Channel Tunnel Rail Link
Union Railways (South) Limited

Project Area 440

EAST OF STATION ROAD/CHURCH LANE, SMEETH, KENT
ARC STR99/ARC CHL98

DETAILED ARCHAEOLOGICAL WORKS 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 detailed excavations at two sites - Church Lane (ARC CHL98) and East of Station Road (ARC STR99) - lying adjacent to each other on either side of an unnamed tributary of the East Stour river, near Smeeth, Kent.

Extensive flint scatters, not *in situ*, were found on both sites, during evaluation and detailed excavation, including material dating from the Mesolithic to the early Bronze Age. The flint scatters provide evidence of activity over this period on the site, but give little indication of its character.

Four widely spaced, parallel ditches probably dating from the middle Bronze Age and probably forming a small part of a field system were found on the Church Lane site. This field system is amongst the earliest known in the region. The small portion of it that was exposed within the excavation gives little indication of its wider layout although the ditches do appear to be running down the hillside towards the stream below.

Much more extensive traces of a late Iron Age-early Roman field system were found on the East of Station Road site. This field system appears to have consisted of roughly rectilinear fields running down to the stream. The ceramic evidence suggests the system had a relatively short life, being first set out in the late Iron Age and falling into disuse early in the 2nd century AD. Environmental evidence from a palaeochannel suggests that the area was characterised by open grassland or pasture during the period in which the field system was in use, and that its abandonment may have been accompanied by woodland recolonisation. The artefacts and features other than ditches such as pits, postholes and gullies are concentrated in the corners of the fields suggesting that limited activity was taking place at the edges of the fields. There is, however, little indication of the nature of that activity and most of the artefactual material could have accumulated in these locations as a result of marling.

The more extensive remains of the late Iron Age-early Roman field system provide a much clearer indication of its layout. The apparently early date at which it was abandoned is matched at numerous other sites along the CTRL and more widely, and suggests that there was a significant dislocation of rural settlement and landuse in the 2nd century AD. The environmental evidence gives a clear picture of the environmental changes which appear to have accompanied this dislocation, although further dating evidence will be required to refine its chronology. The spatial patterning of artefacts provides some insight into the wider distribution of activities across the landscape.

1. INTRODUCTION

1.1 Project Background

1.1.1 The Oxford Archaeological Unit (OAU) was commissioned by Union Railways (South) (URS) to undertake detailed excavations at Church Lane and East of Station Road, Smeeth, Kent (Figures 1-4). The two sites lie between URL grid points 87600 18300 and 88200 18600 (OS NGR TR 07596 38301 to 08196 38601). 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).

1.1.2 The Church Lane excavation was originally divided into four areas (Zones 1-4 in the WSI), covering an area of *c* 3.5 hectares part of which was specified as a strip, map and sample excavation, part as detailed excavation and part for preservation *in situ*, according to the perceived archaeological potential. The location of the archaeological areas was determined in the light of the evaluation results and design considerations as detailed in the Written Scheme of Investigation (WSI) (URL 1998, Drawing No. 440-DGH-09780-62014). No excavation was to be carried out in Zone 1, which comprised the top of the knoll in the central part of the Church Lane site, where the evaluation had suggested that plough truncation and slope erosion had removed any archaeological deposits. Areas in the stream valley in which the archaeological levels were covered by alluvial and colluvial deposits (Zone 2) were subject to design restrictions to prevent impact on the archaeological deposits, such that no work was to be carried out beneath 300-500mm from present ground level. Zone 3, which comprised areas between Zones 1 and 2 where archaeological features were expected to survive and be impacted upon by construction works, was subject to detailed excavation. Zone 4 was intended specifically to investigate a possible mesolithic flint scatter identified by the evaluation on the edge of the alluvial deposits (URL 1997).

1.1.3 The very low density of archaeological features actually revealed, as well as the difficulties of stripping a clay site under winter conditions, led to the excavated area being substantially reduced in size to *c* 2.1 ha, consisting of trenches running around the slopes of the knoll in Zone 3, and one cut across its crest, to confirm that features were absent. An area on the edge of the stream valley alluvium was stripped in Zone 4 (Trench 2) to assess the degree of erosion of deposits and to define the northern extent of the scatter of worked flint identified by the earlier evaluation (URL 1997). Work on the Church Lane site took place between 23 October 1998 and 22 January 1999.

1.1.4 The East of Station Road excavation was initially intended to cover an area of 3.62 hectares. However, following the largely negative results at Church Lane, this area was also reduced to *c* 2.5 ha by excavating the site in a series of parallel, 15 m wide trenches (1-18) which were expanded where necessary to expose potentially significant archaeological features (Figure 4). The baulks between trenches 12, 13 and 14 were removed to form an open area excavation in the zone where the greatest density of features was found. In addition, a deep trench was machine excavated in the

lowest part of the site (trench 17) in order to recover waterlogged environmental evidence. Work on the East of Station Road site took place between 18 December 1998 and 22 June 1999.

1.1.5 The results of a geophysical survey (ARC SRCL 95) and an evaluation (ARC SCL 97) both covering the areas of the Church Lane and East of Station Road sites, and the NGC Sellindge Diversion watching brief have also been considered but not incorporated in detail into this assessment (Table 1).

1.1.6 The archaeological Written Scheme of Investigation (URS 1998) was prepared by Rail Link Engineering (RLE), 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	**Type**	**Fieldwork event code**	**Contractor**	**Dates of Fieldwork**
Church Lane	Detailed excavation	ARC CHL98	OAU	23/11/1998-22/1/1999
East of Station Road	Detailed excavation	ARC STR99	OAU	18/12/1998-22/6/1999
NGC Sellindge Diversion	Watching brief	ARC SEL98	OAU	16/11/1998-10/12/1998
Station Road to Church Lane evaluation	Evaluation	ARC SCL97	OAU	13/10/1997-31/10/1997
Station Road to Church Lane geophysical survey	Geophysical survey	ARC SRCL95	Geophysical Surveys of Bradford	1996

1.2 Geology and Topography

1.2.1 The two excavation areas lie in adjacent, large arable fields. To the east the Church Lane site lies on a low hill, rising to *c* 55 m OD. It is separated from the East of Station Road site by a small, unnamed stream. This stream is a tributary of the East Stour River which runs roughly east - west, a short distance to the south of the sites. To the west the East of Station Road site lies on slightly lower, level ground, between 50 m and 55 m OD, along the western side of the stream below a low ridge.

1.2.2 Both sites lie on Atherfield Clay which is overlain by alluvial and colluvial deposits filling the valley between the two sites and lying around the foot of the hill on which the Church Lane site lies. The top of the hill has been much eroded by ploughing and colluviation, to the extent that the Atherfield Clay lies directly beneath the topsoil.

1.2.3 Before work on the CTRL the two fields in which the sites lie were under arable cultivation.

1.3 Archaeological and Historical Background

1.3.1 The CTRL *Assessment of historic and cultural effects* (URL 1994) identified numerous archaeological remains dating from the Palaeolithic to the post-medieval period along the CTRL in the vicinity of Church Lane and East of Station Road.

1.3.2 Palaeolithic flint was found beneath a possible medieval mill mound just to the north of the East of Station Road site (URL 1994, no. 1148). Mesolithic and Neolithic flint which may be related to that found on the site itself was also found in the same location (see below, URL 1997 and URL 1994, nos 1092, 1356, 1822 and 1823). Further scatters of flint dated to the Neolithic, or to the Neolithic-Bronze Age, have been found *c* 0.5 km to the west of site (URL 1994, no. 1355, including a tanged and barbed arrow), and *c* 1 km to the east (URL 1994, no. 1361 and 1360). A polished flint axe was also found in the area of the Church Lane site (URL 1994, no. 1357). Further Neolithic flint was reported from the east of Mersham (URL 1994, no. 1090).

1.3.3 Fewer finds dated to the Bronze Age have been found to match those on the Church Lane site first identified in the evaluation (URL 1997). However, late Bronze Age ditches were found on the West of Blind Lane site, just under 3 km to the west.

1.3.4 The Iron Age is more widely represented. Iron Age pottery was found below the mill mound to the north of the East of Station Road site (URL 1994, no. 1091 and 1148) which may be related to that found on the site. Iron Age pottery and a ditch and postholes were also found in the evaluation on the Church Lane site (URL 1997, see also URL 1994, no. 1356) although little of this date was found during the detailed archaeological works. Further Iron Age and Romano-British pottery and a brooch was found to the south-east of the Church Lane site, on the opposite side of the East Stour river (URL 1994, no. 1359), and a further scatter of pottery of similar date was found *c* 1 km further to the east (URL 1994, no. 1361). To the west, extensive remains of a late Iron Age-Roman British field system and a few associated features were found at West of Blind Lane. This site lies a short distance from an extensive scatter of remains of similar date around Boys Hall Balancing Pond (URS 2000a).

1.3.5 Medieval remains are equally extensive, including the village of Mersham itself (URL 1994, no. 1090), the possible mill mound to the north of the East of Station Road site (URL 1994, no. 1091 and 1148), and scatters of pottery to the south-west of the Church Lane site (URL 1994, no. 1359) and *c* 1 km to the east (URL 1994, no. 1361).

1.3.6 No features of archaeological importance were found during the NGC Sellindge Diversion watching brief, which was carried out in an adjacent area to the east of Church Lane.

2. ORIGINAL PRIORITIES, AIMS AND METHODOLOGY

2.1 Landscape Zone Priorities

2.1.1 The Landscape Zone Priorities as set out in the WSI (URL 1998), which are relevant to this site, relate to the reconstruction of the palaeo-environment from the late mesolithic to the Roman period. There is positive evidence for its exploitation and organisation by hunter-foragers, to a lesser extent in the Bronze Age and, most clearly, in the late Iron Age-early Roman period. Landscape zone priorities of particular relevance to this group of sites are as follows:

i) Reconstruction of the changing palaeoenvironment for all time periods present, through 'on-site' and 'off-site' studies and the interaction with past economies:

- the interaction with hunter-foragers
- changes arising from the interaction of agricultural economies

ii) Establish the basis of the rural economy for the area for all time periods, but especially through the recovery of material and environmental remains:

- changes to the organisation of the landscape through time
- prehistoric landscape division
- the effects of the Roman administration
- the effects of the rise and decline of the Roman administration on existing economies

2.2 Fieldwork Event Aims

2.2.1 The original aims of the excavations were to

- 1) establish the extent, morphology and function of remains of all periods, including any habitation areas and associated enclosures and trackways

- 2) Recover dated environmental and economic indicators
- 3) Recover pottery assemblages for assessment and analysis
- 4) Determine the landscape setting of the site and interaction with the contemporary local environment
- 5) Recover palaeoenvironmental indicators from well dated sequences, palaeosols and waterlogged deposits where present
- 6) Characterise the date and nature of the possible Mesolithic artefact scatter and any associated environmental evidence

2.3 Fieldwork Methodology and Summary of Excavation Results

2.3.1 The topsoil and subsoil were stripped to the top of the archaeologically significant layers by 360° tracked excavators with toothless buckets under close archaeological supervision. The site was then planned and the features revealed were excavated by hand, pits being half-sectioned, and ditches being sectioned at appropriate points. The features were recorded in a single context recording system, were drawn in plan and section, and were photographed. Samples for environmental analysis were taken from appropriate contexts. Daily records of all activity related to the excavation and watching brief were kept.

2.3.2 The excavation revealed extensive redeposited flint scatters dating from the Mesolithic to the early Bronze Age (Figures 2 and 3, Trench 2; Zone 4 (URL 1998), as well as the *in situ* remains of middle Bronze Age and late Iron Age-early Roman field systems.

2.3.3 The possible middle Bronze Age field system was represented by very limited traces of widely spaced, roughly parallel ditches to the east of the stream on the Church Lane site.

2.3.4 The late Iron Age-early Roman field system, in contrast, was represented by much more extensive traces of ditches to the west of the stream on the East of Station Road site. This field system appears to have had a limited life, being established and renewed but not substantially changed in the period from the late Iron Age to *c* AD 70, and falling into disuse some time thereafter. One set of ditches belonging to this field system run parallel to the stream, and are cut at intervals of around 75 m by other sets of ditches aligned roughly at right angles, running down to the stream. The few other features - pits and postholes - as well as most of the artefactual evidence - fired clay and fuel ash slag - are concentrated in the corners of the fields defined by these ditches. The artefactual material, however, may have accumulated as a result of marling.

2.3.5 A deep trench excavated in the East of Station Road site produced environmental evidence indicating that after an initial phase, probably contemporary with the field system, in which the local environment was dominated by grassland, woodland recolonisation commenced. Evidence for arable and pastoral activity, however, was present throughout the sequence. A preliminary radiocarbon date, obtained from a waterlogged oak tree branch found embedded in deposits at the base of the alluvium, has produced a late mesolithic result (7066 to 6653 CAL BC, at 2σ).

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 (URS 2000b). 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

Church Lane

Stratigraphy

3.1.1 Very few features, generally thinly distributed, were found on the Church Lane site (Figure 3). In the central part of the site, on top of the hill (see Figure 2) this can be explained by extensive slope erosion, which is evidenced by the increasing truncation of ditches towards the top of the hill such that no pre-modern features at all were found in the 20m wide trench cut across the summit. The possibility that the hilltop may have been utilised at various periods, particularly the Mesolithic and Bronze Age, is suggested by scatters of artefacts, including pottery and worked flint, found accumulated in colluvium at the foot of the hill.

3.1.2 Not surprisingly, given the extent of truncation caused by a combination of natural slope erosion and ploughing, there were very few significant stratigraphic relationships between features. The only notable direct relationship occurs where a short, slightly irregular gully (521), probably the result of natural disturbance, is cut by a ditch (514). It is also notable that the two pairs of possible middle Bronze Age ditches found on the site appear to be related differently to what may be the same subsoil layer (see 3.1.6 below). One pair (512 and 510) is overlain by a subsoil layer (516) whilst the other pair (508 and 514) cut through a subsoil layer (501). The correlation between these subsoil layers is, however, far from firmly established.

Phasing

3.1.3 The phasing of the features thus depends almost entirely on pottery. Most of the pottery on the site, however, was found in very mixed assemblages, generally redeposited at the foot of the hill as a result of ploughing and slope erosion, dating from the middle Bronze Age to the post-medieval period. Only four features contained datable pottery, and this amounted to just 23 sherds. They suggest that the features belong to two phases:

- Middle Bronze Age
- Medieval, 13th-14th centuries AD

3.1.4 In addition, the flint provides less clear chronological evidence activity on the site in poorly defined phases dating from somewhere within the period from the Mesolithic to the early Bronze Age.

The Flint Scatters

3.1.5 Almost all of the flint was found in topsoil and subsoil contexts, that occurring in features clearly being residual. The flint is thus clearly not in primary context and is likely, in particular, to have accumulated at the foot of the hill (Figure 2) as a result of slope erosion. It is possible that the activity to which the flint relates took place upon the low hill which forms the Church Lane site. Evidence for extensive erosion is seen in the Bronze Age ditches, which appear to taper out towards the hilltop. In addition, the Atherfield Clay on the hilltop is covered only by topsoil, in contrast to the lower slopes where there is a considerable build-up of colluvial and alluvial deposits. Excavation of a trench across the top of the hill has demonstrated that it is now devoid of archaeological features, probably as a result of erosion.

The Middle Bronze Age

3.1.6 Two boundary ditches (508 and 512) ran from the hilltop towards the stream. In both cases the ditches were severely truncated by slope erosion at the top of the hill, but survived to an increasing depth downslope. Although they contained nine and ten sherds of middle Bronze Age pottery respectively, with no later material, these are relatively small numbers, and residual middle Bronze Age pottery was found in topsoil and subsoil layers in the same area. It is thus possible that the pottery in the ditches is residual, particularly given the extensive slope erosion in this area. This is most likely in the case of ditch 508 which cuts the subsoil layer which overlies ditch 512 and is thus stratigraphically later. These two ditches, however, lie *c*120 m apart, and the correlation between the subsoil layer covering ditch 512 and that cut by ditch 508 is uncertain. In support of a middle Bronze Age date for both ditches it can be pointed out that much later material was also found in the topsoil and subsoil layers, but nothing later than the middle Bronze Age in date was recovered from these ditches.

3.1.7 Two further ditches can be associated with ditches 508 and 512 on the basis of their alignments, location and relative stratigraphic position. Ditch 510 runs very close to ditch 512 on a parallel alignment and occupies the same relative stratigraphic position. Ditch 514 is similarly related to ditch 508. It thus seems highly likely that the ditches in each pair were related to each other. They may represent re-marking of boundaries in slightly different locations.

3.1.8 The only other feature which might date from this phase is the irregular gully (521) cut by ditch 514. This, however, appears to be a natural feature.

3.1.9 Further sections of two ditches and a pit, probably of similar date were found in the evaluation (1769TT), indicating a slightly more extensive area of middle Bronze Age activity (URL 1997).

The Medieval Period

3.1.10 A large ditch (505) at the southern end of the site containing four sherds of 13th-14th century pottery in its primary and upper fills is the only feature on the site which can be dated to this phase, although pottery of this date was found in topsoil and subsoil layers.

Undated features

3.1.11 Despite the paucity of pottery, few features are left undated, and few of these are likely to have been significant. A short stretch of ditch (523), a shallow hollow (531) and a tree-throw hole (529), all at the southern end of the site, are the only undated features potentially of any importance. Furrows identified at the northern end of the site are likely to be post-medieval or modern in date.

Residuality, Disturbance and Truncation

3.1.12 Such small numbers of artefacts were recovered from Church Lane that it is impossible to establish the degree of residuality which affects the site. It is clear, however, from the chronologically very mixed assemblages found in the topsoil and subsoil layers that a combination of ploughing and slope erosion has resulted in the complete truncation of features at the top of the slope and the accumulation of artefacts at its foot. The small assemblages from within the surviving features are, as far as can be judged, chronologically homogeneous and provide no clear evidence of disturbance or, with the exception of the flint, of a high degree of residuality. However, none of the prehistoric pottery groups are large enough to provide secure dating evidence even for the individual features in which they were found, particularly given the clear evidence for extensive redistribution of artefacts by slope erosion.

Artefact Distributions

3.1.13 The very few artefacts other than pottery and flint were all found in the chronologically mixed topsoil and subsoil layers and there is thus little point in examining artefact distributions.

East of Station Road

Spatial Structure

3.1.14 The East of Station Road site is dominated by a series of ditches (Figure 4). A large, modern ditch running the length of the site can be distinguished from all of the other, earlier ditches: it alone cuts the subsoil layers which seal all of the other features. Although there is some variation, almost all of the earlier ditches lie on one of two alignments. Most run parallel to the stream, but a few, occurring at roughly 75 m intervals in trenches 7, 10 and 12-14, run perpendicular to the stream. This cross-cutting pattern of ditches defines the spatial structure of the site to which the stratigraphy, the features others than ditches, and the distribution of artefacts can be related.

Stratigraphy

3.1.15 Most of the ditches lie on the north-east - south-west alignment and, although they occasionally cut into other ditches, they more often run very roughly parallel. There are thus generally few stratigraphic relationships between them. Just as similarly aligned ditches rarely cut others, so too is there little evidence for recutting of ditches, ditches 1115 and 1113 in trench 11 being the rare exception.

