited diagnostic retouched forms and littledebitage was recovered. Although the assemblage is only broadly dated to the Neolithic-early Bronze Age it seems

unlikely that any of the material is contemporary with the later Bronze Age ceramics recovered. The flintwork was generally thinly spread across the contexts. Given these limitations the flint nonetheless provides evidence for earlier prehistoric activity in this area. It is unfortunate that the activity associated with the flint scatters (19 and 20) cannot be more accurately dated, since they provide potentially interesting evidence of activity not far from the area of the targeted watching brief which might, for example, be contemporary with the ring ditches.

2.1.11 One small group of flints showed potential for refitting analysis, although no actual refits were identified during the assessment. A programme of refitting on this group, if successful, would demonstrate that the flint has not moved far from the point of original deposition and would suggest the presence of a knapping site in the vicinity of the barrows, potentially contemporary with their primary construction and use. This would help to define the range of activities associated with the barrow cemetery. While not necessarily indicating domestic occupation, the presence of a knapping site would at least suggest that the location was a focus of activity, such as a temporary campsite or a meeting place.

2.1.12 Some evidence for usewear has been identified but, given the lack of good groups and the number of pieces involved there is no potential for further work in this area.

Table 2.1: Summary of worked flint

Context	Count	Period	Comments
38 (83+900)	3	Prehist	2 flakes, 1 core tablet
13 (83+300)	1	LBA?	1 flake
72	-	LIA-ER	Natural
88	1	LN-EBA	1 flake with possibly used edges
100	1	-	1 flake, very cherty flint, 1 natural
106	1	LIA + PM	1 flake with blade scars on dorsal face
116	5	?	4 small chips, 1 flake. The chips may conjoin
158	2	LN-EBA	2 flakes, also 2 natural
160	4	LN-EBA	4 flakes, one is a very large trimming flake, fresh edges, some usewear
166	2	LN-EBA	1 flake, poss used, 1 retouched blade ?use rather than retouch
178	5	LN-EBA	5 flakes, all small
179	2	LN-MBA	2 flakes
187	-	LN-EBA	2 natural
7 (84+320)	3	EIA	1 flake, 1 used blade, possibly truncated, 1 blade-like flake with possible usewear
13	1	LBA?	1 flake
2 (84+400) U/S	6	-	1 irregular flake, 2 multi-platform flake cores, 1 single platform flake core, 1 end and side scraper made on a ?discoidal core , 1 blade
43	1	LBA	Multi-platform flake core fragment
54	3	LBA	3 flakes one of which has thermal internal flaws and is battered externally
60	2	LN-EBA	1 trimming flake, 1 core rejuvenation flake (face/edge) core has been rotated 180 degrees
61	1	LN-EBA	1 blade-like flake
84	2	LN-EBA	2 flakes, one is a large trimming flake
85	4	LN-EBA	1 keeled core – very cherty flint, 1 flake, 1 possible flake, 1 core fragment, ??later Neolithic
96	1	LN-EBA	1 flake with blade scar on dorsal face
97	2	LN-EBA	2 flakes
101	2	-	1 core rejuvenation flake (face/edge), 1 retouched flake with very worn edges
107	2	LN-EBA/LBA	2 blade-like flakes with blade scars on dorsal faces
111	3	LN-EBA	3 flakes, 2 are trimming flakes

Context	Count	Period	Comments
116	1	?	1 blade-like flake ?used edges
118	2	MBA	2 flakes
130	2	?	2 flakes
151	9	MN-LN	8 flakes two of which are heavily burnt
166	1	LN-EBA	1 flake
264	2	LBA?	1 flake, 1 core fragment
219	6	MBA	6 flakes, also 1 natural
267	2	?	2 flakes
268	-	?	1 natural
349	3	?	2 flakes, 1 chip
337 (84+500)	6	MN?	4 flakes, 2 blade-like flakes – some with possible usewear
19 (84+700)	95	LN-EBA	74 flakes, 3 core fragments (flake cores), 1 multi-platform flake core, 1 single platform flake core, 1 core rejuvenation flake (face/edge), 6 misc retouch, 6 scrapers (1 fragment, 4 end, 1 possible thumbnail), 1 scraper/knife, 1 piercer, 1 retouched flake, 2 natural, Neolithic-early Bronze Age
100	3	-	3 blade-like flakes one is burnt
U/S (84+800)	13	-	7 flakes, 2 core fragments, 1 multi-platform flake core, 1 single platform flake core, 1 retouched flake (minimal retouch), 1 end and side scraper – much later damage
24	1	-	1 small flake
19 (84+860)	7	-	3 flakes, 1 extremely large opposed platform flake core with some edge preparation, 3 minimally retouched flakes, also 4 natural
20	11	-	9 flakes (one from an opposed platform core), 1 retouched flake, 1 large ?multi-platform flake core. NB some of the flakes from this group are very large and may well refit the cores
Total	224		

