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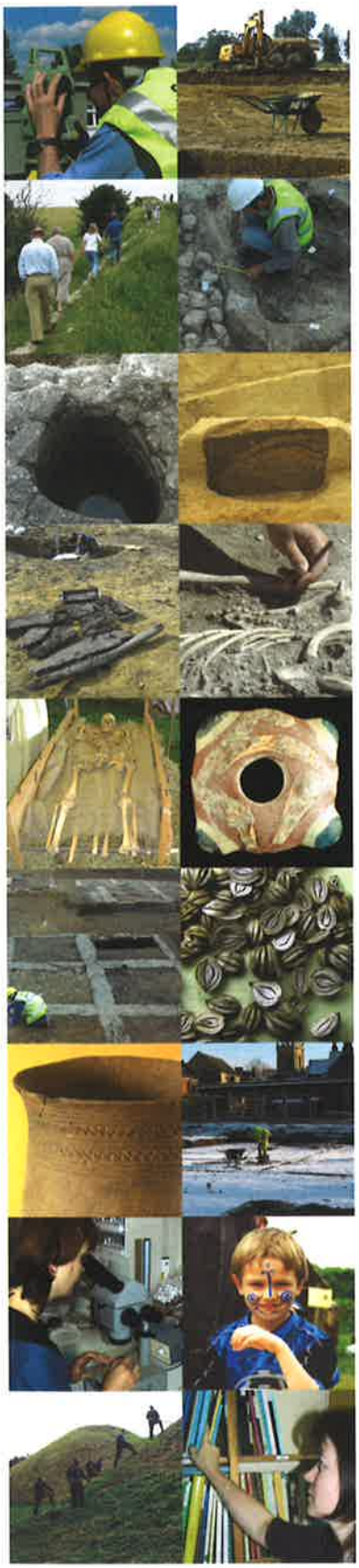
archaeological field unit



CAM ARC Report Number 821

Prehistoric and Romano-British Activity in the Granta Valley: Excavations at Linton Village College, Linton, Cambridgeshire 2004-5

Post-Excavation Assessment and Updated Project Design

Rachel Clarke

March 2007

Cambridgeshire County Council
Environment & Community Services

Commissioned by Mouchel Parkman on behalf of Cambridgeshire County Council

Cover Images

Machine stripping, Soham	On-site surveying
Roman corn dryer, Duxford	Guided walk along Devil's Dyke
Bronze Age shaft, Fordham Bypass	Medieval well, Soham
Human burial, Barrington Anglo-Saxon Cemetery	Timbers from a medieval well, Soham
Blue enamelled bead, Barrington	Bed burial reconstruction, Barrington Anglo-Saxon Cemetery
Aethusa cynapium 'Fool's parsley'	Medieval tanning pits, Huntingdon Town Centre
Digging in the snow, Huntingdon Town Centre	Beaker vessel
Face painting at Hinchingbrooke Iron Age Farm	Environmental analysis
Research and publication	Monument Management, Bartlow Hills

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Post-Excavation Assessment and Updated Project Design

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Site Code: LIN VIC 04/05
CHER Event Number: ECB 2035 (LIN VIC 05).
Date of works: **LINVIC 04**: July 2004; October - December 2004. **LINVIC 05**: January; March-April 2005; October 2005
Grid Ref: TL 55547 46984
OASIS Number: Cambridg1 - 25396.

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Summary

During 2004 and 2005, a programme of archaeological evaluation, survey, excavation and monitoring works was undertaken by CAM ARC (formerly Cambridgeshire County Council Archaeological Field Unit (CCC AFU)) at the site of Linton Village College, Cambridgeshire. The site, which was excavated in advance of the construction of a new Special School and sports facilities, is situated in an agriculturally-rich location on the lower valley slopes of the River Granta, at the outer limits of the village.

Five phases of archaeological activity and/or occupation have been identified, spanning the Neolithic to post-medieval periods, with important discoveries relating to the prehistoric use of the site.

A number of pits were identified which contained substantial flint working assemblages in association with Grooved ware pottery. These are a significant discovery and may represent seasonal occupation of the valley during the Late Neolithic period, probably to exploit the good source of natural flint. By the Early Bronze Age the site became a focus for monumental or ceremonial activities, indicated by the presence of a ring-ditch; a crouched burial of a middle-aged female was also uncovered at some distance from the ring-ditch. The date of the burial is not known, and will need to be established by radiocarbon dating. A buried soil of varying thickness was encountered across the excavation; this may have originated in the Neolithic but contained finds of varying date.

Part of a small Middle Iron Age settlement, represented by numerous post-holes and several large pits, was identified close to the northern edge of the site. These features produced important evidence of specialist activities, including metalworking (both iron smithing and possibly copper working) and craft-working; a ritual aspect was also suggested by the discovery of 'placed' deposits of antler and pottery in some of the pits. Assessment of the faunal and cereal remains indicates that mixed farming was also practiced.