3.1.16 It is almost always impossible to match the sections of the north-east - south-west aligned ditches which were found in adjacent ditches, and the few stratigraphic relationships between them which do occur cannot, therefore, be followed outside of a particular trench. Because they are chronologically so similar, the pottery and other finds from the site are also of little help in matching ditches between trenches. The stratigraphic sequences in each trench thus remain isolated.

3.1.17 In the majority of the trenches where ditches also run perpendicular to the stream, however, more complex stratigraphic sequences occur. In trenches 7 and 10 sequences of three or four ditches can be related stratigraphically. The most complex sequence, however, was found in trenches 12-14 (Figure 4), where most of the ditches can be arranged into a sequence which can be divided into six stratigraphic 'phases'. Being purely stratigraphic, it is impossible to determine whether the ditches within each phase are strictly contemporary, although all of the ditches in a 'phase' are earlier and later than those in the succeeding and preceding phases respectively. Since all of the ditches in this sequence share similar north-west - south-east or north-east - south-west alignments, despite some slight changes in location, the layout of the site does not appear to have fundamentally changed throughout the sequence. The sequence thus suggests renewal rather than radical change. The stratigraphic sequence in trenches 12-14 (Figure 4) provides a useful test of the validity of the dates suggested by pottery which is discussed below (see 3.1.21).

Ceramic Phasing

3.1.18 Alongside the medieval and post-medieval pottery - mostly found in secondary contexts - the pottery on the site can be divided into two ceramic phases (see below 3.2.2):

- Late Iron Age - early Roman, to AD 70+
- Later Roman, AD 70-200+

3.1.19 In addition, flint provides less clear chronological evidence for activity in poorly defined phases dating from somewhere in the period from the Mesolithic to the early Bronze Age.

3.1.20 Pottery was found in only a small proportion of the sections cut across ditches, and where it was found it occurred in limited quantities, averaging 8 sherds per feature. Greater problems in terms of dating the site are posed by the kinds of context in which the pottery was found. The fills of most of the ditches were stratigraphically undifferentiated. Most of the pottery thus comes from fills from which it is impossible to assess their chronological

relationship with the cutting of the ditch. In the cases where the fills were differentiated, most of the pottery was found in the upper fills (Table 2). In the late Iron Age - early Roman phase just 7% of pottery was found in primary fills, and the 4% of later Roman pottery in primary fills (Table 2) was in fact all found in the primary fill of the modern ditch and is thus clearly residual.

Table 2: East of Station Road: 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	Middle fill	Upper fill	Single fill	
LIA - AD 70+*	45	35	8	7	-	31	62	246
AD 70 - 200+				4†	-	-	96	24

*excluding 97 sherds from the upper fill of natural gully 6006
† residual sherds in modern ditch

3.1.21 A comparison of the stratigraphic 'phases' defined in trenches 12-14 (see above 3.1.17), with the dates suggested by pottery reveals clearly the difficulty of assigning features to phases on the basis of such small quantities of pottery, most of which comes from stratigraphically undifferentiated fills. There is no correlation between the phases suggested by stratigraphy and those suggested by the pottery. Pottery of both the late Iron Age-early Roman phase and of the later Roman phase was found in ditches belonging to almost all of the stratigraphic phases. There are several possible causes of this lack of correlation. One is that the ditches in this area all date from the later ceramic phase and that the earlier pottery is all residual. This seems unlikely given that much larger quantities of pottery from the earlier phase were found than from the later. The fills of all of these ditches were, however, stratigraphically undifferentiated and alternative explanations are that either the later pottery reflects the date at which the upper parts of the ditches filled, or that it is intrusive. These latter explanations are perhaps the most plausible given that no later Roman pottery was found in primary fills anywhere on the site. (The spatial distribution of later Roman pottery is also more restricted than that of the earlier pottery (Table 3).) There is thus no clear evidence that any of the ditches were cut in the later Roman phase. The chronological implications of this, which may be applied to the whole complex of ditches, are that the field system was laid out, and renewed in the earlier phase and went out of use in the second.

3.1.22 A number of further ditches, also probably of late Iron Age-early Roman date, were found in the evaluation (URL 1997), which may give some indication of the wider layout of the field system.

Other Features

3.1.23 Only a small number of features other than ditches were found on the site, and those that were found, were concentrated in two areas: trench 6 and trenches 12-14, both near junctions in the field system.

3.1.24 In trench 6 these features consisted of a pit (6029), a short stretch of curved gully (6009), and three postholes (6015, 6017 and 6019). The pit contained a small number of late Iron Age-early Roman sherds, and given the absence of pottery from other phases in this trench, it seems likely that all of the other features are of similar date. The postholes do not appear to form any particular pattern, nor does the curved gully clearly appear to have formed part of a structure. These features nonetheless mark a concentration of activity in this corner of the field system.

3.1.25 The features in trenches 12-14 comprise two shallow burnt pits (1349 and 1361) and three postholes (1212, 1214 and 1385). These features are scattered across the trenches and again do not relate to any clear structures. Pit 1349 is the only one of them which contains pottery, two sherds of late Iron Age-early Roman pottery having been found in its upper fill. It seems likely, nonetheless, that all of these features date from this phase marking another, more diffuse focus of activity.

Artefact Distributions

3.1.26 Possible foci of activity have been identified at the junctions of the field boundaries. Most of the artefacts recovered from the site are concentrated in trenches 6 and 7 and trenches 12-14 in areas near to the ditches which run perpendicular to the stream (Table 4). Almost all of the finds of fired clay, animal bone and shell were concentrated in these two areas. In addition, fuel ash slag and the very small quantity of metalwork in good contexts, was found in trenches 6 and 7. A less marked concentration of finds occurred in trench 17. The distribution of pottery matches that of the other artefacts (Table 3), most being concentrated in trenches 6 and 7 and in trench 12-14. Although not particularly marked out by other artefacts, there is a slight concentration of pottery in trench 10, near to another field boundary junction. It is noticeable that pottery of the later Roman phase was found only in trenches 10 and 12-14. The quantities of finds involved in these patterns are generally small, and they may simply have accumulated as a result of marling. The features nonetheless suggest that the corners of the fields could act as the foci for a low level of activity.

Table 3: East of Station Road: number of sherds found by trench

Trench	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12-14**	**15**	**16**	**17**
LIA-AD 70+	3	105	30		2	6	6	14		1	1
AD 70-200+						6		17			
Total	*3*	***105***	***30***		***2***	***12***	***6***	***31***		***1***	***1***

Table 4: East of Station Road: location of finds other than pottery and flint by trench

Trench	5	6	7	8	9	10	11	12-14	15	16	17
Fired Clay		X						X			X
Metalwork			X			X					
Fuel Ash Slag		X	X								
Bone		X						X			X
Shell								X			

The Flint

3.1.27 Almost all of the flint was found either in topsoil and subsoil contexts or within the late Iron Age-early Roman ditches. It has, therefore, clearly suffered from considerable disturbance and is not *in situ*.

Residuality and Disturbance

3.1.28 Overall the ceramic assemblages from East of Station Road are remarkably chronologically homogeneous. There are few clear signs of disturbance, and although some degree of residuality is inevitable on a site such as this, there is little direct evidence for it, except in the case of the worked flint. The lack of correlation between the stratigraphic sequence in trench 12 and the dates suggested by pottery probably arises not because of residuality or significant disturbance, but rather because the upper fills of the ditches were deposited in the later ceramic phase or because natural processes have worked the later sherds into the upper fills. The only clearly anomalous pottery is a group of seven 19th-century sherds found in the primary fill of ditch 1204/1324 in trenches 12-14 alongside medieval or post-medieval peg tiles. This ditch is stratigraphically earlier than ditch 1333/1328 which contained purely late Iron Age and Roman pottery. The 19th century pottery and tile may derive from local disturbance. Further fragments of similarly dated tile found in the upper fill of ditch 1358 may also be intrusive.

Truncation

3.1.29 All of the late Iron Age-Roman features appear to have been more or less severely truncated. On average they survive to a depth of only 0.35 m, although a few are substantially deeper. It is noticeable, particularly in trenches 12-14 but also elsewhere, that the ends of some of the slighter ditches were not found, reflecting the degree of truncation and poor feature visibility.

The Deep Trench

3.1.30 A deep trench was cut by machine in trench 17 with the aim of recovering environmental evidence from waterlogged deposits. This trench cut through a palaeochannel (1722) containing six main stratigraphic units (Figure 5). Samples for environmental analysis were taken from the section. A large piece of a tree branch was found embedded in the two lowermost layers of fill. It is likely that this branch is all that survives of a tree which fell, the branch becoming embedded in - and thus preserved by - the side of the palaeochannel. The exposed remainder of the tree then rotted away naturally. The tree probably fell after the deposition of layer 1731, and possibly after or during the deposition of deposit 1730. A sample of sapwood from the tree branch has been submitted for radiocarbon dating (see Appendix 11.1). This sample will provide a *terminus post quem* for the deposition of layer 1727, and may provide a date for the deposition of layer 1730. Late Iron Age-early Roman pottery was found in layer 1726, suggesting a date for this layer, although the possibility that it is residual cannot be excluded.

3.2 The Artefactual Record

Prehistoric Pottery (Appendix 1)

3.2.1 A total of 72 sherds of later prehistoric pottery were found from the excavation at Church Lane. The assemblage of pottery is mostly of middle Bronze Age date but also includes some sherds that could be of middle-late Iron Age date (see also below 3.2.4). Diagnostic forms include a cordoned sherd and a rim sherd from Bucket Urns of Deverel-Rimbury type and everted rims of middle-Late Iron Age date.

Late Iron Age and Roman Pottery (Appendix 1)

East of Station Road

3.2.2 The East of Station Road site produced 269 sherds of late Iron Age and Roman pottery from 46 contexts, mainly ditch fills. The bulk of the material can be dated to Phase 1, before AD 70, and consists overwhelmingly of abraded body sherds in 'Belgic' grog-tempered ware. The few diagnostic sherds are from bead-rim jars. Body sherds from a flagon in Gallo-Belgic Whiteware are indicative of direct or indirect trade with the Continent.

3.2.3 The few post-AD 70 Roman sherds from Phase 2 include South Gaulish Samian, BB2, Upchurch Fabric R16 and pieces from a Verulamium Region Whiteware flagon, and indicate that there was some activity on the site until the end of the second century.

Church Lane

3.2.4 Sixteen sherds of abraded late Iron Age pottery were recovered from topsoil and subsoil contexts at the adjacent Church Lane site.

Medieval and Post-Medieval Pottery (Appendix 1)

Church Lane

3.2.5 The medieval and post-medieval pottery assemblage from Church Lane comprised 58 sherds with a total weight of 383 g. One sherd (35 g) was early post-medieval, and five sherds (23 g) date from the 19th century. The rest of the group (52 sherds, 325 g) comprised medieval wares. Most appear to have been redeposited in later contexts, with only two sherds from stratified contexts, the fills of ditch 505 (contexts 506 and 507). The range of fabrics present indicates that the main period of medieval activity took place in the mid-late 13th – 14th centuries.

East of Station Road

3.2.6 The post-medieval pottery from the East of Station Road site consisted of just ten sherds dating from the 18th century or later. The sherds were found in the topsoil and in the primary fill of late Iron Age-early Roman ditch 1204=1324, probably reflecting local disturbance.

Ceramic Building Material and Fired Clay (Appendix 1)

3.2.7 A small quantity of ceramic building material and fired clay totalling 0.61 kg was recovered from these two sites. All the ceramic building material is in the form of roof tile, of which, although it cannot be closely dated, none appears to be earlier than the end of the 15th century. It indicates some localised post-medieval disturbance on the East of Station Road site. At Church Lane it was also found in topsoil and subsoil contexts. The fired clay assemblage from East of Station Road contains some burnt daub from features dating from the late Iron Age-early Roman period.

Worked and Burnt Flint (Appendix 2)

3.2.8 A total of 778 pieces of worked flint and 68 pieces of burnt unworked flint (weighing 699 g) was recovered from the excavations at Church Lane. A smaller assemblage of 128 pieces of worked flint and 9 pieces of burnt unworked flint (weighing 61 g) came from East of Station Road. It would appear that this is mostly redeposited Neolithic-Bronze Age flintwork; there was little evidence for mid-later Bronze Age material.

Stone (Appendix 2)

3.2.9 Five fragments of sandstone and ironstone were recovered during the excavations on the East of Station Road site. These were all unworked, although one fragment from context 6007 was burnt.

Metalwork (Appendix 3)

3.2.10 A total of six metal objects were recovered from the East of Station Road excavations. Most of these, including a horse brass and a penny of 1896, were unstratified and clearly of very recent date. However, a Colchester type brooch, probably dating from the 1st century AD, as well as a large nail, were found in the fills of two ditches (7020 and 1011).

Fuel Ash Slag (Appendix 4)

3.2.11 A small quantity of fuel ash slag weighing 3 g was found in the upper fills of a ditch and a natural gulley in trenches 6 and 7 of the East of Station Road site. Fuel ash slag is not diagnostic of any particular activity, being produced by any high temperature reaction - such as may occur when a hut burns down or during a cremation - in which alkaline ash and siliceous material such as clay or the natural ground surface are involved. This small quantity of slag is likely to have been deposited as a result of marling.

3.3 The Environmental Record

Animal Bone (Appendix 5)

3.3.1 A total of 74 fragments of bone were recovered from the East of Station Road site (1103 g). 95% of the assemblage was identified to species, consisting of 34 fragments of cattle bone, 30 of which were from a partially articulated skeleton in context 1725 (SF 5), one of the fills of the palaeochannel, and part of a burnt sheep tibia from context 6004, the fill of natural gully 6006.

3.3.2 The partial cattle skeleton consisted of both left and right metatarsals and the left metacarpal along with many of the articulating carpal and tarsal bones and most of the phalanges. The bones were from an individual of less than 2-2.5 years of age (Silver 1969). The bones were not in very good condition and any butchery or gnaw marks are likely to have been obscured. It is possible that this cattle burial in context 1725 represents a special deposit. However, given its context, it may also be butchery waste since only the feet bones were present.

3.3.3 Two fragments of burnt bone were recovered from the site including the sheep tibia mentioned above and an unidentified fragment from context 1346, the upper fill of ditch 1358.

3.3.4 No animal bone was recovered from the Church Lane site.

Charred Plant Remains (Appendix 6)

3.3.5 A total of 18 samples of charred plant remains were taken from ditches, pits and a tree-throw hole at East of Station Road. The deposits sampled are of late Iron Age - early Roman date. Six samples contained cereal remains, while charcoal was present in 13 samples. The cereal remains are dominated by *Triticum spelta* (spelt wheat) glume bases and seem to suggest the presence of cereal processing waste.

Waterlogged Plant Remains (Appendix 6)

3.3.6 Five waterlogged samples were taken from two deposits within the palaeochannel in trench 17 at East of Station Road for the recovery of waterlogged plant remains. Occasional pottery sherds provisionally date the lower of the two fills to the late Iron Age - early Roman period, suggesting it is contemporary with the adjacent field system. Sub-samples of 200 g were processed by a simple wash over technique and the flots collected onto 250 μm mesh sieves. Assessment by scanning under a binocular microscope demonstrated that the lower three samples contained a range of grassland and riverside plant species. The upper deposit produced samples dominated by fragments of wood.

Pollen (Appendix 7)

3.3.7 Sub-samples from two monoliths taken from the deep trench excavated through palaoechannel deposits in trench 17 on the East of Station Road site were analysed to assess the presence of pollen and its potential for reconstructing the local vegetation and landuse (Figure 5).

3.3.8 Pollen from the lower column (column 3), deposited after the tree stump in context 1730, is dominated by grasses (Poaceae) and other pasture types (eg *Plantago lanceolata*). Cereals were also present, especially in the lower zone (Zone 1) roughly equivalent to context 1727, though they declined in the upper zone (Zone 2), roughly equivalent to context 1726, as were weeds possibly associated with disturbed ground and cultivation. The tree branch in context 1730, below this column, will be radiocarbon dated. Context 1726 contained late Iron Age-early Roman pottery, and, assuming the pottery is not residual, may thus be contemporary with the adjacent field system.

3.3.9 The higher column (column 1), covering contexts 1725, 1724 and 1723, still contains evidence of local arable and pastoral agriculture with bracken indicating some waste or abandoned ground or rough pasture. This column, however, especially the lower two zones (Zones 1 and 2) suggests woodland recolonisation. Alder woodland in the area of the palaeochannel is indicated particularly in Zone 1, declining but still present in later zones. The wider woodland appears to have been dominated by *Quercus* (oak) and *Corylus* (hazel). A decline in the level of arboreal pollen in the upper zone (Zone 3) of this column may represent a real decline or be the result of changing taphonomy.

Wood (Appendix 8)

3.3.10 Part of a large oak branch, with no strong evidence for being worked, was recovered from palaeochannel deposits 1730 and natural silt 1731 in the East of Station Road site. Its form and the nature of its find-spot strongly suggest that this is the only preserved part of a fallen tree which grew on

the river bank. As such it is difficult to be sure of the exact level and channel fill that the submitted radiocarbon sample taken from the branch is dating. It seems most likely, however, that it fell during the accumulation of 1730.

Insects (Appendix 9)

3.3.11 Waterlogged sediments from palaeochannel sediments of possible late Iron Age to Roman date at East of Station Road were found to contain useful concentrations of well-preserved insect remains. Assessment of five samples from two deposits showed that the lower deposit contains insects of flowing water and grassland habitats while the upper deposit contains insects of flowing water and woodland habitats.

Shell (Appendix 10)

3.3.12 Only small quantities of oyster and other marine mollusc shells were recovered from the East of Station Road site. The state of preservation of the shell remains is extremely poor and there are no intact specimens to enable statistical comparisons of their characteristics on either an intrasite or intersite basis.

3.4 Dating

Radiocarbon Dating (Appendix 11)

3.4.1 A sample of sapwood from a large piece of an oak branch which was found preserved in deposits at the base of the palaeochannel in trench 17 (ARC STR99) was submitted for radiocarbon dating. The sample was intended to provide a *terminus post quem* for the sequences of environmental samples taken from stratigraphically later contexts.

3.4.2 The sample consisted of a large sample of wood, c. 20 pieces from the sapwood of an oak branch, which ranged from deep brown to light brown in colour. Microscopic examination of one piece revealed a fragile, crumbly structure with an orange-brown coating which appeared to be powdered wood with Crystalline spikules visible. There were soil residues present and a white powdery substance. Samples were prepared by removing all outer surfaces with a scalpel blade and grinding the wood in a mortar and pestle, then subject to cellulose extraction process and dried in a vacuum oven.

Table 4: Radiocarbon results obtained during the assessment

Lab ref	Context	Sample	Date	1σ	2σ
NZA-12234	ARC STR99 ctx 1730 (base of waterlogged palaeochannel	Oak branch (sapwood)	7968 ±60	95.4% confidence 7050cal BC - 6690 cal BC	68.2% confidence 7040cal BC - 6780 cal BC

	sequence				

3.4.3 The date is considerably earlier than anticipated. Late Iron Age pottery was recovered from the upper part of the sequence and assessment of the pollen cores suggested that the whole sequence was most likely to be of later prehistoric date. The taphonomy of the channel sequence is complex and not particularly well-defined. Initial interpretation of the stratigraphy suggested that the branch might not be contemporary with the deposits in which it was embedded. The preliminary radiocarbon date suggests that the branch does indeed belong with the earliest deposits in the sequence.