Table 2.2: Summary of burnt, unworked flint

Context	Count	Weight (g)	Comments
2 (83+360)	2	5	Heavily calcined grey
164 (84+300)	1	3	Heavily calcined grey
178	2	26	Heavily calcined white-grey
179	2	11	Heavily calcined grey
61 (84+400)	1	20	Heavily calcined white-grey
151	3	42	Heavily calcined white-grey, one piece is reddish tinged
219	2	3	Heavily calcined grey
268	1	10	Heavily calcined white-grey with reddish tinges, also 1 natural
99 (84+440)	8	12	Heavily calcined grey
22 (84+900)	790	5271	Heavily calcined white-grey with reddish tinges*
Total	812	5403	

* Scanned only, numbers from OAU finds records

APPENDIX 3 - METALWORK

3.1 Assessment of the Metalwork

by Valerie Diez

Introduction and Methodology

- 3.1.1 A total of 27 metal objects, consisting of fragments of iron nails and fragments of what may have been one copper alloy object were found. The objects were all recovered by hand excavation, with the exception of some of the copper alloy fragments which were found during sieving. They were recovered to provide evidence for the character, date and status of the site. All of the items are heavily corroded. The finds have all been x-rayed and examined visually.

Quantification

- 3.1.2 The finds are summarised in Table 3.1. The copper alloy fragments include a small rectangular rivet plate into which two small holes have been punched, a fragment of a further rectangular rivet plate with at least one perforation, a small fragment of sheet copper, a short rectangular-sectioned rod, and what may have been a domed rivet or nail head, as well as unidentifiable fragments. These copper alloy fragments have the appearance of once having formed a single object although it is unclear what it was. The remaining fragments are all parts of iron nails.

Provenance

- 3.1.3 All of the metal fragments derive from the fill of probably late Iron Age pit 35, except for one iron nail shank which was found in a disturbed pit (106) of unknown date but which contained post-medieval pottery and fragments from a land drain. Pit 35 also contains large quantities of metalworking debris and it is possible that the metal artefacts it contained were scrap intended for reuse.

Conservation

- 3.1.4 The artefacts require no special conservation. Given that the x-rays will be retained with the site archive, there is no reason for the nail from pit 106 to be retained.

Potential for Further Work

- 3.1.5 Although the nails may have derived from some kind of structure, there is little other evidence on the site for the existence of structures of any kind. Since the nails contribute very little to the interpretation of the site, it is recommended that no further work is necessary beyond the simple identifications made here. Given the possibility that the copper alloy object might be identified, and their significance as scrap, the copper alloy fragments and the other artefacts possibly intended for reuse in pit 35 should be retained, although it is not recommended that any further work be devoted to this small group.

Table 3.1: Summary of metalwork

Context	Special number	Material	Count	Period	Comments (description)
36	6	Cu	13	LIA?	fragments of rivets
36	SF 1	Cu	1	LIA?	Rod
36	6	Cu	1	LIA?	small rivet plate
36	6	Cu	1	LIA?	small rivet plate
36	6	Cu	1	LIA?	fragment of sheet
36		Fe	5	LIA?	fragments nail shanks
36		Fe	1	LIA?	Nail
36	6	Fe	3	LIA?	rivet or nail shanks
105		Fe	1	PM/MO?	Nail shank

APPENDIX 4 - SLAG AND METALWORKING DEBRIS

4.1 Assessment of the Iron Working Debris

by Lynne Keys

Introduction

4.1.1 A small quantity of material identified as iron slag was recovered during the fieldwork at Tutt Hill, both by hand collection and from sieved soil samples. None of the slag had been washed before assessment. The slag was collected to determine the type of metalworking which had produced it and to attempt to locate the area(s) where ironworking was taking place.

4.1.2 Activities involving iron can take three forms:

- The manufacture of iron from ore and fuel (and, in later periods, a flux) in a *smelting* furnace. The resulting products are slag (waste) and a spongy mass called an unconsolidated bloom which consists of iron with a considerable amount of slag still trapped inside.
- *primary smithing* (hot working by a smith using a hammer) of the bloom, usually near the smelting furnace, to remove excess slag.
- *secondary smithing* (hot working) of an iron shape by a smith to turn it into a utilitarian object or to repair it.

These activities - smelting and smithing - generate slags, some of which are diagnostic of the process being carried out and others of which are not. Other types of non-iron slag debris (such as vitrified hearth lining) may be the result of various kinds of high temperature activity - including domestic fires - and cannot be taken to indicate that ironworking was taking place.

Methodology

4.1.3 The whole assemblage was examined and was categorised on the basis of morphology and colour. Occasionally identification of small fragments was difficult. Each type of slag from each context examined was weighed and recorded. The soil samples were opened, some being emptied onto a tray, and examined for hammerscale and other microslags by running a magnet through them. These samples were not weighed as they usually contained stones, but the type of debris in them was recorded.

Quantification

4.1.4 The total amount of slag examined and quantified was just under 3 kg. The breakdown by context of each type and its total weight is given in Table 4.1.

4.1.5 From Table 4.1 it will be seen that much of the slag had to be allocated to the *undiagnostic* category. This is because it could have been produced by either smelting or smithing, or because it was broken to such a small size its original form could not be determined.

- 4.1.6 *Tap slag* is a dense, low porosity, fayalitic (iron silicate - $2\text{FeO} \cdot \text{SiO}_2$) slag with a ropey flowed structure rather like lava. The characteristic structure of tap slag is the result of the liquid slag being allowed to flow out through a hole at the bottom of the smelting furnace. It is generally thought this type of smelting furnace was introduced during the Roman period.
- 4.1.7 *Dense slag* is of low porosity and very similar to tap slag, but without the flowed surface. It also represents smelting activity.
- 4.1.8 *Hammerscale* is a micro-slag produced by smithing. It is of two types: spheroidal and flake. Spheroidal hammerscale consists of small solid droplets of liquid slag expelled from within the iron during the primary smithing of a bloom or the fire welding of two pieces of iron. Flake hammerscale resembles silvery fish scales and is the product of the ordinary hot working and hammering of a piece of iron where fragments of the oxide/silicate skin flake off from the iron and fall to the ground. The presence of hammerscale, mainly broken flake, in the soil samples reveals the smithing activity consisted mainly of simple hot hammering of pieces of iron to produce objects or repair them. The presence of some spheres may indicate either high temperature welding (to join two pieces of iron) or the primary smithing of a bloom after smelting.
- 4.1.9 It is worth noting the absence of smithing hearth bottoms, the most characteristic macro-slag of smithing. As both flake and spheroidal hammerscale are present it is to be expected that at least one or more smithing hearth bottoms would have been present. These would have been dumped in features such as pits or ditches which were open at the time of the metalworking activity.
- 4.1.10 *Vitrified hearth lining* comes from nearest the tuyère region (the region of highest temperature) of the hearth or furnace. By itself it is not diagnostic of smelting or smithing activity but its association with other diagnostic material provides support for the process.

Provenance

- 4.1.11 Most of the iron slag found on the site was from pits and plough soil, except for a small group from a furnace or oven (336). This group is of interest because it appears to consist of smelting slag. This feature, consisting of two pits, set inside a large pit, all of which had been subjected to considerable heat could have been a smelting furnace.

Conservation

- 4.1.12 The slag although unwashed is stable and unlikely to be affected by any factors of preservation. Iron slag, being fayalitic, requires no special storage conditions and is unlikely to be affected by further analysis. Decisions as to whether the assemblage can be discarded should only be made after more detailed work on the assemblage has been carried out and other relevant CTRL sites with iron slag have been examined and assessed.

Comparative Material

- 4.1.13 Many sites produce small amounts of smithing slag and occasionally smelting slag. Roman iron smelting furnaces are now known from all over the country where ores are found and examples should not be difficult to find.

Potential for further work

- 4.1.14 The small group of smelting slag, in itself, would usually not merit further work. However, its provenance within a feature which may be a smelting furnace is of some interest. Although the feature falls outside the main prehistoric range of interest for the site, it has the potential to contribute to study of the Roman rural economy, for the research period Towns and their Rural Landscapes, sub-period 1 (100 BC - AD 410). The CTRL fieldwork has recovered numerous examples of Roman rural ironworking, including similar sites in Kent such as Beechbrook Wood and South of Snarkhurst Wood. Evidence for iron working on a larger scale has been recovered at Westhawk Farm, Ashford. In this context, the evidence from Tutt Hill can contribute to a broader understanding of the range and type of features to be associated with iron exploitation and working in the Weald of Kent in the Iron Age and Roman period, and certainly deserves further work to determine its type and to locate similar examples.