3.5 Archive Storage and Curation

3.5.1 The material recovered from the site has been stored according to the United Kingdom Institute for Conservation guidelines. It requires no special conservation measures.

3.5.2 The stone is of local origin and is all unworked and can thus be discarded. The unstratified metalwork of recent date (coin, horse brass, fragment of metal sheet and unidentified iron fragment) is of very little significance and may also be discarded. The tree stump has now been thoroughly recorded and need not all be retained, although further samples should be kept for dating. All other material should be retained.

3.5.3 The archive indexes for Church Lane and East of Station Road have been updated and are shown below in Tables 5 and 6.

Table 5: Church Lane: 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	37	-	I
A1 plans	6	-	I, D
A3 plans	1	-	I, D
A4 plans	2	-	I, D
A1 sections	1	-	I
A4 sections	9	-	I
Small finds	921	-	W, M
Films (monochrome)	2	-	I
Films (colour)	2	-	I
Flint	5 size 3 1 size 4	855	W, M
Pottery	1 size 3	131	W, M
CBM	See Misc	8	
Misc	1 size 4	-	

Table 6: East of Station Road: 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	20	-	I, D
A4 plans	-	-	-
A1 sections	1	-	I
A4 sections	69	-	I
Small finds	59	-	W, M
Films (monochrome)	2	-	I
Films (colour)	4	-	I
Flint	2 size 3	137	W, M
Pottery	1 size 2	282	W, M
Fired Clay	See Misc	60	W, M
CBM	See Misc	8	W, M
Stone	See Misc	5	W, M
Metalwork	1 plastic size 4	6	W, M
Slag	See Misc	-	W, M
Animal Bone	1 size 2	74	W, M
Misc	1 size 4	-	-
Wood	-	1	W
Shell	See Misc	7	W
Soil samples (bulk)	-	23	P
Soil samples (monolith/kubiena tin)	-	3	P

* flot size

Key to box sizes

Cardboard boxes

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

Plastic boxes

Size 4 = Small	213 mm x 102 mm x 80 mm	0.002 m^3

4. STATEMENT OF POTENTIAL

4.1 Stratigraphic Potential

4.1.1 The Landscape Zone Priorities and original Fieldwork Event Aims are listed in Section 2 (above). The present section reviews the success of the fieldwork events and post-excavation assessment in providing stratigraphic data to address the Fieldwork Event Aims so far, and the potential of the stratigraphic data to support further analysis relating to these aims. Following this, consideration is given to the potential of the stratigraphic data to address the broader landscape issues identified as landscape zone priorities.

Fieldwork Event Aims

4.1.2 *Fieldwork Event Aim 1)* was to establish the extent, morphology and function of remains of all periods, including any habitation areas and associated enclosures and trackways:

4.1.3 In terms of the scope of works this has aim been successfully addressed, although due to the generally low level of archaeological activity and poor weather conditions during the excavation the area of investigation was somewhat reduced from that planned. A sufficient proportion of both sites was excavated to fully characterise surviving archaeological deposits in all areas. The main difficulty in achieving this aim has been the poor survival of archaeological features, particularly on the Church Lane site where slope erosion has removed any features that may have been present on the upper part of the hill. This has meant, for example, that the original extent and form of the prehistoric and later field systems cannot be determined. In terms of establishing the function and date of the features and deposits the necessary artefactual and palaeoenvironmental evidence have, on both sites, generally proved sparse and therefore difficult to interpret with confidence. No clear evidence for permanent habitation was encountered although, as discussed below, there are hints of structural features and low level economic activities, particularly concentrated in the corners of late Iron Age/ Roman fields.

4.1.4 In this context it is worth noting that at least one burnt pit (1349) contained charcoal which appeared to have been burnt *in situ*, and is thus similar to features found elsewhere along the CTRL at Hurst Wood and Sandway Road. This pit contained two sherds of pottery dated to the late Iron Age to AD 70+. On this site there is no clear reason to doubt this as dating evidence. However, two similar features at Hurst Wood have been radiocarbon dated to the Bronze Age and mid-late Saxon period respectively, both of which results contradict slight artefactual evidence suggesting a late Iron Age and Roman date. This illustrates the difficulties involved in drawing broad conclusions from very sparse artefactual and stratigraphic evidence in areas which have been heavily exploited at various times in the past and may be expected to contain much residual or intrusive material.

4.1.5 *Fieldwork Event Aim 2)* was to recover dated environmental and economic indicators. *Fieldwork Event Aim 3)* was to recover pottery assemblages for assessment and analysis. These aims overlap significantly and are discussed together below:

4.1.6 The economic aspects of the site are difficult to address because of the limited range of activities represented for all periods and the poor quality of the dating evidence. Nevertheless there is some potential for consideration of the agricultural economy, particularly as reflected in the extent and organisation of field systems in the Bronze Age and particularly in the Late Iron Age and Roman period. For the latter period there is potential for examining other economic activities taking place within field systems but apparently away from permanent habitation sites (see 4.1.18). The stratigraphic, palaeoeconomic and artefactual evidence from this site is slight but becomes more significant when compared with similar sites investigated along the CTRL route.

4.1.7 *Fieldwork Event Aim 4)* was to determine the landscape setting of the site and interaction with the contemporary local environment. *Fieldwork Event Aim 5)* was to recover palaeoenvironmental indicators from well dated sequences, palaeosols and waterlogged deposits where present. These aims overlap significantly and are discussed together below:

4.1.8 The palaeoenvironmental objectives have been partially addressed by the identification of a waterlogged palaeochannel sequence in the stream valley on the East of Station Road site. This has some potential for palaeoenvironmental reconstruction of the surrounding area, from perhaps the later Mesolithic to the Roman period. A preliminary radiocarbon date from an oak branch at the base of the sequence suggests a late Mesolithic date for the earlier deposits and redeposited Mesolithic worked flint has been recovered from the opposite side of the stream at Church Lane. The recovery of large, unabraded Iron Age sherds from the upper part of the sequence provides some dating evidence for the later deposits and a link to the adjacent Iron Age and Roman field system. Since very few environmental sequences are available for this part of Kent the results would be of significance at both a local (site interpretative) and regional level. However, further radiometric dating is needed to confirm the integrity of the stratigraphic sequence, the accuracy of existing artefactual dating and provide dating evidence for significant environmental changes.

4.1.9 *Fieldwork Event Aim 6)* was to characterise the date and nature of the possible Mesolithic artefact scatter and any associated environmental evidence.

4.1.10 The contexts in which worked flint was found on both sites indicate that little of it was *in situ*. The possible Mesolithic artefact scatter has proved in fact to be a redeposited scatter of mixed Mesolithic and late Neolithic/ Bronze Age date resulting from slope erosion and the consequent accumulation of artefacts at the foot of the hill forming the Church Lane site. On the relatively level ground at the East of Station Road site the flint is likely to have accumulated in later features primarily through plough action. Although it seems unlikely that the flint has moved very far, its removal from primary context means that there is no potential for detailed study of spatial distribution to contribute to the Landscape Zone Priorities or Fieldwork Event Aims. The presence of the flint nevertheless attests to some level of activity in the Mesolithic and the late Neolithic/ early Bronze Age and can therefore, in broad terms, contribute to wider studies of exploitation of the landscape by hunter foragers and later prehistoric land-use. This will be particularly important if the lower part of the pollen sequence proves to be Mesolithic as suggested by the preliminary radiocarbon date.

Landscape Zone Priorities

4.1.11 *Landscape Zone Priority 1)* was concerned with reconstruction of the changing palaeoenvironment for all time periods present, through 'on-site' and 'off-site' studies and the interaction with past economies. The specific objectives are discussed below:

Interaction of the environment with hunter-foragers

4.1.12 There is limited potential in the stratigraphic evidence to address this aim. However, the presence of Mesolithic artefacts at the Church Lane site, albeit redeposited by slope erosion, in conjunction with a waterlogged environmental sequence at East of Station Road which may extend back to the later Mesolithic, offers some potential for examining the impact of man on the landscape during this period. The potential is limited by the fact that the only link between the Mesolithic artefacts and environmental evidence is that they occur in the same general area. There is no stratigraphic link and no potential for dating the context of the Mesolithic artefacts because they are redeposited in colluvium. The dating of the early part of the environmental sequence to the later Mesolithic by a single radiocarbon date also requires confirmation and closer resolution to fully realise the palaeoenvironmental potential.

Changes arising from the interaction of agricultural economies

4.1.13 The recovery of large, unabraded Iron Age sherds from the upper part of the East of Station Road palaeoenvironmental sequence provides some dating evidence for the upper part of the pollen sequence and a link to the adjacent Iron Age and Roman field system. This suggests considerable potential for examining local environmental change in the late Iron Age and Roman period in conjunction with archaeological evidence for the establishment of field systems and intensive agricultural exploitation. However, further radiometric dating is needed to confirm the integrity of the stratigraphic sequence and to provide high resolution dating evidence for the significant environmental changes seen in the pollen record.

4.1.14 *Landscape Zone Priority 2)* was to establish the basis of the rural economy for the area for all time periods, but especially through the recovery of material and environmental remains. The specific objectives are considered below:

Changes to the organisation of the landscape through time

4.1.15 Fragmentary field systems of Bronze Age and late Iron Age/ early Roman date have been identified. In both periods the boundaries appear to be aligned in relation to the minor stream separating the two sites, forming fields running down to the watercourse. There is no indication that the late Iron Age system developed from the Bronze Age system as they were found on opposite sides of the stream, with no evidence for chronological or spatial continuity and it is likely that this pattern developed independently in each period, simply being the most economical method of dividing the stream valley. It is nevertheless of interest to note that such minor watercourses may have been a focus of agricultural activity during both periods represented.

Prehistoric landscape division

4.1.16 Unfortunately the dating evidence for the ditches making up the fragmentary Bronze Age field system at Church Lane is slight and the date assigned to them can be regarded only as a matter of probability. Very little of this system was exposed within the excavated area, largely because slope erosion had removed the features from the upper slopes and summit of the hill and very little of its wider layout was therefore revealed. Nevertheless, it may be noted that the surviving sections of ditch run towards the stream on a perpendicular alignment, dividing the valley slope into fields *c* 120m wide. The identification of a possible Bronze Age field system is potentially of considerable regional importance, especially when considered alongside other fragmentary systems of similar date identified elsewhere on the CTRL (eg West of Blind Lane and Tutt Hill).

4.1.17 The late Iron Age and early Roman boundary system at East of Station Road is more securely dated and offers a broader range of feature types. The field system had a relatively straightforward layout, based on the alignments of natural watercourses. One series of ditches runs roughly parallel to the stream to the east of the site, and may turn to follow the course of the East Stour to the west. At intervals of *c* 75 m, these ditches were cut by a further series of ditches which ran down to the stream, thus forming wide rectilinear fields along the sides of the watercourses. It would be worthwhile comparing this pattern with other field systems in order to assess how typical it may have been.

4.1.18 It is notable that the few possibly structural features are concentrated in the corners of fields, a feature that has been noted in other field systems of this period during CTRL excavations at West of Blind Lane, North of Westenhangar Castle and Beechbrook Wood. In the latter case a group of ironworking features were located near the corner of a ditched enclosure. It is possible that this represents a widespread late Iron Age and Roman pattern of dispersed, low-level economic activity, often including craft industrial processes such as metalworking, occurring away from permanent settlement sites, at nodal points within field systems. Of the samples examined for charred plant remains, three of late Iron Age/early Roman date produced large quantities of chaff, suggesting that crop processing was also being carried out in the immediate vicinity of the east of Station Road site.

4.1.19 There are few significant stratigraphic relationships on the East of Station Road site, and, because of the difficulties of matching ditches between trenches, those that do exist cannot be followed beyond individual trenches. Stratigraphy is therefore of limited use in tracing the development of the field system. A thorough analysis of the stratigraphy and its relationship with the pottery has been conducted and it is unlikely that further analysis would yield significant insights.

4.1.20 The excavation has provided a reasonably clear picture of the layout of an extensive area of this field system. Plotting the location and orientation of the ditches found in the evaluation beyond the area of the detailed excavation may provide further indications of the wider layout of the system, although it is often difficult to determine the orientation and date of ditches found in evaluation trenches.

The effects of the rise and decline of the Roman administration on existing economies

4.1.21 Whilst the ceramic evidence for the East of Station road field system is relatively slight, and often comes from poor contexts, it nonetheless provides a consistent picture of the chronology of the site. It suggests that the field system had a quite limited lifespan, having been established and renewed in the period from the late Iron Age to *c* AD 70. Renewal of the system appears to have consisted of the cutting of new ditches close to the positions of earlier ditches, rather than recutting, and did not fundamentally change the layout of the system (a pattern which is matched at the contemporary site of West of Blind Lane). There is less evidence for activity on the site in the period from *c* AD 70 to AD 200, and there is no clear indication that any new ditches were cut during this phase. This is perhaps more likely to represent stability in a mature field system than decline up to *c* AD 200, but thereafter the complete lack of artefactual evidence for 3rd and 4th century activity may indicate real decline in the intensity of land-use.

4.1.22 Despite these limitations, the site provides quite clear evidence for the chronology of land division. The apparently limited life of the field system here is matched by that of similar date at West of Blind Lane. Such patterns are unlikely to be explained entirely in terms of changes in the supply of pottery, since at sites such as Thurnham villa there is no decline in the quantity of pottery in the period from AD 70 to 200. Comparison of the chronology of these sites with others along the CTRL that have evidence for economic activities on the fringes of settlement, such as Holm Hill, South of Snarkhurst Wood, Sandway Road, Chapel Mill, South of Beechbrook Wood, Boys Hall Balancing Pond and North of Westenhangar Castle, as well as sites elsewhere in Kent, may establish the wider validity of this chronological pattern and its regional significance.

4.2 Artefactual Potential

Prehistoric Pottery (Appendix 1)

4.2.1 The assemblage of prehistoric pottery from Church Lane indicates low-level activity of middle Bronze Age date across the site and provides a date for two of the ditches. There is no potential for further detailed analysis but, given the scarcity of ceramics of this date in Kent, it is recommended that the material is recorded in full and the results made available for wider dissemination.

Late Iron Age and Roman Pottery (Appendix 1)

East of Station Road

4.2.2 The pottery from the East of Station Road site is limited in its application to the research aims of the CTRL project except as dating evidence and perhaps in the study of patterns of pottery distribution and possibly the trading of wine to the area using Gallo-Belgic and Verulamium Region Whiteware flagons as packaging.

Church Lane

4.2.3 The small quantity of late Iron Age pottery from the Church Lane site is of little significance aside from giving some indication of the extent of the activity in this phase which is more clearly represented on the East of Station Road site.

Medieval and Post-Medieval Pottery (Appendix 1)

Church Lane

4.2.4 All but two of the medieval sherds at Church Lane were found in topsoil and subsoil contexts (500, 501, 502, 525 and 527) with the result that the entire assemblage was highly fragmented, and abraded to a greater or lesser degree. Because the medieval and post-medieval pottery was unstratified it is impossible to provide a refined chronology other than to suggest that the medieval activity was largely limited to the mid/late 13th – 14th centuries. All of the wares are well-known in the area, although little has been published. Although the pottery is not in its primary context, and is of no value in terms of the interpretation of the site, it is nonetheless of some interest in terms of the ceramic chronology of the area. It is recommended that the assemblage should be retained for museum storage.

East of Station Road

4.2.5 The post-Roman pottery from East of Station Road is of little significance in terms both of the interpretation of the site and the Fieldwork Event Aims.

Ceramic Building Material and Fired Clay (Appendix 1)

4.2.6 Both the post-medieval tile and the late Iron Age-early Roman fired clay are stray pieces, probably accumulated as a result of processes such as marling. Except insofar as they indicate disturbance, they thus contribute little to the interpretation of the site and have very little value in terms of the Fieldwork Event Aims.

Worked and Burnt Flint (Appendix 2)

4.2.7 Although a relatively large group of flint was recovered, it would appear that this is mostly redeposited Neolithic-Bronze Age flintwork; there was little evidence for mid-later Bronze Age material. As such the value of this group is somewhat limited, although activity from the Mesolithic to the Bronze Age is indicated by a few diagnostic forms together with the technology of the material. The flintwork has potential primarily as an indication of the use of this general area in these periods, which, when compared to the wider distribution of similarly dated scatters and sites, may be of some local importance as a general indicator of the interaction of early communities with the landscape (Fieldwork Event Aim 4). The material provides relatively few clues as the to the kinds of activities to which it may have been related, perhaps domestic occupation of the area in the Neolithic and Bronze Age, and a temporary camp in the Mesolithic. As the material is redeposited there is no significant potential for detailed spatial analysis of the flint scatters or usewear analysis.

Stone (Appendix 2)

4.2.8 Since all of the stone from the East of Station Road site was unworked and of local origin no further work is recommended.

Metalwork (Appendix 3)

4.2.9 The two pieces, the brooch and nail, from secure archaeological contexts on the East of Station Road site are probably both stray losses and thus do not contribute greatly to the interpretation of the site, although the brooch has some chronological importance. No further work is recommended.

Fuel Ash Slag (Appendix 4)

4.2.10 The fuel ash slag has no significance in terms of the interpretation of the site besides indicating the possibility of marling and no further work is recommended.

4.3 Environmental Potential

Animal Bone (Appendix 5)

4.3.1 The small number of bones from the East of Station Road site do not furnish much information regarding the economy of the site. It is possible that the partial cattle skeleton may be part of a special deposit but perhaps more likely that it is butchery waste. It is not recommended that further work be carried out on this assemblage.

Charred Plant Remains (Appendix 6)

4.3.2 While the concentration of remains in the deposits examined are not comparable with those of the larger sites such as Thurnham Villa, they do provide additional information which, within the context of the CTRL as a whole, is very important. Prior to work on the CTRL knowledge of agricultural activities of the Wealden Greensand Landscape Zone in the Iron Age and Romano-British periods was very limited indeed. The CTRL research strategy provides an excellent framework for an informative landscape study in which the smaller sites, such at this one, will add useful information. It would assist the achievement of Landscape Zone Priorities 1) and 2) to produce an extensive dataset so as to track the occurrences or absences of the poorly understood crops, such as emmer wheat, oats and the pulses. It is therefore recommended that the three samples which produced large quantities of chaff are examined in detail, alongside the evidence from comparable CTRL sites.

Waterlogged Plant Remains (Appendix 6)

4.3.3 The preservation of the material from the palaeochannel deposits at East of Station Road is good, and comprises a flora of damp and wet grassland, with preliminary indications that it will be possible to identify variations over time. The samples offer the potential to examine aspects of the

surrounding environment of the East of Station Road site at the time of occupation of the adjacent site and thus address Fieldwork Event Aims 4 and 5.

Pollen (Appendix 7)

4.3.4 The assessment has shown that pollen at East of Station Road is preserved in the deposits in the palaeochannel. There is thus the potential for reconstructing further the local vegetation of the site and the adjacent interfluves in which prehistoric and later woodland clearance and agricultural activity took place. The low levels of tree and shrub pollen, and in particular of *Tilia* (lime/lindens) supports the ceramic evidence in suggesting a very late prehistoric date, although a preliminary radiocarbon date on an oak tree branch from the base of the sequence suggests that the chronology may be much longer than previously thought, perhaps extending back to the late Mesolithic. Further radiometric dating will be required to improve the dating of the pollen sequence if the potential is to be realised. There are few pollen data from this area of the country. More detailed analysis, including closer sampling and the adoption of a standard pollen sum of 400 grains or more is, therefore, recommended, in pursuance of Fieldwork Event Aims 4 and 5.