4.2 Assessment of the Copper Working Debris

by Chris Hayden and Ian Scott

- 4.2.1 A small quantity (221 g) of copper working debris was unexpectedly found amongst iron working slag following the sieving of sample 6 from context 36, the fill of probably late Iron Age pit 35 (Table 4.2). The debris is of two types: One is probably low density crucible slag containing much entrapped gas, the other consists of coarse, sandy iron-stained fragments of the furnace to which fragments of copper slag adhere. The slag suggests that the debris derives from reworking of copper alloy rather than smelting. Fragments of a broken copper alloy artefact perhaps intended for reworking (see Appendix 3) were also found in the same sample. The pit also contained a larger quantity of iron slag and thus appears to have been used to dump both iron and copper working debris.
- 4.2.2 The small assemblage of copper working debris has the potential to provide more detailed information on the kind of copper working being undertaken on the site and should be examined further by a specialist with skills in this specific area.

Table 4.1: Summary of iron slag and metalworking debris

Context	Sample No	Type	Weight (g)	Comments
2	1	Undiagnostic	42	Recovered from colluvium in test pit
2	1	Undiagnostic	78	Poss. broken smithing hearth bottom Recovered from colluvium in test pit
2	1	Hammerscale sample	0	Broken flake and one sphere. Recovered from colluvium in test pit
2	1	Sample	0	Broken slag and one sphere hammerscale Recovered from colluvium in test pit
19		vitified hearth lining	22	From ploughsoil. Black glassy vitrification.
19		Undiagnostic	142	From ploughsoil
32		Tap slag	74	Unstratified

Context	Sample No	Type	Weight (g)	Comments
36	6	hammerscale sample	0	From Pit 35. Large percentage of flake, some spheres
36	6	undiagnostic	146	From Pit 35. Cu working also taking place
36	6	vitriified hearth lining	76	From Pit 35
38		undiagnostic	70	From fill of Pit 39. Possibly smelting.
103		undiagnostic	72	From fill of ring ditch 90
168	27	undiagnostic	18	From fill of ring ditch 156
327		Tap slag	132	Recovered from fill associated with furnace
327		dense slag?	1714	Recovered from fill associated with furnace
329		Tap slag	338	Recovered from fill associated with furnace
Total			2924	

Table 4.2: Summary of copper working debris

Context	Sample No	Type	Weight (g)	Comments
36	6	crucible slag	78	From Pit 35
36	6	Furnace fragments	143	From Pit 35. Slag adhering to fragments
Total			221	

APPENDIX 5 - HUMAN REMAINS

5.1 Assessment of the Cremated Human Remains

by Angela Boyle

Introduction

- 5.1.1 Eight deposits of cremated bone in fourteen contexts were recovered by sieving from a variety of pits. Most of these pits contain no direct dating evidence, but three of the cremations can be dated to the early-middle Bronze Age, the middle Bronze Age and the late Iron Age-early Roman period. The samples were collected with the aims of identifying the number, age and sex of the cremated individuals and assessing other details of the practice of cremation and the deposition of cremated remains.

Methodology

- 5.1.2 During the watching brief cremation contexts were subject to 100% recovery as whole-earth samples and were subsequently wet-sieved. Material from the >2 mm fractions were retained en masse. Cremated material was quantified by weight and scanned in order to determine age, sex, and potential for further analysis. Given the small size of the assemblage a decision was made to scan all of it. Each deposit was recorded on a pro forma record sheet which includes context, context type, period, weight, identifiable fragments, colour and minimum number of individuals (where determined). The < 2 mm fraction was scanned with a view to determining whether or not it should be sorted for small fragments of human bone.

Quantification

- 5.1.3 The cremated human remains are quantified and summarised in Table 5.1. The quantity of cremated remains in most of the pits was very small, usually between 1 g and 7 g, though two (pit 46, dated to the early-middle Bronze Age and pit 44, undated) contained much larger deposits. In only one case (the upper fill of pit 46) could a definite identification - of an adult male - be made, although three adults, two possibly male could be tentatively identified (pit 46, lower fill, dated to the early-middle Bronze Age, pit 70, dated to the late Iron Age early Roman period, and pit 44, undated).

Provenance

- 5.1.4 The cremated remains were all recovered from pits, most of which were shallow, having suffered from significant truncation. Their form and contents are summarised in Table All were accompanied by charcoal. Pottery was the only artefactual material associated with the cremations and this occurred in only three.

Conservation

- 5.1.5 The material does not require any conservation for the purposes of long-term storage. Under the terms of the CTRL Act, however, all human remains are to be reburied.

Comparative Material

- 5.1.6 The specification of comparative material is hindered by the lack of dating evidence for most of the cremations. The few dated examples, however, will allow some comparisons to be made. It is not unusual for early and middle Bronze Age cremations to be associated secondarily with earlier ring ditches as the two dated examples here appear to be. Nor is it unusual for them to contain only small deposits of cremation remains, as though only a token portion of the cremation remains have been deposited (cf Boyle 1999, 176). Unfortunately the truncation of the cremations means that little detail of the original form survives, and the potential for significant comparisons is thus limited.
- 5.1.7 A number of late Iron Age-early Roman cremations in small groups have been found elsewhere along the CTRL (eg Boys Hall Balancing Pond, Chapel Mill and Snarkhurst Wood). Together these burials provide a significant sample of apparently low status burials, the importance of which will be more apparent when they are compared with larger groups of burials of similar date from along the CTRL and elsewhere.

Potential for Further Work

- 5.1.8 The potential of this assemblage is limited by its small size as a group and by the size of all but two of the deposits. An average adult cremation can weigh between 1000-2400 g if complete (McKinley 1997, 68); observations at modern crematoria). Clearly, then most of the deposits do not represent the entire remains of any one individual. Nevertheless, the assemblage provides further evidence to address CTRL research aims relating to the definition of ritual landscape in the 'early agriculturalists' period, and to study of change and continuity in burial practice in the late Iron Age and Roman period.

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Table 5.1: Summary of cremated human remains

Context	Context type	Period	Weight	Identifiable fragments	Colour	Minimum number of individuals
71	Primary fill of pit 70 Error! Bookmark not defined.	?	4 g	Skull vault, parietal	White	?1 adult male
72	Upper fill of pit 70 Error! Bookmark not defined.	LIA-early Roman	>1 g	Skull vault	White	
45	Fill of pit 44 Error! Bookmark not defined.	?	505 g	Skull vault, femur, tibia and fibula shaft	White	?adult
48	Fill of pit 46	E-MBA	3 g	Nothing identifiable	White	
49	Fill of pit 46	E-MBA		4-2 mm residue, no bone		
50	Fill of pit 46	E-MBA	22 g	Skull vault, vertebral arch fragment, long bone shaft	White	?adult
47	Fill of pit 46	?	1347 g	Skull vault, occipital, nasal bone, vertebrae, radius, rib, odontoid	White	Adult male
99	Fill of pit 98	?	7 g	Skull vault, long bone shaft	White	
271	Middle fill of pit 269	?	3 g	Shaft fragments	White	
270	Primary fill of pit 269	?	> 1 g	Long bone shaft	White	
298	Upper fill of pit 301	MBA	7 g	Long bone shaft	White	
24	Upper fill of pit 23, <i>in situ</i> burning, associated charcoal	?	> 1 g	Long bone shaft	white	
268	Upper fill of clay-lined pit 266	?	> 1 g	Nothing identifiable	white	
272	Upper fill of pit 269	?	2 g	Long bone shaft	white	

Table 5.2: Summary of cremations

Context	Period	Shape plan	Sides	Base	Diameter /length-width (m)	depth	Location within cremation fill	Cremated remains (g)	charcoal (as % of deposit)	Artefacts	Comments	Location
301	MBA	Circular	Steep	Flat	0.6	0.35	fill of urn upper	- 7	present much	pottery pottery	Cremation in inverted urn	south of ring ditches
23	?	Circular	Steep	Flat	1.3 x 1.1	0.47	Primary Upper	- <1	5% 40%		Burnt <i>in situ</i>	84+450
98	?	Circular	steep	Rounded	0.7	0.18	Single	7	20%	v. fragmentary pot, flint		south-east of ring ditch 90, near LBA ditch 78
266 Error! Bookmark not defined.	?	Circular	steep	Rounded	0.9	0.3	Primary Upper	- <1	- 10%		Clay lining of pit (clay imported)	near LBA ditch 190
46	E-MBA	Oval	steep	Rounded	1.2 x 0.83	0.23	Primary Upper	25 1347	10% <10%	pottery		south-east of ring ditch 90, near LBA ditch 78
44	?	Oval	shallow	Rounded	0.51 x 0.31	0.07	Single	505	-			between ring ditches 81 and 90
269	?	Irregular	irregular	Irregular	1.95 x 0.8	0.28	Primary Middle Upper	<1 3 2	40% 20% <1%		Disturbed by animal burrow	near southern end of LBA ditch 76
70	LIA-ER	Subrectangular	vertical	Rounded	1.18 x 0.34	0.24	Primary Upper	4 <1	8% flecks only		Disturbed	north-west of ring ditches

APPENDIX 6 - ANIMAL REMAINS

6.1 Assessment of the Animal Bone

by Bethan Charles

- 6.1.1 One fragment of a tooth (3 g) in many pieces was retrieved by hand from the middle fill (178) of ring ditch 156, dated to the late Neolithic-early Bronze Age (Table 6.1). It is likely to be a fragment of a cattle tooth. However, it had suffered significantly from attritional damage and was not complete enough for a certain identification to be made. No further work is recommended on the bone from this site.