Wood (Appendix 8)

4.3.5 The branch from East of Station Road appears to be unworked and thus has no intrinsic archaeological interest. However, its position in the environmental sequence makes it an important piece of dating evidence, in particular, for establishing the position and interaction of the site with the local environment (Fieldwork Event Aim 4) (see 4.4.3).

Insects (Appendix 9).

4.3.6 The insects from the palaeochannel sediments have the potential to address the research aims of obtaining a dated palaeoenvironmental sequence (Fieldwork Event Aims 4 and 5). The insects provide information that adds significantly to the picture derived from the plant remains. The presence of domestic animals is suggested by scarabaeiod dung beetles, and the presence of woodland and grassland species, as well as the anticipated bankside and aquatic insects, indicates a variety of habitats in the immediate vicinity. However, for this potential to be realised, it is essential that adequate dating be obtained for the deposits. Caution is needed with the artefact evidence because the beetle *Pterostichus Madidus*, which has not previously been found in deposits earlier than the late Roman period, has been identified in a sample at present regarded as late Iron Age / early Roman.

Shell (Appendix 10)

4.3.7 The assemblage of marine molluscan material from East of Station Road is present in insufficient quantities, and is insufficiently securely provenanced, to address the research aims of the CTRL project. No further work is recommended.

4.4 Dating Potential

Radiocarbon Dating (Appendix 11)

4.4.1 The preliminary radiocarbon date obtained to date from a waterlogged oak branch at the base of the East of Station Road palaeochannel sequence has produced a late Mesolithic result. This is much earlier than initially suspected on the basis of the pottery and pollen evidence.

4.4.2 If the potential of the palaeoenvironmental sequence is to be realised, further radiometric dating of samples taken at intervals throughout the sequence would be desirable to establish more precisely the date of the sequence. There are samples of waterlogged remains from contexts 1726 and 1725 which would allow further radiocarbon dates to be obtained for these contexts. The most significant change in the pollen evidence, between grassland and woodland recolonisation occurs between these two contexts. Whilst the individual dates themselves may not provide very precise dates, statistical methods are now available which will allow a more precise estimate of the chronological boundary between the two contexts to be made (eg Bronk Ramsey 1995), although a relatively large number of dates (at least six) may be required to obtain a usefully precise estimate of the date of the transition. High resolution dating of the environmental sequence is important for addressing Fieldwork Event Aims 2, 4, 5 and 6 and Landscape Zone Priority 1.

4.4.3 It is recommended that at least one additional date should be obtained for the oak tree branch at the base of the sequence to confirm the suggested late Mesolithic date. Although the branch is slow-grown it is unlikely to produce a reliable dendrochronological date since the centre of the branch has rotted away leaving only approximately 50 rings (some sapwood survives). However, as the sample has been radiocarbon dated it is potentially of value for improving the dendrochronological sequence and radiocarbon calibration for the region. Although such work does not explicitly fall within the CTRL research strategy it is recommended that the material be made available for assessment by a dendrochronology specialist.

4.5 Overall Potential

4.5.1 Potentially significant archaeological results have been obtained for the 'hunter-foragers' period - 400,000-4500 BC (specifically the later Mesolithic - *c* 7200-6500 BC); the early part of the 'early agriculturalists' period (specifically the middle Bronze Age - *c* 1750-1150 BC), and 'towns and their rural landscapes' sub-period (i) - 100 BC-410 AD (specifically the late Iron Age/ early Roman transition - *c* 100 BC-200 AD).

4.5.2 There is considerable potential for addressing the Landscape Zone Priorities through comparison with other CTRL sites that have produced evidence for field systems and associated low level economic activity, particularly in the late Iron Age and early Roman period.

4.5.3 The site has some potential for addressing the Fieldwork Event Aims for these periods, as discussed in sections 4.1 - 4.4, but this is generally limited by the poor quality of stratigraphic and artefactual evidence. The palaeoenvironmental and economic evidence is potentially rather better, but

derives almost entirely from the waterlogged channel sequence at East of Station Road. Overall there is little potential for further detailed analysis of the stratigraphic and artefactual evidence, other than in relation to the waterlogged sequence.

Hunter-foragers into early agriculturalists (400,000 - 4500 BC, and 4500 - 2000 BC)

The prehistoric flint scatters

4.5.4 *Landscape Zone Priority 1; Fieldwork Event Aims 1 and 6* The potential of the prehistoric flint scatters to contribute to the Fieldwork Event Aims is limited by the fact that they were not *in situ*. It is possible that the Mesolithic material derives from a temporary camp, and the Neolithic and early Bronze material from domestic activities, but in general, they reveal little about the kinds of activities to which they were related. They are most significant as evidence for activity in this general area in these periods. When placed in the context of a wider distribution of scatters and sites of these periods, they may thus have limited local significance in terms of our understanding of the exploitation of the landscape by hunter-foragers and the position and interaction of the site with the local environment. Although there is no potential for detailed analysis of the material the significance of the finds will be greatly enhanced if the waterlogged channel sequence at East of Station Road can provide contemporary palaeoenvironmental data. Further radiometric dating of this sequence is necessary to fully realise the potential for palaeoenvironmental reconstruction.

Farming Communities (2000 - 100 BC)

The Middle Bronze Age Field System

4.5.5 *Landscape Zone Priorities 1 and 2; Fieldwork Event Aims 1, 2 and 4* The few stretches of ditch dated to the middle Bronze Age probably formed part of a field system. Little of this field system was exposed and thus a very partial picture of its wider layout is available. In addition, the location of the features on a hillside subject to considerable erosion raises the possibility that the Bronze Age pottery is residual and the ditches of later date. The ditches are, however, *c* 120 m apart and thus appear to support the suggestion that middle Bronze Age field systems may have been laid out on the basis of multiples of a unit measuring *c* 30 m (Yates 1997). The ditches also appear to run down the hill at right angles to the stream below, as has been noted elsewhere. The Church Lane site thus has the potential to make a small contribution to a wider examination of the distribution and layout of middle Bronze Age field systems.

The Middle Bronze Age - Late Iron Age hiatus

4.5.6 *Landscape Zone Priorities 1 and 2; Fieldwork Event Aims 1, 2 and 4* The site may also contribute to our understanding of the chronology of the division of the landscape in the prehistoric period. It has been noticed elsewhere that field systems go out of use at the end of the late Bronze Age (Yates 1997). There is no indication that the Church Lane field system continued in use into the late Bronze Age, and the site may thus contribute to a more refined understanding of the chronology of Bronze Age field systems. However, the potential for addressing the fieldwork event aims is

again limited by the poor dating evidence and limited exposure. Radiocarbon dating of the East of Station Road channel sequence would again greatly enhance the importance of these features, particularly if the pollen sequence shows significant environmental change during this period.

Towns and their rural landscapes (100 BC - AD 410)

The Late Iron Age-Early Roman Field System and associated activity

4.5.7 *Landscape Zone Priorities 1 and 2; Fieldwork Event Aims 1, 2 and 4* The excavations at the East of Station Road have provided a clear picture of the layout and chronology of an extensive area of a late Iron Age-early Roman field system. It appears to have consisted of ditches running parallel to the nearby watercourses from which further ditches ran at around 75 m intervals at right angles down to the watercourses. Further traces of ditches found in the evaluation give some further indication of its extent. A much wider picture of its extent and layout may be obtainable from aerial photographs, although none has been located so far. The site thus has the potential to provide a clear picture of the structure of a late Iron Age-early Roman field system.

4.5.8 There is no clear evidence for fundamental change in the layout of this system over its life, and the difficulty of dividing its development into phases is thus of little importance. The overall date of this system is, in any case, clearly indicated by the chronologically homogeneous ceramic assemblages which suggest a rather limited period of use, beginning at some date in the late Iron Age and falling into disuse in the 2nd century AD. This seemingly early date is matched at a number of late Iron Age-early Roman sites along the CTRL such as South of Snarkhurst Wood, West of Blind Lane, Boys Hall Balancing Pond and Chapel Mill, at all of which field systems and associated features appear to have fallen into disuse at around the same date, in contrast to the villa at Thurnham the construction of which (phases 4-6) appears to have begun after this date. A major dislocation of rural settlement at a similarly early date (early 2nd century) has been noted in other areas, being very clearly documented, for example, in the Upper Thames Valley. It may thus form part of a process which operated over a much wider area. The East of Station Road site thus has the potential to contribute to a wider understanding of the chronology of the division of the landscape and the wider processes of change in rural areas in the late Iron Age/ early Roman transition. It may provide evidence for the effect of the rise and decline of the Roman administration on existing economies.

4.5.9 A clear pattern in the spatial distribution of features other than ditches and artefacts was also found associated with the field system. The pits, postholes and gullies and the pottery, metalwork and metalworking debris and the fired clay are all concentrated in what appear to be the corners of the fields. A similar pattern has been noted at West of Blind Lane, Beechbrook Wood and North of Westenhangar Castle. This pattern could, in part, derive from marling. Given the lack of clear evidence for structures it is difficult to explain the presence of the fired clay and fuel ash slag in other terms, although it is not impossible that light, ephemeral, perhaps temporary structures which would have left little archaeological trace may have been erected. The clustering of pits and postholes in the field corners suggest that various economic activities, probably including crop-processing but also including craft industrial activity such as metal-working (as at Beechbrook Wood), were conducted away from habitation sites, at nodal points in the field system.

4.5.10 In combination with other CTRL sites the Church Lane/ East of Station Road group thus has some potential to inform us about the wider distribution of activities away from settlements, with implications for broader understanding of Iron Age and Roman settlement patterns in the Wealden Greensand landscape zone. It is possible that such sites in fact reflect a highly dispersed and rapidly shifting settlement pattern with few clearly defined, long-standing focii. If so, this has implications for understanding land tenure arrangements, and the organisation and practise of the various economic activities represented. Some light may be shed on the role of large nucleated settlements in the area, such as Westhawk Farm, Ashford. Contrast could also be drawn with more distant parts of Kent, such as the Medway Valley around Maidstone (including Thurnham Roman Villa), in which villas are a dominant feature of the Romano-British landscape, low status rural sites appear to be more localised and clearly defined, and extensive field systems are not apparent.

The environmental evidence

4.5.11 *Landscape Zone Priority 1; Fieldwork Event Aims 3, 4 and 5* The environmental evidence retrieved from the site has a high potential to complement the stratigraphic evidence, providing clear insights into the wider environmental changes which accompanied the establishment, use and abandonment of the field system. The results of the assessments of the pollen, insect remains and, slightly less clearly, the waterlogged plant remains, all suggest that the open grassland or pasture which appears to be contemporary with the field system gradually gave way to woodland. Further dates will be needed to establish the date at which woodland recolonisation commenced. Samples of waterlogged plant remains exist from the contexts spanning this change from which radiocarbon dates could be obtained. It would thus be possible to obtain a reasonably accurate estimate of the date of the transition, although a large number of radiocarbon dates may be needed to obtain a usefully precise estimate.

4.6 Updated Research Questions

4.6.1 This section follows recent guidance from English Heritage regarding the formulation of updated project aims (English Heritage nd, 2-3). This recommends that it is helpful, when appropriate, to treat *aims* as major themes or goals to which specific *objectives* contribute, and that it is helpful, when appropriate, to think of aims and objectives as questions.

4.6.2 The following updated research aims and objectives are derived from the statements of potential set out in sections 4.1 - 4.5.

4.6.3 Up-dated research aim 1: What natural resources were available to hunter-foragers in the vicinity of the East Stour Valley during the mesolithic?

- Objective 1: Was the local landscape primarily woodland or open country?
- Objective 2: Are there discernible changes in vegetation cover during the mesolithic?
- Objective 3: What plant and insect species are represented and what can they tell us about the local environment?

4.6.4 Up-dated research aim 2: Are there discernible patterns in the distribution of mesolithic artefacts in the region?

- Objective 1: What is the distribution of mesolithic artefacts in this area of Kent as reflected in CTRL fieldwork archives, KSMR records and published sources? Any such study would need to cross landscape zone boundaries in order to detect significant variations between them.

4.6.5 Up-dated research aim 3: Based on the evidence from the Church Lane waterlogged sequence, can changes seen in the environmental record be attributed to human activity in any period?

- Objective 1: What environmental changes took place in the vicinity of the East Stour Valley between the later mesolithic and the Roman period?
- Objective 2: Do the environmental changes documented in the waterlogged sequence reflect changes in landscape organisation and intensity of land-use in the surrounding area (with particular reference to the mesolithic, early/middle Bronze Age and Iron Age/Roman periods)?
- Objective 3: Is there any indication of significant environmental change in periods for which there is no corresponding archaeological evidence in the surrounding area?
- Objective 4: What kinds of activity and environmental or social/ economic pressures might have caused such changes?

4.6.6 Up-dated research aim 4: To what extent does the environmental sequence at East of Station Road reflect wider regional trends?

- Objective 1: Is the environmental evidence from East of Station Road comparable with that from other regional sequences?

4.6.7 Up-dated research aim 5: Can regionally significant patterns be seen in the chronology, location, extent and organisation of prehistoric and Roman landscapes (as defined by field systems), based on the evidence from Church Lane/ East of Station Road and other CTRL sites including South of Snarkhurst Wood, Chapel Mill, Tutt Hill, Beechbrook Wood, Boys Hall Balancing Pond and West of Blind Lane?

- Objectve 1: To what extent do field systems reflect intensive land use? Is the establishment of field systems a sign of population pressure? It is notable that a number of CTRL sites (South of Snarkhurst Wood, East of Station Road, West of Blind Lane) have produced evidence for Bronze Age and late Iron Age field systems in close proximity, with little or no evidence for continuity in the intervening period. This might suggest that both were periods of high population pressure, in which very similar economic strategies developed independently.
- Objective 2: To what extent do recognisable field systems represent the core agricultural lands of a settlement? Do they necessarily occur in areas of greatest agricultural potential or are they a means of exploiting relatively marginal land?

- Objective 3: Where might settlements associated with the field systems identified be located?
- Objective 4: Is the relationship between natural watercourses and field systems, as observed at Church Lane/ East of Station Road, a universal of field system organisation or a significant regional or chronological characteristic?

4.6.8 Up-dated research aim 6: During the late Iron Age and Roman period the CTRL excavations have produced some evidence for dispersed, low-level economic activity, including crop processing and metal-working, with very limited associated structural and artefactual evidence, occurring at nodal points within field systems where there is no indication of an adjacent permanent habitation site. Evidence of this type may be discerned at Church Lane/ East of Station Road, Beechbrook Wood, West of Blind Lane and North of Westenhangar Castle. To what extent does this reflect a significant trend in the regional pattern of land-use for the period *c* 100 BC - 200 AD?

- Objective 1: How widespread is such evidence?
- Objective 2: What is the full range of activities attested in such locations?
- Objective 3: What is the chronological range of such evidence?
- Objective 4: Where might the settlements associated with the field systems be located? Is it possible that such sites in fact reflect a highly dispersed and rapidly shifting settlement pattern with few clearly defined, long-standing focii? If so, what implications are there for land tenure arrangements, and the organisation and practise of the economic activities represented? Contrast may be made with contemporary sites in the Wealden Greensand landscape zone with more substantial evidence for permanent occupation, such as Bower Road and, outside the CTRL, Westhawk Farm.
- Objective 5: Is there an observable difference between land use and organisation on these sites and that seen in rural areas dominated by villas, such as the Medway Valley (including Thurnham villa)? What are the likely reasons for such contrasts?

4.7 Additional research objectives

4.7.1 The limited further analysis suggested by specialists is in all cases directly relevant to addressing the existing Landscape Zone Priorities and Fieldwork Event Aims.

4.7.2 However, it is suggested that the waterlogged oak branch from East of Station be submitted for assessment by a dendrochronology specialist. While it is unlikely to be viable for dendrochronological purposes (having the minimum number of rings needed to produce a valid date) the fact that it has been radiocarbon dated may offer some potential for improving the regional tree ring dating sequence and radiocarbon calibration curve.

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APPENDIX 1 - CERAMICS

1.1 Assessment of the Prehistoric Pottery

by Alistair Barclay

Introduction

1.1.1 A total of 72 sherds of later prehistoric pottery were hand-retrieved during excavations at Church Lane.

1.1.2 The material was recovered to provide dating evidence for the site, in accordance with the Fieldwork Event Aims for the project, which are set out in section 2 of the main document, above.

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. Later Bronze Age fabrics tend to contain calcined flint. Iron Age fabrics can be either flint, shell or sand tempered or can contain a mixture of sand and flint.

Quantification

1.1.4 The assemblage comprises 72 sherds of pottery and is mostly of middle Bronze Age date, with some Iron Age sherds. Diagnostic forms include a cordoned sherd and a rim sherd from Bucket Urns of Deverel-Rimbury type and everted rims of middle-late Iron Age date. The assemblage indicates low-level activity of middle Bronze Age date across the site and provides a date for two of the ditches. Table 1 gives the overall quantification by count and weight as well as a breakdown of the assemblage by context. Most of the material identified as middle Bronze Age occurs as thick-walled sherds with coarse flint-temper. Diagnostic sherds include a squared rim with finger-tip impression and a thick-walled sherd with an applied cordon.

Provenance

1.1.5 Middle Bronze Age pottery was recovered from palaeosol 502 and ditches 508 and 512 and indicates that the features and deposits could be of this date. The remainder of the assemblage mostly occurred as residual material (contexts 500-1, 525, 527). Some of the flint-tempered body sherds that are worn and featureless from these contexts could be of middle-late Iron Age date.

Conservation

1.1.6 The pottery is adequately bagged and boxed for long term storage and will require no further conservation.

Comparative Material

1.1.7 There is relatively little published material from this area of Kent. Similar fabrics and forms occur elsewhere on CTRL. Other published assemblages with comparable material are known from north Kent (eg Barclay 1994).

Potential for Further Work

1.1.8 The assemblage has little potential for further research in terms of the CTRL project strategy, but as there is relatively little published material of this date from this area of Kent, it is recommended that a minimum record is produced and made available for wider dissemination.

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1.2 Assessment of the Late Iron Age and Roman Pottery

by Malcolm Lyne

Introduction

1.2.1 A number of small groups of pottery were recovered during excavations at East of Station Road and Church Lane.

1.2.2 The material was hand-retrieved on site.

1.2.3 It was collected in order to provide dating evidence for the sites, and evidence for economic activity, in accordance with the Fieldwork Event Aims for the project which are set out in section 2 of the main document, above.

Methodology

1.2.4 All of the pottery assemblages were subjected to general sherd count, weighing and spot-dating. None of the assemblages was considered large enough or significant enough for detailed quantification.

1.2.5 Fabrics were identified with the aid of a x8 lens with built-in metric scale for determining the sizes, nature, form and frequency of inclusions. Finer fabrics were further examined using a x30 magnification pocket microscope with built-in artificial illumination source and all were classified using the Canterbury Archaeological Trust's codings (Macpherson-Grant *et al.* 1995).

East of Station Road

Quantification

1.2.6 The site produced a total of 269 sherds (1708 g) from 46 late Iron Age and Roman contexts. Most contexts produced three or fewer fragments (Table 3). These assemblages are further tabulated by phase in Table 4.