Table 6.1: Summary of animal bone

Context	Interpretation	Period	% of identified fragments	Count	Weight (g)
			Cattle		
178	fill of ring ditch	LNE-EBA?	100	1	3

APPENDIX 7 - PLANT REMAINS

7.1 Assessment of the Charred Plant Remains

by Ruth Pelling

Introduction

- 7.1.1 Samples were recovered during excavation works for the recovery of charred plant remains and charcoal. It was hoped that the samples would provide details of the subsistence economy, the landuse and the landscape associated with the site. Samples were taken from the fills of late Neolithic-early Bronze Age features including ring ditches, late Bronze Age ditches probably forming parts of a field system, and pits and cremation pits of varying dates. A total of 40 samples were processed for the extraction of charred plant remains by flotation using a modified Siraf-type machine. The flots were collected onto a 250 µm mesh and allowed to air dry slowly. A total of 25 samples produced flots which were submitted for assessment.

Methodology

- 7.1.2 All the samples processed were submitted for assessment. Flots were first put through a stack of sieves from 500 µm to 2 mm mesh size in order to break them into manageable fractions. Each fraction was then scanned under a binocular microscope at x10 to x20 magnification. Any seeds or chaff noted were provisionally identified based on morphological characteristics, and an estimate of abundance was made.

Quantification

- 7.1.3 The flots were generally small, within the region of 10 ml. Low numbers of cereal grain (0-10) were noted in nine samples, while slightly greater number of grains (11-50) were noted only in sample 6. No chaff was recorded in any sample and occasional weeds only in two. The cereal grain identified was predominantly of *Hordeum vulgare* (barley) with a single hulled wheat in sample 32 and an *Avena* sp. (oat) in sample 6. In addition to the cereal remains, occasional fragments of *Corylus avellana* (hazel-nut) shell were noted in sample 37. The preservation of the grain is generally good and in some cases excellent.

- 7.1.4 Charcoal was present in all samples, generally in low or moderate quantities. More abundant charcoal was recorded from samples 5, 6 and 47. The charcoal taxa identified were dominated by *Quercus* sp. (oak), with frequent Pomoideae (apple, pear, hawthorn etc.) and occasional *Prunus spinosa* (sloe).

Provenance

- 7.1.5 The richer sample with *Hordeum vulgare* and *Avena* sp. grain was taken from a probably late Iron Age deposit in pit 35. Given the late date for this deposit it is possible that the *Avena* sp. is from a cultivated variety, although this cannot be demonstrated in the absence of chaff. The remaining cereal grains were from largely Bronze Age deposits within both ditch and pit fills. The grain present in the samples is likely to have derived from background scatters of cereal remains present across the site.

Conservation

- 7.1.6 The flots are in a stable condition and can be archived for long term storage.

Comparative Material

- 7.1.7 Plant macrofossil assemblages of Bronze Age date have so far rarely been assessed within the CTRL. Some middle to late Bronze Age deposits were assessed from West of Blind Lane, which produced similarly low levels of grain, although additionally with a very small amount of chaff. *Hordeum vulgare* and *Triticum spelta* were also identified. Late Neolithic to early Bronze Age deposits have been noted from Eyhorne Street. Cereal remains were again limited and may have contained some intrusive material, particularly *Triticum spelta* which has not been recorded from sites of such early date in the United Kingdom. This site also produced large quantities of *Corylus avellana* (hazel) nut shell, a characteristic find of the Neolithic and early Bronze Age which is often taken to indicate a continued heavy reliance on collected woodland resources (see Moffet *et al.* 1989). Evidence from elsewhere, notably a site within Dartford (Pelling *unpub*) indicates that by the middle Bronze Age significant cereal based agriculture was established in Kent, as it seems to be in other areas of Southern Britain, such as the Thames and Kennet Valleys. Barley and emmer wheat seem to have been the principal cereals at this time, although the Dartford material indicates that spelt wheat was introduced into Kent by the middle Bronze Age.

Potential for Further Work

- 7.1.8 The range and quantity of charred seeds and chaff within the samples is such that further analysis is unlikely to extend the species list much further. However, given the paucity of charred macrofossil assemblages of the period from the late Neolithic to the middle Bronze Age within Kent, it is recommended that the assessment results are considered in the overall synthesis. The dataset is insufficient to characterise the local environment in detail, but the rarity of information for the earlier part of the period represented at Tutt Hill suggests that it would be of value for the data to be noted in any publication.

References

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7.2 Assessment of the Charcoal

by Dana Challinor

Introduction

- 7.2.1 A total of nineteen samples were submitted for the wood charcoal assessment: fourteen from cremation pits (sampled in entirety for the recovery of charred plant remains and cremated bone), two from one of the ring ditches and three from two pits near the ring ditches. The purpose in sampling the cremations was to examine the evidence for change and continuity in burial practice.

Methodology

- 7.2.2 The samples were processed by flotation in a modified Siraf-type machine, with the flots collected onto a 250µm mesh. All nineteen of the samples were assessed. The volume of soil processed ranged from 0.9 kg to 40 litres. The flots were air-dried and divided into fractions using a set of sieves. Fragments of charcoal were randomly extracted, fractured and examined in transverse section under a binocular microscope at x10 and x20 magnification. Fragments caught in the >2 mm sized sieves were quantified as identifiable. In the case of large flots, a sample of *circa* 20% was examined. The flots were also scanned for the presence of any other charred plant remains.

Quantification

- 7.2.3 Sixteen flots produced identifiable wood charcoal (Table 7.1 - Table 7.2). Six taxa were identified - *Quercus* sp. (oak), *Alnus/Corylus* (alder/hazel), Salicaceae (willow, poplar), *Prunus* sp. (blackthorn, cherry), Maloideae (hawthorn, apple, pear etc.) and *Fraxinus excelsior* (ash). Ring-porous taxa are more easily recognisable at low magnification, although the identification of the diffuse porous taxa is tentative. The quantity of preserved charcoal varied between cremation pits, with some producing several hundred identifiable fragments (Table 7.1) whereas others contained only small fragments which were too comminuted to identify. There was some variation in the taxonomic composition between cremation pits. Cremation pit 46, dated to the early-middle Bronze Age, produced large assemblages dominated by *Fraxinus excelsior*, with smaller amounts of *Quercus* and Maloideae. Cremation pit 301, dated to the middle Bronze Age, was composed of fragments of Salicaceae and undated cremation pit 98 was dominated by *Alnus/Corylus* type charcoal. The ring-ditch deposits produced low concentrations of charcoal, with *Quercus* and Maloideae present, and the late Bronze Age pit (53) produced a large assemblage dominated by *Alnus/Corylus*. There was some cremated bone present in the cremation samples and also some carbonised material, potentially liquid from the cremation process. Possible modern root contamination was present in both deposits of pit 301 and coal was observed in pits 98 and 269.

Provenance

- 7.2.4 Four of the cremation pits produced interesting assemblages of reasonable size, with varied taxonomic composition (46, 98, 269, 301). All of these pits appeared to contain assemblages of fuelwood which were dominated by a single taxon (it is assumed that the *Alnus/Corylus* type charcoal is either one or the other as the fragments exhibited similar patterns). The preservation of the charcoal was good, although there were few fragments large enough to provide evidence on woodland management. The potential of these samples to provide informative evidence for burial practices will depend upon further dating evidence being available. The ring ditch and pit samples produced assemblages low in concentration and hence of low potential, with the exception of pit 53, which produced a reasonably sized assemblage.

Conservation

- 7.2.5 The flots are in a stable condition and present no problems for long-term storage and archive.

Comparative Material

- 7.2.6 A limited range of taxa were identified at this site. This is to be expected in funerary contexts, where deliberate selection of fuelwood has been noted at other sites. The predominance of a single taxon in Bronze Age cremation assemblages, indicating the use of a single tree or specifically selected species in ritual activities, has been noted at Radley Barrow Hills (Thompson 1999, 352) and at the Rollright Stones (Straker 1988). It has also been suggested that the abundance of oak or ash in cremation deposits, compared to other species, is a result of the pyre structure, the timber from these trees providing the supports in a central position, less likely to have been totally reduced to ash (Gale 1997, 82).

Potential for Further Work

- 7.2.7 Further work on these samples depends upon obtaining a clearer indication of their date, especially in the case of the cremations. Assuming that these issues are resolved, it is considered that a full discussion of the charcoal from these cremation deposits would allow valuable comparisons to be made with other sites, both regionally and nationally. This would contribute to CTRL research aims relating to ritual practice in the 'early agriculturalists' period, and to change and continuity in burial practice in the late Iron Age and Roman period. A programme of radiocarbon dating would, however, be essential for this study to be carried out. It is recommended that this would be of greatest benefit if carried out as part of a wider study at Landscape Zone level; the results at a site-specific level would not be of particular significance.