1.2.7 As with the material from the Boys Hall site (URS 2000), the late Iron Age to AD 70 pottery is totally dominated by sherds from bead-rim jars and other forms in the 'Belgic' grog-tempered ware fabrics B1 and B2 (92%). The remainder of the sherds consist of fragments in the 'Belgic' grog-tempered fabric B2.1 with pale siltstone grog, a sherd in sandy black B8 fabric from the Folkestone area and bodysherds from a Gallo-Belgic Whiteware flagon. There are no sherds in the glauconitic B9.1 fabric from the Medway valley.

1.2.8 The few post-AD 70 sherds include South Gaulish Samian, Upchurch ware, a fragment from a BB2 pie dish of post-AD 200 date and two sherds from a Verulamium region Whiteware flagon. Both the Verulamium and the earlier Gallo-Belgic Whiteware flagons may have been used for the transport of wine to the area.

1.2.9 There is no observable bias in the collection of material.

Provenance

1.2.10 There are few fresh assemblages in what is otherwise a collection of very small and somewhat abraded pot sherds. The most substantial assemblages are the 44 sherds from Context 6007 in the fill of the natural channel and the 97 fragments from the upper fill of natural gully 6006. Both of these assemblages can probably be dated to the period *c* AD 40-70 towards the end of Phase 1 and include fresher sherds than are normal for this site.

Conservation

1.2.11 There is no need for further conservation and all of the material should be retained.

Comparative Material

1.2.12 The frequently abraded nature of the pottery assemblage is similar to that from the Boys Hall Balancing Pond and Blind Lane sites at Sevington only a short distance to the west (URS 2000 and 2000b). The few rims and other diagnostic sherds, however, makes the citing of specific parallels difficult.

1.2.13 What can be said is that the total domination of the late Iron Age-AD 70 dated assemblages by 'Belgic' grog-tempered wares is rather surprising: one would expect that the proximity to Folkestone would have led to a more significant showing of sandy soot-soaked wares in the local B8 and B9 fabrics (Thompson 1982, 14). The reason for this anomaly could be chronological and due to the Phase 1 material being entirely post-Conquest in date

Potential for Further Work

1.2.14 Aside from providing dating evidence, the pottery from this site is limited in its application to the research aims of the CTRL project except perhaps in the study of patterns of pottery distribution and possibly wine trade in the local late Iron Age and early Roman economy.

Church Lane

1.2.15 The site yielded sixteen sherds of Late Iron Age pottery from the excavated topsoil and colluvium contexts. These comprise one sherd in glauconitic fabric B9.1,13 in 'Belgic' grog-tempered fabric B2 and two in fabric B3 (Table 1). The sherds are all very abraded and probably from field marling.

1.2.16 The material is of very limited value other than throwing some light on the extent of the arable land at east of Station Road.

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1.3 Assessment of the Medieval and Post-Medieval Pottery

by Paul Blinkhorn

Introduction

1.3.1 Small groups of medieval and post-medieval pottery were hand-retrieved during excavations at Church Lane and East of Station Road.

1.3.2 The material was collected in order to provide dating evidence and economic information, in accordance with the Fieldwork Event Aims for the sites, which are set out in section 2 of the main document, above.

Methodology

1.3.3 The pottery from both sites 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 at Church Lane:

- M1, Tyler Hill sandy ware, 1225-1350. 2 sherds, 16g.
- M38A, N or W Kent Sandy ware, Maidstone kiln? 1175/1200-1400. 2 sherds, 18 g.
- M38B, N or W Kent fine sandy ware, 1225/50 – 1400. 1 sherd, 2 g.
- M40B, Ashford/Wealden sandy ware, 1200/25 - 1400. 3 sherds, 43g.
- PM1: Red earthenware, 1550-1800. 1 sherd, 35 g.
- LPM7BJ, Bone china, transfer printed, 1770-1925+. 5 sherds, 23 g.

1.3.4 The following fabrics were identified at East of Station Road:

- EM3A, E Kent shelly-sandy ware 1075/1100-1200/25. 1 sherd, 6 g.
- PM1, Red earthenware, 1550-1800. 3 sherds, 121 g.
- PM5, Frechen Stoneware, 1525-1750. 1 sherd, 27 g.

- PM38, Notts/Derby Stoneware, 1670-1770. 2 sherds, 8 g.
- LPM5, Yellow ware, 1825/50 – 1900. 1 sherd, 29 g.
- LPM10, modern English Stoneware, 1800-1940. 1 sherd, 35 g.
- LPM15D, Later Staffordshire blue-bodied earthenware, 1875/1900-?1940. 1 sherd, 8 g.

Church Lane

Quantification

1.3.5 The medieval and post-medieval pottery assemblage from Church Lane comprised 58 sherds with a total weight of 383 g. One sherd (35 g) was early post-medieval, and five sherds (23 g) dated from the 19th century. The rest of the group (52 sherds, 325 g) comprised medieval wares. Most appear to have been redeposited in later contexts, with only four sherds stratified. The range of fabrics present indicates that the main period of medieval activity took place in the mid-late 13th-14th centuries. The pottery occurrence by number and weight of sherds per context is shown in Table 2.

Provenance

1.3.6 All but two of the medieval sherds were found in topsoil and subsoil contexts (500, 501, 502, 525 and 527) with the result that the entire assemblage was highly fragmented, and abraded to a greater or lesser degree. The remaining two sherds were found in the primary and upper fill of ditch 505, the only feature which may be medieval in date. Because of the poor contexts in which the medieval and post-medieval pottery was found it is impossible to provide a refined chronology other than to suggest that the medieval activity was largely limited to the mid/late 13th – 14th centuries.

Comparative Material and Potential for Further Work

1.3.7 All the wares are well-known in the area, although little has been published. Although the pottery is not in 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.

East of Station Road

Quantification and Provenance

1.3.8 The post-Roman pottery assemblage from East of Station Road comprised ten sherds with a total weight of 226 g. All the post-Roman pottery was post-medieval, and dateable to the 18th century or later apart from a single residual medieval sherd. The pottery occurrence by number and weight of sherds per context is shown in Table 5.

1.3.9 A single residual and heavily abraded medieval sherd aside, all the post-Roman pottery was post-medieval, and dateable to the 18th century or later, with most dateable to the 19th or 20th centuries. All the post-medieval sherds were unabraded, suggesting that they had been subject to little post-depositional disturbance. Apart from a small number of unstratified sherds, it was all found in the primary fill of ditch 1204=1324 where it may have become deposited as a result of some local disturbance.

Potential for Further Work

1.3.10 The post-Roman pottery from this site is of little significance in terms both of the interpretation of the site and the CTRL research aims.

Acknowledgements

1.3.11 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 Ceramic Building Material and Fired Clay

by Susan Pringle

Introduction

1.4.1 Very small quantities of ceramic building material (0.364 kg) and fired clay (0.111 kg) were recovered from East of Station Road, and 0.130 kg of ceramic building material from Church Lane. It was hoped that this material might provide evidence for structures on the site, although they probably actually derive from field marling and post-medieval disturbance.

Methodology

1.4.2 All the ceramic building material and fired clay from the site was examined. Ceramic building material has been divided by form, and fragments counted and weighed. The presence of distinctive fabric types has been noted, 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 or absence of glaze, and the shape of any nail holes.

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

1.4.4 From East of Station Road, the total weight of ceramic building material scanned for the assessment is 0.475 kg, of which 0.111 kg is fired clay. From Church Lane, the total weight scanned for the assessment is 0.13 kg of ceramic building material.

Ceramic Building Material

1.4.5 Post-Roman ceramic building material from East of Station Road accounted for 76.6% of the total assemblage, by weight (Table 6). The material comprised eight fragments of peg or plain roofing tile. All the tile was in similar orange fabrics with cream silty streaks and a small amount of quartz sand. None was glazed, nor were any complete tiles, or complete dimensions, noted. The only diagnostic features present were two diamond-shaped nail or peg holes in context 1332, which do not occur in London until at least AD 1480.

1.4.6 The only identifiable tile type present at Church Lane is represented by six fragments of peg or plain roofing tile (Table 7). These are in orange fabrics, with fine moulding sand. No glaze was present. No complete tiles, or complete dimensions, were noted; the only diagnostic feature was a polygonal nail or peg hole in a tile from context 501. Dating this tile type is difficult, as peg tiles have changed little since the 13th century, but the absence of glaze and the shape of the nail holes suggests that these are unlikely to be earlier than c.1480.

Fired clay

1.4.7 The Fired clay and daub from East of Station Road constituted 23.4% by weight of the material scanned for this assessment (Table 8). Some of the fired clay may be natural soil that has been accidentally fired, but the calcareous content of some of the material suggests deliberate mixing with limey clays for use as daub or cob. No signs of wattle imprints or attached lime mortar were noted on any of the fragments, but the degree of abrasion would have removed any such evidence. The daub in context 1350 is reduced and blackened, suggesting that it may have been burnt in anaerobic conditions. This could have happened in various ways, including an accidental house or hut fire, or use in a hearth or cremation context.

Provenance

East of Station Road

1.4.8 The material examined come from a range of features, mostly ditches but including also two pits and a gully.

1.4.9 The late- or post-medieval tile comes from two late Iron Age-early Roman ditches in trench 12 where it indicates some localised disturbance.

1.4.10 The fired clay was recovered from the ditches in trenches 7, 12, and 17, the modern ditch, and pits 1349 and 6029. Some of the material is likely to be of Iron Age date.

Church Lane

1.4.11 The material from Church Lane comes from topsoil and subsoil contexts. The material is fairly abraded, but there is no risk to its preservation.

Conservation

1.4.12 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, when the archaeological implications of the deposits have been fully assessed, some of the assemblage can probably be discarded.

Comparative Material

1.4.13 The insecure contexts from which the material derives suggests it is unlikely that much useful information could be obtained from comparative studies.

Potential for Further Work

1.4.14 Both the post-medieval tile and the late Iron Age-early Roman fired clay are stray pieces, probably accumulated as a result of processes such as marling. Except insofar as they indicate disturbance, they thus contribute little to the interpretation of the site and have very little value in terms of the fieldwork event aims.

Table 1: Church Lane - summary of Prehistoric and late Iron Age and Roman pottery

Context	Count	Weight (g)	Period	Comments
500	10	162	MBA, IA	large cordoned sherd from MBA Bucket Urn, also IA (MLIA?) including everted rim
501	24	105	MBA, LIA, Roman	residual MBA
502	2	20	MBA	MBA bucket urn, flint fabric
509	9	62	MBA	MBA bucket urn sherds, flint fabrics
512	10	76	MBA	MBA bucket urn sherds, flint fabrics
525	5	16	MBA, MIA?	possibly residual MBA
527	12	56	MBA, LIA-AD 70	residual MBA
532	1	1	?	
Total	***73***	***498***		

Table 2: Church Lane - summary of medieval and post-medieval pottery

Context	Count	Weight (g)	Date	Comments (CAT fabric series codes)
500	34	201	19thC?	M38A, M38B, M40B, M1, LPM7BJ
501	13	60	19thC?	M38B, M40B, LPM7BJ
502	1	12	1225/50 – 1400	M38B
506	1	2	1225/50 – 1400	M38B
507	1	4	1200/25 - 1400	M40B
525	1	6	1200/25 - 1400	M40B
527	7	98	M16thC	M38A, M38B, M40B, M1, PM1
Total	***58***	***383***		

Table 3: East of Station Road: summary of late Iron Age and Roman pottery

Context	Count	Weight (g)	Period	Comments (CAT fabric series codes)
unstrat	2	11	LIA-AD 70+	unstratified, B2 jar
1006	1	5	LIA-AD 70+	B2 jar
1010	5	15	AD 120-AD 150	R42 DR 18/31
1014	1	3	AD 130-AD 250	R14 pie dish
1016	4	10	LIA-AD 70+	B2 jat sherd
1021	1	13	LIA-AD 70+	B2 jar sherd
1116	6	3	LIA-AD 70+	B2 jar
1118	1	8	LIA-AD 70+	B2 jar
1211	1	6	LIA-AD 70+	B2 jar
1215	1	4	LIA-AD 70+	B2 jar
1220	1	2	LIA-AD 70+	B2
1300	4	10	LIA-AD 70+	B2 jar sherd
1307	2	11	AD 55-150	R65 flagon
1325	1	11	LIA-AD 70+	B2 jar
1330	11	59	AD 70-100	R42 Dr 35, R16, R17, 2 sherds from soil sample 19
1338	3	6	early Roman	early Roman, R109 sherds
1345	1	1	LIA-AD 70+	B2 jar
1346	1	6	AD 50-100	B2 jar, R16
1350	2	2	LIA-AD 50	B1 sherds
1353	1	5	LIA-AD 70+	B2 jar sherds
1371	1	65	LIA-AD 70+	B2.1
1379	1	3	LIA-AD 70+	B2 jar
1382	3	13	LIA-AD 70+	B2 jar sherds
1386	1	3	LIA-AD 70+	B2 closed form
1618	1	3	LIA-AD 70+	B2 jar
1621	1	1	Roman	R17 sherd
1710	1	1	LIA?	
1726	2	39	LIA-AD 70+	B1 corded jar
5011	3	7	LIA-AD 70+	B2 jar sherd
5019	10	86	LIA-AD 70+	B2.1 bead rim
6000	6	82	LIA-AD 70+	B2.1 jar

Context	Count	Weight (g)	Period	Comments (CAT fabric series codes)
6004	97	617	AD 40-70	B2 bead rim jar, C-B plate, bowls etc.
6005	3	35	LIA-AD 70+	B2 jar foot ring
6007	44	295	AD 40-70	B2 bead rim flange
6010	2	21	LIA-AD 70+	B2 jar sherd
6028	2	13	LIA-AD 70+	B2 jar
6030	1	3	LIA-AD 50	B1 jar sherd
6031	3	30	LIA-AD 70	B2 bead rim
6032	1	9	LIA-AD 70+	B2 jar
7004	2	28	LIA-AD 70+	B2.1 jar
7008	3	10	LIA-AD 70+	B2 jar
7011	2	8	LIA-RO	B2 jar
7022	16	67	LIA-AD 70	B2 bead rim
7025	1	4	LIA-AD 50	B1
7030	1	3	LIA-AD 70+	B2 jar
7034	6	8	LIA-AD 50	B1 jar
7036	1	27	LIA-AD 70	B2 bead rim
8000	5	43	LIA-AD 70+	B2 jar
9005	2	5	LIA-AD 50	B1 jar
Total	***272***	***1720***		

Table 4: East of Station Road - summary of main assemblages of late Iron Age and Roman pottery by phase

Phase	Main locations	Spot date	No. of contexts	Count	Weight
1	Ditches 5012, 6011, 7004, 7009, 7012, 7020, 7031, 9004, 1007, 1017, 1117,1219, 1324, 1333, 1341, 1352, 1381, 1616, 1711, Pit 1349, Channel deposits	Late Iron Age - AD 70+	37	243	1591
2	Ditches 1011, 1015, 1326, 1331, 1337, 1358	AD 70 - 200+	9	26	117
Total			***46***	***269***	***1708***

Table 5: East of Station Road: summary of post-medieval pottery

Context	Number	Weight (g)	Date	Comments (CAT fabric series codes)
600	3	14	18/19thC	EM3A, PM38
1332	7	220	20thC?	PM1, PM5, LPM5, LPM10, LPM15D
Total	***10***	***234***		

Table 6: East of Station Road: summary of ceramic building material

Context	Count	Weight (g)	Type	Period	Early date	Late date	Comments
1332	5	294	Peg tile	Med/P-med	1480	1800	Calcareous fabric; diamond n/holes; unglazed
1346	3	70	Peg tile	Med/P-med	1400	1800	Light orange fabric;

							unglazed.

Table 7: Church Lane: summary of ceramic building material

Context	Count	Weight (g)	Type	Period	Early date	Late date	Comments
500	1	19	Peg tile	Med/P-med	1400	1800	Orange fabric, fine moulding sand; unglazed.
501	5	110	Peg tile	Med/P-med	1480	1800	Orange fabrics, polygonal nail hole x 1; reduced x 1; abraded.
501	2	1	Tile				Small flakes, possibly from peg tiles.

Table 8: East of Station Road: summary of fired clay

Context	Count	Weight (g)	Type	Comments
1350	46	79	Fired clay	<21> small abraded scraps of calcareous daub, well reduced.
1358	2	1	Fired clay	Light brown sandy clay.
1610	1	1	Fired clay	Abraded scrap
1708	1	1	Fired clay	Light orange, calcareous; abraded
6008	3	12	Fired clay	Orange with calcareous streaks; abraded.
6028	4	2	Fired clay	Crumbs of light brown sandy clay
6030	1	12	Fired clay	Light orange clay, calcareous streaks; abraded.
7034	2	3	Fired clay	Abraded.

APPENDIX 2 - LITHICS

2.1 Assessment of the Worked and Burnt Flint

by Philippa Bradley

Introduction

2.1.1 Flint assemblages were recovered during excavations at Church Lane and East of Station Road.

2.1.2 All material was hand-retrieved on site.

2.1.3 The flint was collected in order to examine a suspected Mesolithic artefact scatter identified during the evaluation, and to provide dating evidence, and evidence for the activity of early communities in the palaeoenvironment. The Fieldwork Event Aims for the project are set out in section 2 of the main report, above.

Methodology

2.1.4 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 the condition of the material were also made.

Quantification

2.1.5 A total of 778 pieces of worked flint and 68 pieces of burnt unworked flint (weighing 699g) was recovered from the excavations at Church Lane. A smaller assemblage of 128 pieces of worked flint and 9 pieces of burnt unworked flint (weighing 61g) came from East of Station Road. This material is summarised below in Table 9-Table 12

Provenance

East of Station Road

2.1.6 The vast majority of the material came from a series of ditch fills. The ditches have mostly been dated to the late Iron Age-early Roman period and therefore it seems likely that all of the flint from these features is redeposited. This is supported by the range of datable retouched forms (Mesolithic to Bronze Age) that came from the fills of these ditches. It seems highly likely that the excavation of the ditches during the Iron Age disturbed

Neolithic and Bronze Age occupation. The flintwork is thinly spread across these contexts with rarely more than a couple of pieces from each context. It is difficult therefore to be more precise about the nature of the pre-Iron Age occupation. However, a range of activities such as various processing tasks including possible hide preparation seem to have been occurring. Knapping may have been occurring, several cores and core rejuvenation flakes were recovered although no small flakes and chips were found. However, this may be a product of on-site sampling methods and post-depositional disturbance rather than reflecting the activities occurring on the site.

Church Lane

2.1.7 The largest single group of flint came from the topsoil and other unstratified contexts (U/S and 500; see Table 10 for a summary). The flint is thus clearly not in primary context. It is possible that the activity to which the flint relates took place upon the low hill which forms the Church Lane site. Mesolithic to Bronze Age artefacts were recovered from these contexts; debitage dominated but a range of retouched forms including a microlith fragment, scrapers, knives, piercers, retouched flakes, a possible arrowhead roughout and a notch were also recovered. The assemblage composition suggests domestic activities similar to those suggested for Station Road. Distinctive pieces include a piercer with a long and extensively retouched point of likely later Neolithic date, an invasively retouched knife of probable early Bronze Age date and two denticulated scrapers which may be of mid Bronze Age date. Mesolithic activity is represented by a microlith fragment and a truncated flake, two blade-like flakes may also be contemporary. Several pieces of burnt unworked flint were also recovered from these contexts.

2.1.8 A series of colluvial layers and palaeosols produced assemblages of worked and burnt flint (contexts 501, 502, 525 and 527, see Table 10 and Table 12 for details). Dateable retouched forms from these layers provide broad dates ranging from the Mesolithic to the early Bronze Age.

2.1.9 Small numbers of flint were recovered from contexts 506-7, 509, 511, 513, 515, 528 and 532; the fills of a range of ditches, a burnt scoop and a tree-throw hole. These features are of varied dates (13-14th-century pottery was recovered from context 506 and some LBA Bucket Urn came from 509), and unfortunately the flintwork is generally undistinguished debitage (Table 10).

Conservation

2.1.10 Much of the flint has suffered some post-depositional damage; cortication is mixed. Numerous pieces of burnt unworked flint were also recovered; this material was very heavily calcined either grey-white or red. A few of the worked flint (several flakes, two multi-platform flake cores, a chip and a misc retouch piece) were also burnt.

2.1.11 Some of the burnt unworked flint is beginning to disintegrate, but little can be done to prevent this. The flint is adequately bagged and boxed for long term storage. There are therefore no storage or conservation requirements.

Comparative Material

2.1.12 The flint can be compared to other sites along the CTRL such as Tutt Hill and Eyhorn Street which produced Neolithic to Bronze Age material. The small element of Mesolithic activity identified appears to be fairly typical of the sites excavated, and may represent a small temporary camp or chance hunting losses.

Potential for Further Work

2.1.13 The assemblages provide extensive evidence for Neolithic and Bronze Age occupation with a little Mesolithic activity. The material from Church Lane and East of Station Road could be compared to other better stratified material in order to try and improve the dating, but as the groups are largely redeposited this is unlikely to be informative.

2.1.14 The flintwork has potential primarily as an indication of the use of this general area in these periods, which, when compared to the wider distribution of similarly dated scatters and sites, may be of some local importance to an understanding of the position and interaction of the site with the local environment. The material provides relatively few clues as to the kinds of activities to which it may have been related. As the material has been redeposited by slope erosion any concentrations are unlikely to be archaeologically significant. There is therefore no potential for detailed spatial analysis, use-wear analysis or refitting of the scatters to address the Fieldwork Event Aims.

2.2 Assessment of the Stone

by Ruth Shaffrey

Introduction and Methodology

2.2.1 Five fragments of sandstone and ironstone were recovered during the excavations at East of Station Road. These were all unworked though one fragment from context 6007 was burnt. All retained stone was examined.

Quantification, Provenance and Conservation

2.2.2 Five pieces of stone were recovered during the excavations. These are described in the Table 13-Table 14 below. All five fragments were unworked though one fragment from context 6007 was burnt (Table 13). All the stone would have been available locally. The stone was found in various contexts: in the channel deposits (6007), in ditch fills (7034 and 1710) and unstratified (1300). No conservation is required. All the stone could be discarded.

Potential for Further Work

2.2.3 No further work is recommended.

Table 9: East of Station Road: summary of worked flint

Context	Count	Period	Comments
600	48	-	32 flakes, 2 core rejuvenation flakes (1 tablet, 1 face/edge), 5 cores (2 discoidal flake, 1 opposed platform flake, 1 single platform flake, 1 tested nodule – poss natural), 9 retouched (4 scrapers – 3 end and side, one is reworked and 1 end scraper on a blade-like blank, 5 retouched flakes – 1 on Bullhead flint, mostly minimally retouched). Later Neolithic?
1010	1	LIA-ER	1 flake,
1021	1	LIA-ER	1 ?chisel or pick very worn and irregularly flaked, with some later damage. Mesolithic?
1100	2	-	1 flake, 1 ?unfinished arrowhead, possibly a leaf-shaped. Neolithic or Bronze Age?
1104	5	-	3 flakes, 1 retouched flake – probably use rather than formal retouch, 1 multi-platform flake core
1116	1	LIA-ER	1 small flake, Bullhead flint
1118	3	LIA-ER	2 flakes – 1 is burnt, 1 blade-like flake
1207	2	LIA-ER	Flakes – 1 is burnt, also 2 natural
1215	2	LIA-ER	2 flakes – 1 is burnt, the other flake may be natural, also 2 natural
1300	7	-	5 flakes – 1 is burnt, 2 used or very finely serrated flakes – on blade-like blanks
1312	1	LIA-ER	1 flake
1314	2	LIA-ER	2 flakes, 1 is Bullhead flint, also 1 natural
1318	1	LIA-ER	Miscellaneous retouch, minimally retouched flake
1319	-	LIA-ER	1 natural
1325	2	LIA-ER	2 flakes
1327	1	LIA-ER	1 flake
1330	2	LIA-ER	2 flakes
1338	1	LIA-ER	1 flake
1353	1	LIA-ER	1?flake, possibly natural
1360	2	LIA-ER	2 flakes
1369	1	LIA-ER	1 flake
1386	1	LIA-ER	1 end and side scraper, steeply worked
1613	2	-	2 flakes, one possibly natural
1620	1	Modern	1 flake possible soft-hammer struck
1624	1	LIA-ER	1 flake
1706	1	LIA-ER	1 flake

1708	2	LIA-ER	1 flake, 1 misc retouched flake
1710	1	LIA-ER	1 flake, 2 natural
1714	2	-	2 flakes
1716	4	LIA-ER	1 flake, 1 possible core rejuvenation flake (face/edge), 1 retouched blade, 1 retouched flake
1725	-	LIA-ER?	Natural
6004	2	LIA-ER	2 flakes, 1 of which is burnt
6007	1	-	1 flake
6010		LIA-ER	1 end and side scraper, neatly worked. Neolithic or early Bronze Age?
6020	2	LIA-ER	1 end and side scraper, 1 flake. Neolithic or early Bronze Age?
6028	-	LIA-ER	1 natural
6030	1	LIA-ER	1 flake
7008	1	LIA-ER	1 flake
7025	1	LIA-ER	1 flake
7034	1	LIA-ER	1 flake
7036	7	-	4 flakes, 3 cores (1 single platform flake, 1 multi-platform flake, 1 keeled flake). Neolithic ?perhaps later
8000	1	-	1 flake
8013	1	LIA-ER	1 flake
9010	1	LIA-ER	1 flake
U/S	8	Post-medieval	7 flakes, 1 ?gun flint (slightly atypical).

Table 10: Church Lane: summary of worked flint

Context	Count	Period	Comments
U/S	30	-	1 chip, 1 end and side scraper, with some later damage, 2 misc retouch (1 may be a scraper/knife fragment), 1 core tablet, 1 possible core rejuvenation flake (face/edge), 23 flakes (3 of which are burnt), 1 minimally retouched flake, also 3 natural. Neolithic–Bronze Age
500	499	-	442 flakes (28 of which are burnt, 1 truncated, 2 blade-like), 2 core tablets, 8 cores (6 multi-platform flake, two of which is heavily burnt, 1 single platform flake), 13 chips (1 is burnt), 5 core fragments (flake cores), 2 knives (one with invasive retouch), 1 notch, 8 retouched flakes, 4 end scrapers (one on a thick Bullhead flake), 2 end and side scrapers, 2 worn scrapers, 2 denticulated scrapers, 2 piercers (with a long well retouched point), 1 microlith fragment, 4 misc retouch (1 is burnt, 1 ? arrowhead roughout, 2 misc retouched flake), 1 denticulate, also 21 natural. Mesolithic, Neolithic-Bronze Age
501	1	-	1 chip
502	84	-	73 flakes (6 of which are burnt), 4 chips, 1 core (multi-platform flake), 1 end scraper, 1 microlith (obliquely blunted point?), 1 piercer, 3 retouched flakes, also 2 natural
506	6	Med	5 flakes (some of these flakes may be natural), 1 burnt chip, also 2 natural
507	2	Med	2 flakes
509	10	LBA	1 core (small multi-platform flake), 9 flakes (6 of which are heavily burnt), also 1 natural
513	3	LBA	3 flakes
515	5	LBA?	3 flakes, 2 cores (multi-platform flake, one is very cherty flint)
525	55	-	43 flakes (2 of which are burnt), 2 chips, 2 core fragments, 2 cores (1 discoidal flake, 1 single platform flake), 1 arrowhead fragment, 1 scraper, 1 fabricator. Neolithic to early Bronze Age
526	1	-	1 flake
527	78	-	59 flakes (6 burnt), 10 cores (1 single platform flake, 7 multi-platform flake, 2 discoidal flake), 3 core fragments, 1 retouched blade (much later damage), 1 misc retouch, 1 end scraper with worn edge, 3 end and side scrapers, also 1 natural and 1 piece of

			pot. ?Neolithic (probably later)
528	3	-	2 flakes, 1 chip
532	1	-	1 core (multi-platform flake)

Table 11:East of Station Road: summary of burnt flint

Context	Count	Weight (g)	Comments
1314	2	8	2 burnt unworked flints calcined red
1351	3	38	3 burnt unworked flints calcined red
1363	2	9	2 burnt unworked flints calcined grey
1617	1	6	1 burnt unworked flints calcined grey
1620	1	2	1 burnt unworked flint calcined red

Table 12: Church Lane: summary of burnt flint

Context	Count	Weight (g)	Comments
U/S	2	17	2 burnt unworked flint calcined grey
500	56	533	56 burnt unworked flint heavily calcined grey
501	9	93	9 burnt unworked flint calcined grey
502	1	1	1 burnt unworked flint calcined grey
506	1	1	1 burnt unworked flint calcined grey
509	2	1	2 burnt unworked flint calcined grey
511	1	30	1 burnt unworked flint calcined grey
525	3	22	3 burnt unworked flint calcined grey
528	2	1	2 burnt unworked flints calcined red

Table 13: East of Station Road: summary of burnt stone

Context	Count	Material	Comments
6007	1	Sandstone	Burnt sub angular fragment

Table 14: East of Station Road: summary of stone

Context	Count	Material	Comments
1300	2	Ironstone	Fragments
7034	1	Cherty cream Greensand	Angular small fragment
1710	1	Ironstone	Small chunk

APPENDIX 3 - METALWORK

3.1 Assessment of the Metalwork

by Valerie Diez

Introduction and Methodology

3.1.1 A total of six metal objects were recovered from the East of Station Road excavations. Most of these, including a horse brass and a penny of 1896, were unstratified and clearly of very recent date. However, a Colchester type brooch, probably dating from the 1st century AD, as well as a large nail, were found in the fills of two ditches (7020 and 1011). All of the objects have been x-rayed and examined visually.

Quantification

3.1.2 The metal artefacts are summarised in Table 15.

3.1.3 The copper alloy brooch is a Colchester Type 4 brooch (Hattatt 1982) dating probably to the 1st century AD, as its context suggests. The x-rays indicate that it has a separate two-piece spring held in place by an axis bar and a hook over the chord at the back of the head. The bow is D-sectioned and has a median rib. The foot, catchplate and pin are missing. It was found in the single fill of ditch 7020.

3.1.4 The only other find in a secure context was a large iron nail found in the fill of ditch 1011.

3.1.5 The remaining items were found unstratified and are probably all of very recent date. They consist of a penny on which the date 1896 can be seen, a square metal sheet with hooks at each corner which is probably a horse brass, a further fragment of metal sheet and an unidentified fragment.

Conservation

3.1.6 The metalwork requires no further conservation. The recent unstratified pieces may be discarded.

Potential for Further Work

3.1.7 The two pieces, the brooch and nail, from secure archaeological contexts are probably both stray losses and thus do not contribute greatly to the interpretation of the site, although the brooch has some chronological importance. No further work is recommended.

Table 15: East of Station Road: summary of metalwork

Context	Special number	Material	Count	Period	Comments (description)
495		Fe	1	PM/MO?	Unidentified
600	SF 2000	Cu	1	1896	Coin (penny)
600	SF 2027	Cu	1	PM/MO	Horse Brass
600	SF 2028	Cu	1	PM/MO?	Fragment of metal sheet
1010	SF 3	Fe	1	LIA-RO	Large nail
7034	SF 2	Cu	1	1st C AD	Colchester type 4 brooch

APPENDIX 4 - SLAG

4.1 Assessment of the Fuel Ash Slag

by L. Keys and Chris Hayden

4.1.1 A small quantity of fuel ash slag weighing in total 3 g was recovered from the East of Station Road site, from the upper fill of a late Iron Age-early Roman ditch (7020) in trench 7 and from the upper fill of a natural gully (6006) in trench 6 which also contains late Iron Age-early Roman pottery (Table 16). Fuel ash slag is produced by a high temperature reaction between alkaline fuel ash and siliceous material such as clay or the natural ground surface. It may be produced by a large range of activities such as the burning down of a hut, cremation, pottery firing amongst other activities involving high temperatures, and is thus not diagnostic of any particular activity. The small quantities found in these features are, in any case, likely to derive from marling and thus could derive from activity conducted elsewhere. The slag requires no special conservation but since it contributes little to the interpretation of the site or to the CTRL research aims it need not be retained. This material is significant only as evidence for marling and no further work is recommended.

Table 16: East of Station Road: summary of fuel ash slag

Context	Material	Weight (g)	Period	Comments
6004	fuel ash slag	1	LIA-RO	derives from marling?
7002	fuel ash slag	2	LIA-RO	derives from marling?

APPENDIX 5 - ANIMAL REMAINS

5.1 Assessment of the Animal Bones

by Bethan Charles

Introduction

5.1.1 Seventy-four fragments of bone (1103 g) were recovered from East of Station Road in an attempt to cast light on the pastoral economy of the site in the late Iron Age-early Roman period. Of this number 95% was identified to species. However, only one sheep tibia was from a feature that could be phased.

Methodology

5.1.2 The assemblage was recorded through the use of a simple recording sheet. This enabled a quick calculation of totals to be made along with a rough estimation of the number of individuals in each context. All fragments of bone were counted including elements from the vertebral centrum, ribs and long bone shafts. Ageing through measuring the rate of epiphyseal fusion of the bones was done using Silver's (1969) tables.

Quantification and Provenance

5.1.3 Cattle bones were the most numerous fragments recovered from the site (Table 17). However, nearly all were from the partially articulated cattle skeleton found in context 1725, one of the fills of the palaeochannel. A single sheep tibia was found in a natural gully (6006).

5.1.4 All of the fragments recovered from the site excluding the burnt sheep tibia and the partially articulated cattle remains were teeth. It is possible that the cattle bones were carefully deposited and were not as badly affected by the erosive quality of the soil. However, the cattle bones did have some attritional damage and it is likely that any signs of butchery or gnaw marks have been obscured.

Potential for Further Work

5.1.5 The small number of bones from this site do not furnish much information regarding the economy of the site. It is possible that the partial cattle skeleton may be part of a special deposit although it may also be butchery waste. It is not recommended that further work be carried out on this assemblage.

Bibliography

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Table 17: East of Station Road: Summary of identified animal bone

Context	**Interpretation**	**Period**	**% of identified fragments**		**Count**	**Weight (g)**
			Cattle	Sheep		
1358	Ditch	LIA-ER	100	-	3	5
1725	Deep trench	LIA-ER	100	-	30	1075
6004	Ditch	LIA-ER	-	100	1	6
6012	Ditch	LIA-ER	100	-	1	7

APPENDIX 6 - MACROSCOPIC PLANT REMAINS AND CHARCOAL

6.1 Assessment of the Charred Plant Remains

by Ruth Pelling

Introduction

6.1.1 Samples were recovered during excavation works at East of Station Road for the recovery of charred plant remains and charcoal. A total of 18 samples were processed by flotation in a modified Siraf-type machine. The flots were collected onto a 250 μm mesh and allowed to air dry slowly. The samples were taken from ditch fills, pit fills and a tree-throw hole with the intention of examining the economy of the site and its interaction with the local environment. The deposits are of late Iron Age - early Roman date.

Methodology

6.1.2 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

6.1.3 Of the 18 samples assessed six contained charred remains other than charcoal (Table 18). Cereal grain was infrequent, present in only four samples, and always less than 50 items (usually less than 10). Chaff was more commonly present, recorded in five samples. Three samples contained quite useful quantities, with 51 to 100 items. Weeds were noted in three samples, again in low numbers. In addition a single monocotyledon rhizome was noted in sample 22 from burnt pit 1345.

6.1.4 The cereal species noted were dominated by *Triticum spelta* (spelt wheat), with *Hordeum vulgare* (barley) grain noted in sample 1. The weeds noted included *Montia fontana* (blinks), *Rumex* sp. (docks) and *Tripleurospermum inodorum* (scentless mayweed), all presumably occurring as weeds of the arable crop.

6.1.5 Charcoal was present in 13 samples and in abundant quantities in six samples. *Quercus* sp. (oak) dominated the assemblages, while Pomoideae (apple, pear, hawthorn etc.) was the only other taxon noted. Much of the charcoal was poorly preserved and presented difficulties for identification due to the presence of iron deposits.

Provenance

6.1.6 The remains are typical of cereal processing waste, with few grains but frequent glume bases and some weeds. It is likely that the waste has been reused in fires as fuel and then discarded as refuse. The chaff rich samples all came from ditch fills. The samples from burnt pits 1349 and 1361 (samples 21, 22 and 23) were rich in charcoal but produced few cereal remains.

Conservation

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

Comparative Material

6.1.8 *Hordeum vulgare* and *Triticum spelta* have been recorded from other contemporary sites within the CTRL project (for example Thurnham Villa, Waterloo Connection and Hockers Lane). They are the principal cereals recorded throughout southern Britain at this time, for example in the Danebury Environs area (Campbell, 2000). Some of the richer deposits from Thurnham Villa and Hockers Lane have also produced emmer wheat and oats, which have not been recorded a the East of Station Road site. It will be important for addressing the fieldwork aims to establish how important these crops were and at what date, and equally to establish when they are absent.

Potential for Further Work

6.1.9 While the concentration of remains in the deposits are not comparable in terms of scale to those of the larger sites, such as Thurnham Villa, they do provide additional information which within the context of the CTRL project as a whole is very important. Prior to the CTRL work knowledge of the agricultural activities of the area in the Iron Age and Romano-British periods was very limited indeed. There is now the opportunity to conduct an informative landscape study, within which the smaller sites, such as this one, will add useful additional information for the study of past agricultural regimes and change in cereal production and exploitation of the landscape over time. It would be of value for addressing Fieldwork Event Aims 2 and 3 to produce an extensive dataset so as to track the occurrences or absences of the poorly understood crops such as emmer wheat, oats and the pulses. It is therefore recommended that in order to produce a worthwhile data-set, the three samples (3, 19 and 20) which produced large quantities of chaff are examined in detail.

Bibliography

Campbell, G, 2000 , Plant utilization: the evidence from charred plant remains, in B Cunliffe, *The Danebury Environs Program: the prehistory of a Wessex landscape* **1**, Oxford, 45-59

6.2 Assessment of the Waterlogged Plant Remains

by Ruth Pelling

Introduction

6.2.1 Samples of waterlogged deposit were taken from the fills of the palaeochannel in trench 17 at East of Station Road for the recovery of plant, molluscan and insect remains. One of the fills, context 1726, from which samples 16-18 were taken, produced occasional sherds of late Iron Age – early Roman pottery. The purpose of the sampling was to provide information on the local and wider environment of the area in the period in which the later Iron Age-early Roman site adjacent was occupied. Bulk samples were taken in the field and kept wet in sealed bags and plastic boxes. Sub-samples were submitted for the assessment of waterlogged plant remains.