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Thompson, G B, 1999, The analysis of wood charcoals from selected pits and funerary contexts, in A Barclay and C Halpin, *Excavations at Barrow Hills, Radley, Oxfordshire*, volume 1: *the Neolithic and Bronze Age monument complex*, Thames Valley Landscapes 11, 247-253, Oxford, Oxford Archaeological Unit

Table 7.1: Summary of charred plant remains

Sample Details					Flot Details						
Sample	Context	Feature Type	Phase	Sample size (l)	Flot size (ml)	Grain	Chaff	Weed seeds	Other	Charcoal	Comments
4	22	Pit 21	?	40	50	-	-	-	-	+	roots
5	24	Pit 23	?	40	400	-	-	-	-	++++	iron staining
6	36	Pit 35	LIA?	19	150	++	-	++	-	+++	recent roots/tubers
7	43	Pit 42	LBA	14	10	-	-	-	-	+	
15	86	Ring ditch 90	LN-EBA	40	10	+	-	-	-	++	
16	67	Ring ditch 89	LN-EBA	21	20	-	-	-	-	++	
17	68	Ring ditch 89	LN-EBA	15	10	-	-	-	-	++	
18	69	Ring ditch 89	LN-EBA	15	2	-	-	-	-	+	
19	74	Ring ditch 89	LN-EBA	4	10	-	-	-	-	++	
20	79	Ring ditch 81	LN-EBA	36	10	+	-	-	-	++	roots/sand
26	118	Pit 117	MBA	35	10	+	-	-	-	++	
27	168	Ring ditch 156	LN-EBA	20	2	-	-	-	-	+	
32	196	Ditch 190	LBA	19	10	+	-	-	-	+	roots sand
35	200	Ditch 190	LBA	14	2	+	-	-	-	+	
37	219	Pit 217	MBA	24	20	-	-	-	+	++	
38	248	Ditch 190	LBA	40	20	-	-	+	-	++	roots
39	253	Pit 119	?	40	10	+	-	-	-	++	
40	166	Ring ditch 156	LN-EBA	40	10	-	-	-	-	+	
41	177	Ring ditch 156	LN-EBA	40	10	-	-	-	-	+	
42	178	Ring ditch 156	LN-EBA	40	2	-	-	-	-	+	
43	179	Ring ditch 156	MBA	40	10	-	-	-	-	+	
44	164	Ring ditch 156	LN-EBA	40	20	-	-	-	-	++	recent large roots
47	272	Cremation 269	?	16	50	-	-	-	-	+++	
51	267	Cremation 266	?	32	10	+	-	-	-	+	
52	268	Cremation 266	?	14	10	+	-	-	-	++	

+ = 1-10; ++ = 11-50; +++ = 51-100

Table 7.2: Summary of charcoal from cremations

Sample details						Flot details		
Fill of	Feature type	Context	Period	Sample no.	Sample size (l)	Flot size (ml)	Charcoal	Taxa
301	Cremation pit	299	MBA	50	18	100	++	Salicaceae
		298	MBA	49	40	85	+++	Salicaceae
98	Cremation pit	99	Undated	21	34	165	+++	<i>Alnus/Corylus</i>
46	Cremation pit	47	E-MBA	9	30	190	++++	<i>Quercus</i> sp. <i>Fraxinus excelsior</i>
		48	E-MBA	10	20	135	++++	Maloideae <i>Fraxinus excelsior</i>
		50	E-MBA	12	0.9 kg	8	+	<i>Quercus</i> sp.
		49	E-MBA	11	2.75 kg	6	-	
44	Cremation pit	45	Undated	8	10	0.2	-	
269	Cremation pit	270	Undated	45	12	175	+++	<i>Quercus</i> sp. Maloideae
		271	Undated	46	40	100	+++	<i>Quercus</i> sp. <i>Prunus</i> sp.
70	Cremation pit	72	LIA-ER	23	36	4	+	<i>Quercus</i> sp. Maloideae
		71	LIA-ER	22	16	0.5	+	Maloideae

+ = 1-10; ++ = 11-50; +++ = 51-100; ++++ = 101-1000; 1000+ = >100

Table 7.31: Summary of charcoal from other features

Sample details						Flot details		
Fill of	Feature type	Context	Period	Sample no.	Sample size (l)	Flot size (ml)	Charcoal	Taxa
114	Pit	116	Undated	25	2.75 kg	6	+	<i>Quercus</i> sp.
		115	Undated	24	10	2	+	<i>Quercus</i> sp. Maloideae
156	Ring ditch	187	LN-EBA	29	30	9	+	<i>Quercus</i> sp. Maloideae
		188	LN-EBA	30	40	15	+	<i>Quercus</i> sp. Maloideae
170	Pit	171	Undated	28	40	5	-	
51	Pit	52	undated	13	10	200	++++	<i>Alnus/Corylus</i>
53	Pit	54	LBA	14	10	1	+	<i>Alnus/Corylus</i>

+ = 1-10; ++ = 11-50; +++ = 51-100; ++++ = 101-1000; 1000+ = >100