Methodology

6.2.2 A sub-sample from each waterlogged deposit sampled was submitted for assessment. Sub-samples of 200 g were processed by a simple wash over technique and collected onto a 250 μm mesh. This will not provide an exhaustive species list but should provide sufficient material to assess the presence or absence of waterlogged material, the quality of preservation, the density of any remains and an indication of the range of species or types of material present.

6.2.3 Each flot was then washed through a stack of sieves ranging from 2 mm to 250 μm mesh size. Each fraction to 500 μm was scanned, while still wet, under a binocular microscope at x10 to x20 magnification. Provisional identifications and an approximation of abundance on a three point scale (+ = present, ++ = some; +++ = many) were made.

Quantification

Five samples from two deep deposits within the palaeochannel (contexts 1725 and 1726) were assessed. The samples from context 1726 are believed to be of late Iron-Age - early Roman date. A summary of the material noted in each sample is shown in Table 19.

6.2.4 Table 20 shows the plant species noted in each sample.

6.2.5 The two upper deposits, samples 14 and 15 from context 1725, produced abundant fragments of poorly preserved wood. Generally the wood was not easily identifiable, although it was recognised as non-*Quercus* (non-oak). Some possible Pomoideae (apple/hawthorn etc) was recorded in sample 15. Few seeds were noted with the exception of occasional *Corylus avellana* (hazel) nut shell fragments, *Sambucus nigra* (elder), *Urtica dioica* (stinging nettle) and a *Cratagegus monogyna* (hawthorn) stone, all of which suggest scrub-land type vegetation with some nitrogen loving ruderal species. Occasional seeds of *Apium nodiflorum* (foll's watercress), may have been growing on the edges of the channel.

6.2.6 The samples taken from context 1726 (samples 16, 17 and 18) produced a greater ranged of plant remains. Samples 16 and 17 particularly produced a good range of plant remains and also several insect fragments. The upper of the three samples, 17, produced a flora which suggests damp or wet grassland (*Ranunculas acris/repens/bulbosus*, *Lychnis flos-cuculi*, *Rumex conglomeratus*), with occasional *Salix* sp. (willow) and perhaps a scrubby background suggested by *Prunus spinosa* (sloe) and some ruderal habitats. Some wet ground or marshy species which were presumably growing on the banks of the channel or within the muddy sub-strata of the channel itself include *Apium nodiflorum*, *Lycopus europeaus* (gipsywort) and *Sparganium erectum* (branched bur-reed). A large number of leaf fragments and some bud-scales were also present in this sample. Sample 18 produced a more restricted range of species which included plants likely to be growing along the edge of the channel (*Apium graveolens* and *Polygonum persicaria/lapathifolium*) and a possible ruderal element (*Fumaria* sp., *Atriplex* sp. and *Rumex* sp.). A single charred glume base of *Triticum spelta/dicoccum* (spelt/emmer wheat) was also recovered from sample 18, an appropriate cereal for the late Iron Age or Early Roman period. The lower of the three samples again produced a more varied species list. Again there was a range of plants which suggest damp, or even quite wet, ground alongside the river (*Montia fontana* subsp. *chondrosperma*, *Conium maculatum*, *Apium nodiflorum* and *Polygonum persicaria/lapathifolium*), with *Alisma plantgo-aquatica* and *Sparganium erectum* perhaps within the channel itself. There appears to be much reduced grassland element, although *Leontondon* sp. was identified. There is possibly a greater arable or ruderal component represented by this lowest sample, with *Brassica/sinapis* sp., *Galeopsis* sp., *Chenopodium album*, *Rumex* sp., *Valerianella dentata*.

Provenance

6.2.7 The three more productive samples are from a peaty layer thought to be of late Iron Age to early Roman date and so are probably more or less contemporary with the adjacent site. The remains present within the samples are likely to have derived from wind blown species growing within the vicinity and some plants growing within the channel or its edge which have dropped their seeds into the water. There is no evidence of deliberately dumped deposits within the samples. The lower deposits seem to suggest a predominantly grassland type habitat while the upper deposit produced samples containing mostly wood fragments, perhaps deriving from a single tree.

Conservation

6.2.8 If the samples are to be stored for any length of time before analysis it is recommended that they are refrigerated or kept in a cold store. They can be kept in such an environment for some time as either unprocessed deposit or processed flot.

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Comparative Material

6.2.9 Few waterlogged deposits of the Late Iron Age or Early Roman period have been examined from the CTRL corridor. Deposits from a well at Thurnham Villa have the potential to shed light on the environment in the late Roman period at the time of the abandonment of the villa. The present set of samples should provide some information about the local environment earlier on in the Roman period.

Potential for Further Work

6.2.10 Good waterlogged well deposits can provide very useful data not available if only charred remains are recovered. Such remains might include the identification of leafy plants or seeds of foods which normally do not survive, as well as habitat information about the microenvironment of the feature and the environment of the wider area. The preservation of the material from the palaeochannel deposits is good. The samples offer the potential to examine aspects of the surrounding environment of the East of Station Road site at the time of use of the adjacent site. It is recommended that if the dating is confirmed sub-samples of 0.5 to 1 kg of samples 16-18 are examined in detail for their plant macrofossils, in order to address the Fieldwork Event Aims. Particular aims will be to define the environment and economy of the site and the position and interaction of the site with the local environment.

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Table 18: East of Station Road: summary of the charred plant remains

Context	Feature	Period	Sample No	Sample Vol (l)	Flot size (ml)	Grain	Chaff	Weed seeds	Charcoal	Notes
1318	Ditch 1319	LIA-RO	4	10	50				+	uncharred root? Wood
1320	drainage ditch	LIA-RO	5	7	10		+			
1215	Ditch 1341	LIA-RO	6	10	10					roots/ modern weeds
1217	Ditch 1218	LIA-RO	7	7	10					Roots
1314	Ditch 1315	LIA-RO	3	10	10				++	
1307	Ditch 1326	LIA-RO	2	11	10	+	+++			
1706	Ditch 1707	LIA-RO	8	4	20				+++	
1712	Ditch 1713	LIA-RO	9	4	100				+++	
1708	Ditch 1707	LIA-RO	10	10	50				+++	
6008	gully 6009	LIA-RO	1	10	10	+			++	
1714	layer	LIA-RO	11	6	10				++	
1715	1716	LIA-RO	12	6	50				+++	
1614	Ditch 1615	LIA-RO	13	18	10				++	
1330	Ditch 1331	LIA-RO	19	10	20	++	+++	++	++	
1345	Ditch 1358	LIA-RO	20	10	20	+	+++	+		Roots
1350	burnt pit 1349	LIA-RO	21	10	20				+	Roots
1351	burnt pit 1349	LIA-RO	22	10	30		+	+	+++	Rhizome
1363	burnt pit 1361	LIA-RO	23	4	200				++++	

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

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Table 19: East of Station Road: summary of waterlogged plant remains

Sample	Context	Weight assessed (g)	Total waterlogged	Total charred	Id-charred	Seeds/ fruits	Wood	Leaf/Bud	Molluscs	Insects	Notes
14	1725	200	+++	-	-	+	+++	-	-	+	
15	1725	200	+++	-	-	+	+++	+	-	+	Scrub, ruderal
16	1726	200	+++	-	-	+++	-	-	++	+	Wet, ruderal, grass
17	1726	200	+++	+	Medick T.sp. glume	+++	-	+++	-	+++	scrub, ruderal, grass
18	1726	200	++	-	-	++	+	+	-	+	Ruderal

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

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Table 20: East of Station Road: summary of species of waterlogged plants identified (seed/nutlet etc. recorded unless otherwise stated)

	Sample	14	15	16	17	18
	Context	1725	1725	1726	1726	1726
Species	**Weight (g)**	200	200	200	200	200
Ranunculus acris/repens/bulbosus	Buttercup	-	-	-	+	-
Fumaria sp.	Fumitory	-	-	-	-	+
Brassica/Sinapis sp.	Turnip/ Mustard etc	-	-	+	-	-
Lychnis flos-cuculi	Ragged robin	-	+	-	+	-
Stellaria media agg.	Chickweed	-	-	-	+	-
Montia fontana subsp *chondrosperma*	Blinks	-	-	+	-	-
Chenopodium album	Fat hen	-	-	+	+	-
Chenopodium sp.		-	-	-	+	-
Atriplex sp.	Orache	-	-	-	-	+
Prunus spinosa	Sloe, fruit stone	-	-	-	+	-
cf. *Crataegus monogyna*	Hawthorn, fruit stone	-	+	-	-	-
Conium maculatum	Hemlock	-	-	+	-	-
Apium nodiflorum	Fool's watercress	-	+	+	+	+
Polygonum persicaria/lapathifolium	Red shank/persicaria,	-	-	+	-	+
Rumex conglomeratus	Sharp dock	-	-	-	+	-
Rumex sp.	Docks	-	-	+	+	+
Urtica dioica	Stinging/Common nettle	-	+	-	-	-
Corylus avellana	Hazel nut shell frag.	+	-	-	-	-
Salix sp.	Willow bud	-	-	-	+	-
Solanum sp,	Nightshade	-	-	+	+	-
cf. *Anagalis* sp.	Pimpernel	-	-	-	+	-
Labiatae	Labiate, small seeded	-	-	+	-	-
Lycopus europaeus	Gipsywort	-	-	-	+	-
Galeopsis sp.	Hemp-nettle	-	-	+	-	-
Sambucus nigra	Elder	+	-	-	-	-
Valerianella dentata	Narrow fruited cornsalad	-	-	+	-	-
Carduus/Cirsium sp.	Thistle	-	-	-	+	-
Leontodon sp.	Hawkbit	-	-	+	-	-
Alisma plantago-aquatica	Water plantain	-	-	+	-	-
Sparganium erectum	Branched bur-reed	-	-	+	+	-
Carex sp.	Sedge	-	+	-	-	-
cf. Pomoideae	Hawthorn/Apple etc wood	-	+++	-	-	-
Non-*Quercus* sp.	Non-oak wood	+++	-	-	-	-
Indet	Bud scales	-	+	-	-	-
Indet	Leaf frags	-	-	-	+++	-
Charred Remains						
Triticum spelta/dicoccum	Spelt/Emmer wheat glume	-	-	-	-	+
Medicago/Trifolium sp.	Medick/Clover	-	-	-	-	+

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

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APPENDIX 7 - POLLEN

7.1 Assessment of the Pollen

by Robert G Scaife

Introduction

7.1.1 Machine trenching at the East of Station Road site revealed a palaeochannel containing layers of organic material, minerogenic sediments and a branch from an oak tree (Figure 5). Environmental samples were taken from this profile including 3 monoliths for pollen analysis. This pollen assessment was carried out to ascertain if sub-fossil pollen and spores are present in the sediments and the potential of the profiles for reconstruction of local vegetation environment and land use in the Iron Age and Romano-British period. Pollen analysis has been carried out on two of the three monolith profiles. Pollen has been successfully recovered and preliminary pollen diagrams constructed. Assessment data are presented here.

Methodology

7.1.2 The open sections were sampled using plastic monoliths. Sub-samples were taken at an interval of 80 mm and 160 mm in the laboratory at the same time as the sediments were described. Samples of 2 ml volume were prepared using standard procedures for the extraction of sub-fossil pollen and spores outlined in Moore and Webb (1978) and Moore *et al.* (1991). Fuller details are given at the end of this Appendix. Absolute pollen frequencies were calculated using an added exotic/spike (Stockmarr 1971, *Lycopodium* tablets) to the known volumes of sample. Pollen counts of generally 100-150 grains per level (the pollen sum) were made where possible plus pollen of all extant marsh taxa and spores of ferns. Data obtained are presented in standard pollen diagram form (Figures 6 and 7) with percentages calculated as follows:

- Sum = % total dry land pollen (tdlp)
- Marsh/aquatic = % tdlp+sum of marsh/aquatics
- Spores = % tdlp+sum of spores
- Misc = % tdlp+sum of misc. taxa.

7.1.3 Taxonomy in general follows that of Moore and Webb (1978) modified according to Bennett *et al.* (1994) for pollen types and Stace (1992) for plant descriptions.

Quantification

Column 1

7.1.4 This is the upper of the two profiles examined and spans contexts 1723, 1724 and 1725. Pollen column 2 from context 1725 (not examined here) is represented within this column.

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The Stratigraphy

Depth mm

- 0-280 - Buff coloured clay with brown mottling. 10YR 6/4 and 10YR 5/6 to 10YR 5/8.
- 280-510 - Homogeneous, fine silt-clay. Buff coloured 10YR 5/2.
- 510-580 - Transition with occasional black organic inclusions.
- 580-670 - Black organic/humic material.
- 670-860 - Grey/Brown silt. 10YR 4/2 - 10YR 4/6
- 860-910 - Black, organic/peat. Fibrous/fragmentary.
- 910-1000 - Sandy silt. yellowish 10YR 5/6 or 10YR 5/8.

The Pollen Data

7.1.5 Three local pollen assemblage zones are recognised in the 880 mm of this profile. These are characterised as follows.

7.1.6 **Zone 1: 880 mm - 840 mm.** ***Alnus***. Absolute pollen frequencies in this basal level/zone are 62,047 grains/ml. Although only a single sample, this zone is delimited by markedly higher values of *Alnus* than in subsequent zones (76%). This corresponds with organic/peat material contrasting with largely minerogenic sediments in overlying levels. Other trees include small numbers of *Quercus* (8%), *Fraxinus* and *Corylus* type (5%). There are few herbs with Poaceae (9%) being most important.

7.1.7 **Zone 2: 840 mm - 320 mm.** ***Quercus-Alnus-Corylus*** **type-Poaceae**. Absolute pollen frequencies values range from 32,000 to 97,000 grains/ml. This zone is characterised by *Quercus* (28%), *Alnus* (av. 5%) and *Corylus* type (20%). There are also *Betula, Pinus, Fraxinus* and *Fagus* all of which occur sporadically. *Corylus* type is the dominant shrub (15%). There is an expansion of herbs from zone 1 with Poaceae dominant (to 35%). Cereal type is present. Spores comprise *Pteridium aquilinum* (28%), *Dryopteris* type and *Polypodium*.

7.1.8 **Zone 3: 320 mm - 80 mm**. Absolute pollen frequencies values decline to 19,482 grains/ml. This zone is characterised by a reduction in numbers and diversity of tree pollen. *Alnus* (15%) and *Corylus* type (20%) remain the most important tree and shrubs. Herbs expand. Poaceae expands to 40%. Cereal pollen has highest values (5%). Spores of ferns remain consistent with *Pteridium aquilinum* (declining to 10%). *Sphagnum* is present.

Vegetation Interpretation

7.1.9 **Woodland**: The lowest organic unit lying between 910 mm and 860 mm contains substantial pollen values of *Alnus* (alder) zone 1. It is thus likely that this peat formed under alder woodland (carr) which was growing in the wetter valley bottom or palaeochannel. Subsequently, values are reduced but remain in sufficient quantity to suggest that this community remained within the region. Of the other tree pollen, *Quercus* (oak) is the most important type with *Corylus* (hazel). These were probably the main elements of local and regional woodland vegetation growing in a range of habitats. *Tilia* (lime/linden), *Fraxinus* (ash) and *Fagus* (beech) are all present in zones 1 and 2. These are all poorly represented in pollen assemblages (Andersen 1970,1973) and as such these occurrences may imply some local growth. In zone 3

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there is a reduction in tree pollen although *Corylus* remains. This may be a 'real' decline in woodland or may be due to changing taphonomy as evidenced by changes in the stratigraphy.

7.1.10 This column (1) lies higher in the stratigraphy/section than column 3, the latter extending down into the underlying bedrock. Column 3 shows a predominately herbaceous environment which therefore suggests that the alder (and other woodland) discussed above may be woodland recolonisation.

7.1.11 **Herbs**: The relatively small values of trees and shrubs and the importance of herbs dominated by Poaceae but with evidence of cereals and associated weeds (eg *Persicaria* and *Fallopia*) are strong evidence of the local arable and pastoral agriculture. The presence of bracken (*Pteridium aquilinum*) suggests waste/abandoned ground or rough pasture.

7.1.12 **Marsh/Wetland**: There is limited representation of wetland types which may have formed the autochthonous marsh community. *Alnus* noted above present in the basal wood peat is the exception. Subsequently, Cyperaceae (sedges) and occasional *Typha/Sparganium* (reed-mace and bur reed) are the only indicators.

Column 3

7.1.13 This is the lower of the two pollen monoliths examined and as such predates column 1. The profile spans contexts 1726, 1727, 1730 and 1731.

The Stratigraphy

Depth mm

- 0-140 - Grey silt 10YR 4/1
- 140-400 - Orange/grey fine sand/silt with organic specks.
- 400-620 - Coarser sand containing molluscs 10YR 4/4 or 10YR 4/6
- 620-660 - Stone horizon.
- 660-750 - Grey silt 10YR 5/1 to 10YR 4/1.

The Pollen Data

7.1.14 The 0.56 m of Section 3 examined for pollen has been divided into 2 local pollen assemblage zones. These are characterised from the bottom of the diagram at 560 mm as follows.

7.1.15 **Zone 1: 560 mm - 360 mm. Poaceae-cereal type-*Plantago lanceolata*.** Absolute pollen frequencies range from 13,000 grains/ml at the base to 32,600 grains/ml. This zone has been defined tentatively by the higher values of cereal type and *Plantago lanceolata* pollen (to 6% and 20% respectively). Overall, tree and shrub pollen is sparse (10% and 5% respectively) with only small numbers of *Quercus* (4%) and *Alnus* (9%) present consistently. Herbs are dominant with Poaceae most important (to 67%). *Plantago lanceolata* and cereal, as noted, have higher values. There is also a moderately diverse range of other herb types including Brassicaceae, Chenopodiaceae, *Polygonaceae* and Asteraceae types. Marsh/wetland types include Cyperaceae (<5%) and *Typha angustifolia/Sparganium* type (to 20%). Spores are relatively important with *Pteridium aquilinum* (20%) and *Dryopteris* type (monolete) (11%) at base of the profile.

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7.1.16 **Zone 2: 360 mm - 0 mm. Poaceae-Lactucoideae-*Pteridium aquilinum***. Absolute pollen frequency values range from 61,000 to 15,000 grains/ml. This zone is delimited by some reduction of cereal type and *Plantago lanceolata* from zone 1 and an expansion of *Pteridium aquilinum*. Tree and shrub pollen values remain small with a possible decrease in *Quercus*. Herbs remain dominated by Poaceae (to 60%) with *Plantago lanceolata* (peaks to 10%) and Lactucoideae (12%). There is an increase in Apiaceae types and Asteraceae types (*Anthemis* type, *Bidens* type, Aster type, *Centaurea nigra* type.). *Pteridium aquilinum* is the principal spore peaking to 30%.

Vegetation Interpretation

7.1.17 Compared with Column 1, there are substantially fewer trees and shrubs with *Quercus* at levels suggesting regional long distant input or sporadic local growth. It should also be noted that the dominance of grasses here, if growing on/very near the sample site, may have had a statistical depressing effect on elements such as the arboreal pollen coming from further afield. Herbs are dominant with a strong representation of grasses (Poaceae) and other pasture types (eg *Plantago lanceolata*). Arable types are also present including cereal type and weeds which were possibly associated with disturbed ground and cultivation.

Comparative Material and Potential for Further Work

7.1.18 This study has demonstrated that pollen is preserved in the peat and minerogenic sediments filling this valley bottom. Thus, there is the potential for reconstructing further the local vegetation and environment of the site and adjacent interfluves on which prehistoric and later woodland clearance and agriculture activity took place.

7.1.19 Some indication of dating has been given by the presence of pottery in the colluvial sediments overlying these valley fills. Although pollen is not a dating medium, there are certain indications that the sediments analysed are in fact of very late prehistoric age. This argument is based on the rather small values of trees and shrubs which had presumably been cleared at an earlier date. Most importantly, there is very little pollen of *Tilia* (lime/lindens). It is now accepted that *Tilia* formed the dominant or at least co-dominant tree over much of Southern and Eastern England prior to its clearance - the often seen 'lime decline' in pollen diagrams. Whilst this latter phenomenon was diachronous, there is also a wealth of information demonstrating that lime woodland was cleared during the middle and late Bronze Age. This would fit well with the suggested date of this valley sediment sequence as indicated by the archaeology/artefacts.

7.1.20 The pollen profiles thus have the potential for reconstructing in more detail the local landscape/environment of the Iron Age-Roman period for which there is the evidence of fields, field boundaries, pits and gullies etc. This addresses Landscape Zone Priority 1 and Fieldwork Event Aims 2, 4 and 5 for the sites, which are set out in section 2 of the main document, above.

7.1.21 This assessment has demonstrated that pollen is preserved and it is suggested from the character of the pollen assemblages that the sequences may be contemporary with the field system at East of Station Road. Consequently, further and more detailed analysis of these profiles offers the potential for studying local environment and land use history related to the archaeology. It should also be considered that there are few pollen data from this region of the country compared with the north where there are substantially more pollen preserving environments. Furthermore, there is also a paucity of pollen data as a whole which can be related accurately to the late prehistoric and early historic period. The following are suggested.

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- Adopt a closer pollen sampling interval of 40 mm.
- Adopt a standard pollen sum of 400 or more grains per level where preservation makes this possible.
- Radiocarbon dating of the profiles would be desirable to confirm that the sequence is contemporary with the local archaeology.

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APPENDIX 8 - WOOD

8.1 Assessment of the Wood

by Nick Mitchell

Introduction

8.1.1 A single piece of wood was recovered from palaeochannel deposits sampled in trench 17 of the East of Station Road site. The circumstances of its deposition are considered below since it has bearing upon the interpretation of the sample submitted for radiocarbon dating. The purpose of recovering the piece of wood was to provide dating evidence for the sequence of palaeochannel deposits from which environmental samples had been taken.

Methodology

8.1.2 The wood was unwrapped and cleaned and a full record was made since there is nothing to be gained by revisiting the material at the full analysis stage.

Quantification

8.1.3 A single piece of oak, 0.78 m long with a diameter of 0.37 m, was recovered from palaeochannel deposits 1730/1731 (

8.1.4 Table 21). It is broken at one end at a branch-point and is itself most likely to be a branch. It is possible that the branch has a small part of a worked surface at the branch-point, where it may have been lopped. However, with the wood in such poor condition it is not possible to tell if this is a genuine worked surface and it is most likely that it is not worked.

Provenance

8.1.5 Considering its position, upright within natural silt 1731, it is probable that this branch is the remnant of a tree growing on the adjacent river bank which fell, submerging a limb into the preserving waterlogged silts. In these circumstances the majority of the tree/branch remains exposed and rots away leaving a large stub such as this example. A sample of sapwood has been submitted for radiocarbon dating but the circumstances of its deposition mean that the context being dated must be carefully considered. It is most likely to have been deposited during the build up of layer 1727 (see Figure 5).

Comparative Material

8.1.6 There is no other instance of such a tree-fall find from CTRL but the author has excavated similar examples from Eton rowing lake, Buckinghamshire, (unpublished).

Potential for Further Work

8.1.7 Although the branch is slow-grown it is unlikely to produce a dendrochronology date since the centre of the tree has rotted away leaving only approximately 50 rings. Radiocarbon is therefore suggested as the only viable method of dating and a sample of sapwood has been submitted. No further analysis is required.

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Table 21: East of Station Road: summary of wood

Context	Material	Count	Comments
1730	oak	1	stump of branch

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APPENDIX 9 - INSECTS AND MOLLUSCS

9.1 Assessment of the Insects and Molluscs

by Mark Robinson

Introduction

9.1.1 A total of five bulk samples were taken from palaeochannel sediments of possible late Iron Age to Roman date at East of Station Road for the recovery of biological remains (Figure 5). The samples are each of the order of 10 kg. They are kept wet in sealed plastic bags and boxes.

9.1.2 Sub-samples of 200 g were sieved down to 0.25 mm for the assessment of waterlogged macroscopic plant remains. Insect remains were noted in four of these sub-samples.

9.1.3 It is hoped that the analysis of the insect remains can contribute to the fieldwork aim of obtaining a palaeoenvironmental sequence for the area spanning at least the Iron Age and the early Roman period.

Methodology

9.1.4 It was decided that the most efficient approach to the assessment was to use the wash-overs which had been prepared for the assessment of waterlogged macroscopic plant remains. The flots were scanned under a binocular microscope at magnifications of x10 and x20. The abundance of taxa was recorded in Table 1 on a scale of + (present, 1-5 individuals), ++ some, 6-10 individuals) and +++ (many, 11+ individuals). Nomenclature for Coleoptera (the majority of the insects) follows Kloet and Hincks (1977). The insect remains were subsequently stored in 70% ethanol.

Quantifications

9.1.5 All five samples were assessed and four were found to contain insect remains. Table 1 gives the range and abundance of insects in each sample. The results show that all the samples with insects will contain sufficiently large assemblages of insects for useful palaeoecological analysis. No obvious bias was noted with the recovery of remains.

9.1.6 Numerous mollusc shells are also present in Samples 16 and 18 from the bottom of the palaeochannel. Their concentration is up to 1000 shells per kg. The majority are species of flowing water, particularly *Bithynia tentaculata* and *Valvata piscinalis*.

Table 22: East of Station Road: summary of insect remains

Section	41	41	41	41	41
Sample	16	18	17	15	14
Context	1726	1726	1726	1725	1725
Depth	46.42	46.54	46.80	47.00	47.28
Trichoptera indet - larva	-	+	-	-	-
Trichoptera indet - larval case	+	+	-	-	-
Aphrodes sp	-	-	+	-	-
Bembidion sp	-	-	-	+	-
Pterostichus madidus	-	-	+	-	-
Harpalus affinis	-	+	-	-	-

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Section	41	41	41	41	41
Sample	16	18	17	15	14
Context	1726	1726	1726	1725	1725
Depth	46.42	46.54	46.80	47.00	47.28
Helophorus sp (brevipalpis size)	-	+	-	+	-
Megasternum obscurum	-	-	-	+	-
Anacaena sp	-	-	+	-	-
Limnebius papposus	-	-	+	-	-
Lesteva sp	+	-	-	-	-
Anotylus rugosus	-	-	+	-	-
Stenus sp	-	-	-	+	-
Geotrupes sp	-	-	+	-	-
Aphodius sp	-	-	+	-	-
Helichus substriatus	-	-	+	-	-
Oulimnius sp	+	-	+	-	-
Normandia or Riolus sp	-	-	-	+	-
Agrypnus murinus	-	+	-	-	-
Agriotes sp	-	-	+	-	-
Cantharis sp	-	-	+	-	-
Cerylon sp	-	-	-	+	-
Enicmus transversus	-	-	+	-	-
Altica sp	+	-	-	-	-
Chaetocnema concinna	-	+	-	-	-
Apion sp	-	+	+	-	-
Sitona sp	-	+	-	-	-
Hypera punctata	-	+	-	-	-
Acalles turbatus	-	-	-	+	-
Ceuthorhynchinae indet	-	+	-	-	-
Gymnetron pascuorum	-	-	+	-	-
Lasius sp	+	+	-	-	-
Hymenoptera indet	+	-	-	-	-
Diptera indet - puparium	-	+	-	-	-
Approx total per kg	***35***	***50***	***60***	***30***	***0***

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

Provenance

9.1.7 The samples are derived from waterlogged sediments which possibly began to accumulate in the palaeochannel as the result of the fall of a tree rooted into the bank. Sherds of late Iron Age / early Roman pottery were recovered from the upper part of the sequence. The insects from the samples can be divided into the bankside and aquatic species from the channel itself and those derived from the surrounding terrestrial landscape. The occurrence of the elmid beetles *Oulimnius* sp. and *Normandia* or *Riolus* sp. shows that the channel carried clean, well-oxygenated moving water. The terrestrial insects from Samples 16, 18 and 17 are characteristic of grassland conditions. They include *Agrypnus murinus*, whose larvae feed on the roots of grassland plants and *Gymnetron pascuorum*, which feeds on *Plantago lanceolata* (ribwort plantain). The presence of domestic animals is suggested by scarabaeoid dung beetles such as *Geotrupes* sp. In contrast, the insects from Sample

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15 are more characteristic of woodland conditions, with *Cerylon* sp. which occurs under bark and *Acalles turbatus* which bores into dead wood.

9.1.8 The insects in Samples 16, 18 and 17 are well preserved and those in Sample 15 are in adequate condition for identification. All four of these samples show potential to meet the research objectives provided they can be dated securely. (The occurrence of *Pterostichus madidus*, a beetle which has not previously been recorded in deposits earlier than late Roman, in Sample 17, raises a slight doubt about the presumed date of the sequence).

Conservation

9.1.9 The waterlogged samples are not stable and their organic content will decay over a period of several years unless kept cold. It is therefore recommended that prior to analysis, the samples should be kept refrigerated either as unprocessed samples or processed flots. Samples 15, 16, 17 and 18 should be kept until decisions have been taken on further analysis.

Comparative Material

9.1.10 No other waterlogged insect sequences from later prehistoric and Roman palaeochannel deposits are known from the CTRL project or elsewhere in Kent. The best comparative insect material from the project is from the Roman well at Thurnham. However, work on insect remains from deposits of this date in the upper Thames Valley has shown the value of insect evidence for palaeoenvironmental reconstruction (eg Robinson 1992).

Potential for Further Work

9.1.11 The insect remains show good potential to address the original research aims. They certainly show much evidence for the local environment and the apparent transition from grassland to more wooded conditions is of interest. It is recommended that further sub-samples from the four samples to contain insects are subjected to paraffin flotation to extract insect remains such that 100-200 individuals of terrestrial Coleoptera (beetles) are available for analysis from each sample. A palaeoenvironmental reconstruction should be made from their qualitative analysis. The results would be of regional significance for Kent.

9.1.12 The molluscs from the bottom of the palaeochannel support the insect evidence that clean well-oxygenated water flowed along it. It is recommended that molluscs are extracted from the samples to be analysed for waterlogged macroscopic plant remains and reported on.

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APPENDIX 10 - SHELL

10.1 Assessment of the Oysters

by Jessica M. Winder

Introduction

10.1.1 Only fragments of the common flat oyster *Ostrea edulis* L. were recovered from the East of Station Road excavations. Shells were recovered by hand retrieval and seiving of bulk samples. It was hoped that the study of marine molluscs would assist in the understanding of the manipulation and consumption by humans of natural resources and the way in which population increase and concentration might have affected natural resource exploitation and accelerate environmental change.

Methodology

10.1.2 The shells from the single context were identified and counted. Shell remains were considered for their suitability for size and infestation analyses. A subsample of contexts containing at least thirty measurable left or right valves would be the minimum requirement for selection as suitable for use in statistical comparisons of size or comparisons of evidence for epibiont infestation (Winder 1993).

Quantification and Provenance

10.1.3 Table 23 presents the numbers of shells for each context with comments on their condition. Only seven minute fragments were recovered from the single context. The provenance of the marine mollusc material cannot be determined. The shells are poorly preserved.

Conservation

10.1.4 Long term storage would not be affected by any further analysis, were this feasible. Long term storage, should it be deemed necessary or desirable, would require the shells to be kept dry, in sealed polythene bags, with minimisation of mechanical damage. Regarding retention/discard policy, it is suggested that there is little merit in retaining this assemblage of material.

Comparative Material and Potential for Further Work

10.1.5 This assemblage of material is not suitable for comparison with material from elsewhere, whether within or from outside the CTRL project. The quality of the shell material totally prohibits any potential for further investigation. There is no potential for the data assemblage derivable from this assemblage of marine molluscan material to address the original Landscape Zone Aims and the Fieldwork event Aims.

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Table 23: East of Station Road: summary of oysters

Context number	Left valve (LV) oyster	Unmeas-urable LV oyster	Right valve (RV) oyster	Unmeas-urable RV oyster	Total valves oyster (P = present)	Comments on oysters
1271					P	Approx 7 minute fragments.

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APPENDIX 11 - DATING

11.1 Assessment of the Radiocarbon Date

by Chris Hayden

Introduction

11.1.1 A sample of sapwood from a large piece of an oak branch which had been preserved in deposits at the base of the palaeochannel in trench 17 was submitted for radiocarbon dating. The sample was intended to provide a *terminus post quem* for the sequences of environmental samples taken from stratigraphically later contexts.

Method

11.1.2 The sample was analysed using an accelarator mass spectrometer to determine its conventional radiocarbon age, percent modern and $\Delta^{14}C$ based on the NBS-I oxalic acid standard, and the $\delta^{13}C$ was measured using a stable isotope mass spectrometer.

Material and Context

11.1.3 The sample was taken from the sapwood of the branch, this being the youngest part closest in age to the date of the tree's death. The date of death of the tree is assumed to be roughly contemporary with the date of its deposition. It is likely that the branch became deposited in the palaeochannel deposits as a result of a tree falling. Only the portion of the branch embedded in the deposits was preserved, the rest rotting away. The date of death of the tree thus probably post-dates the deposition of context 1731 into which it is embedded (Figure 5). Its relationship with context 1730 is less certain, but its seems likely that its deposition was roughly contemporary with the deposition of this context. Whatever the case, it provides a clear *terminus post quem* for the environmental samples which begin in context 1727 above.

Results

11.1.4 The sample results are tabulated below. A copy of the certificate, issued by the Rafter Radiocarbon Laboratory, and the OxCal calibration graph, is attached.

Lab ref	Context	Sample	Date	1σ	2σ
NZA-12234	ARC STR99 ctx 1730 (base of waterlogged palaeochannel sequence	Oak branch (sapwood)	7968 ±60	95.4% confidence 7050cal BC - 6690 cal BC	68.2% confidence 7040cal BC - 6780 cal BC

11.1.5 The date is considerably earlier than anticipated. Late Iron Age pottery was recovered from the upper part of the sequence and assessment of the pollen cores suggested that the whole sequence was most likely to be of later prehistoric date. The taphonomy of the channel sequence is complex and not particularly well-defined. Initial interpretation of the stratigraphy suggested that the branch might not be contemporary with the deposits in which it was embedded. The preliminary radiocarbon date suggests that the branch does indeed belong with the earliest deposits in the sequence.

11.1.6 If the environmental sequence is to be of any value for environmental reconstruction in fulfilment of the fieldwork event aims and landscape zone priorities, further radiocarbon dating will be required to confirm the mesolithic date suggested for the

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early part of the sequence, the late Iron Age date suggested by the artefactual evidence for the upper part, and the chronology of the intervening deposits.

Potential for Further Work

11.1.7 The environmental sequence has produced clear results of direct relevance to achieving Landscape Zone Priority 1 and Fieldwork Event Aims 2, 4 and 5 for the site, which are set out in section 2 of the main report, above. It would be desirable to establish more precisely the date of this sequence, in particular to date the major changes observed in the pollen record by radiometric means. There are samples of waterlogged remains from contexts 1726 and 1725 which may allow further radiocarbon dates to be obtained for these contexts. The most significant change in the pollen and insect evidence, between grassland and woodland recolonisation, occurs between these two contexts, which at present are thought most likely to be of late Iron Age or Roman date. Further dates may allow a more precise estimate of the date at which the field system appears to have fallen into disuse to be obtained. Statistical methods are now available which will allow an estimate of the date range chronological boundary between the two contexts to be made (eg Bronk Ramsey 1995).

11.1.8 Unfortunately, the period of time in which the transition is likely to have occurred (the 2nd century AD) corresponds to a very flat area in the calibration curve followed by a marked wiggle which means that material dating in calendar years from *c* AD 125 to 250 and perhaps later will produce very similar radiocarbon dates. The OxCal calibration package will simulate the kinds of radiocarbon dates one could expect for material of a given calendar age and a given error (here taken as ±60 years). It is possible to use these simulated dates to see how accurate an estimate of the date of the transition it may be possible to obtain. Simulations have been run assuming that one, two or three samples of similar or differing dates have been taken from each context (ie two, four and six determinations in total). The results, shown in Table 24-Table 29, suggest that even if two samples were taken from each context the date range would still be likely to be nearly three hundred years. If only two samples are taken the range may be much greater, possibly over 400 years. This level of accuracy is insufficient to address the question at issue which is whether the change in the landscape occurs roughly at the same as the field system goes out of use (in the 2nd century AD), or whether the change occurs nearer the end of the Roman period. Larger numbers of samples could reduce the range: six samples, for example, typically reduce the range more usefully to less than 200 years, and further increases in the number of samples produce smaller ranges.

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Table 24: simulation of two close dates

Calendar date for which C14 date estimated	**Calibrated date range (95%) incorporating stratigraphic data**	
AD 120	200 BC	AD 90
DATE OF TRANSITION	**130 BC**	**AD 290**
AD 130	AD 70	AD 350

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Table 25: simulation of two more distant dates

Calendar date for which C14 date estimated	**Calibrated date range (95%) incorporating stratigraphic data**	
AD 70	0	AD 240
DATE OF TRANSITION	**AD 50**	**AD 330**
AD 160	AD 110	AD 390

Table 26: simulation of four close dates

Calendar date for which C14 date estimated	**Calibrated date range (95%) incorporating stratigraphic data**	
AD 110	40 BC	AD 210
AD 120	40 BC	AD 210
DATE OF TRANSITION	**AD 50**	**AD 290**
AD 130	AD 110	AD 390
AD 140	AD 110	AD 390

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Table 27: simulation of four more distant dates

Calendar date for which C14 date estimated	**Calibrated date range (95%) incorporating stratigraphic data**	
AD 80	210 BC	AD 90
AD 120	0	AD 260
DATE OF TRANSITION	**AD 80**	**AD 350**
AD 140	AD 200	AD 440
AD 180	AD 180	AD 440

Table 28: simulation with six dates

Calendar date for which C14 date estimated	**Calibrated date range (95%) incorporating stratigraphic data**	
AD 70	170 BC	AD 120
AD 100	110 BC	AD 130
AD 120	90 BC	AD 140
DATE OF TRANSITION	**0**	**AD 190**
AD 140	AD 50	AD 320
AD 160	AD 80	AD 380
AD 190	AD 50	AD 320

Table 29: simulation with eight samples

Calendar date for which C14 date estimated	**Calibrated date range (95%) incorporating stratigraphic data**	
AD 70	60 BC	AD 150
AD 90	40 BC	AD 180
AD 100	110 BC	AD 140
AD 120	50 BC	AD 170
DATE OF TRANSITION	**AD 60**	**AD 220**
AD 140	AD 120	AD 390
AD 160	AD 90	AD 320
AD 170	AD 130	AD 400
AD 190	AD 120	AD 390

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