By the Late Iron Age/Early Roman period, settlement appears to have shifted off site; a ditched and metalled trackway was created that cut a swathe through the earlier settlement. The Roman period is largely represented by an extensive field system, which may have perpetuated an Iron Age precursor and includes a number of fields/stock enclosures and paddocks. Pottery spanning the Roman and Early Saxon periods was recovered from the ditches. Fragments of Roman tegula and box flue tile found in the ditches and associated features indicate the presence of a Roman building in the vicinity.

The site appears to have reverted to open pasture in the post-Roman period. However, in the 17th century this location may have been the site of a Civil War skirmish as a number of military items of this date were found in the topsoil.

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1 Introduction

1.1 Project Background

During 2004, and intermittently throughout 2005, CAM ARC (formerly CCC AFU) carried out a series of evaluations, excavations and watching briefs in advance of the construction of a new Special School and sports facilities at Linton Village College, Linton, Cambridgeshire (TL 55547 46984). The work was commissioned by Mouchel Parkman on behalf of Cambridgeshire County Council Property and Procurement (Planning application no. S/00342/04/CC). The excavations were conducted in accordance with a brief produced by Andy Thomas, Cambridgeshire Archaeology Planning and Conservation Office (CAPCA). The development comprised an area of 35,100 sq m (*c*.3.5ha) within the grounds of the college, and an additional area (*c*.29,000 sq m, 2.9ha) in an arable field to the west.

The aims of the excavation laid out in the briefs and specification (Thomas 2004a and b; Macaulay 2004) were to provide information on the area's archaeological origins, date, development, phasing, spatial organisation, character, function and significance, as well as the nature of any social, economic and industrial activities. Particular attention was to be focused on any surviving palaeosols or buried soils within the development area.

Archaeological investigations, comprising aerial photographic assessment, geophysical survey, trenching and open area excavation, were undertaken within the grounds of the college and adjacent field during 2004 and early 2005. The site was subdivided into the following areas (Fig. 1):

Area A – The site of a new road to link the current college access to the new school buildings and Sports Centre. Located in front of the school, in the east of the development area (LINVIC 04).

Area B – This main development site, located to the west of the school and Sports Centre in an area of playing fields and tennis courts (LINVIC 04). An additional small area was excavated beneath former storage huts in 2005.

Area C – Located to the west of, and adjacent to, Areas B and D in an arable field (LINVIC 05).

Area D – A playing field located to the south of Area B, which as part of the development was destined to become an 'all weather' pitch (LINVIC 05)

1.2 Geography and Topography

The historic village of Linton lies close to the Essex border in the south-east of the county, *c.*18km south-east of Cambridge and 8km west of Haverhill. Linton parish covers 1,596 hectares; the boundary to the north follows that of Wool Street, an ancient track, whilst that to the south is formed by the new Essex county boundary. The modern settlement is bisected by the meandering course of the River Granta, which flows south-east to north-west; the village is now bypassed by the A1307 to the south.

The local agrarian economy of the parish is still predominantly arable; some areas of pasture are present along the banks of the river. Very little ancient woodland has survived past land clearance, although there are some more recent plantations including Rivey Wood to the north of the village.

Linton Village College lies on the western fringe of the historic village core, on the lower north-east facing river valley slope, surrounded by arable and pasture fields to the west and north. The underlying drift geology comprises Middle chalk, overlying which are alluvial sand and gravel terrace deposits (BGS 1973).

At the time of the excavations, much of the development site was in use as sports fields (Areas B and D); Area A (access road) was adjacent to the present village college and Area C, to the west of the college, was arable land. The land slopes gently from 42.4m close to Cambridge Road (A1307) to the south, to *c.* 40m at the north-eastern limit of the site, adjacent to the sports centre. There is clear topographical evidence that the immediate landscape, certainly in the area of the sports fields (Areas B and D), has been altered in recent years. A distinct terrace bisects the sports field, to the north and south of which the land has been levelled to create the playing fields, although a slight slope is still present.

2 Archaeological and Historical Background

Linton village and its surroundings are rich in known archaeological remains of all periods, reflecting their prime location within a fertile river valley.

2.1 Prehistoric

Prehistoric finds include the discovery of a Neolithic adze (CHER 06074) a few hundred metres to the south of the village college, and flint scatters to the north at Little Linton Farm (CHER 10186B). Surface

finds of Late Neolithic/Early Bronze Age flint were also collected along the route of an Anglian Water pipeline to the south of Little Linton Farm in 1992; no features associated with the flint scatters were found. Middle Iron Age features were also present along the route of the pipeline in a field located between Little Linton Farm and Linton Village College (CHER 10186C; Shotliff 1992). Extensive prehistoric remains have recently been investigated at Great Abington where over sixty Middle Iron Age pits were revealed; evidence of Mesolithic, Neolithic and Bronze Age activities were also recognised (Kemp 1999).

The results of recent investigations at the site of a Roman villa (CHER 09841, see below) suggest prehistoric activity on the site. Evidence comprised flint scatters of Mesolithic to Bronze Age date and Middle Iron Age settlement remains located on a small, dry plateau close to the river (Ette and Hinds 1993).

2.2 Roman

A substantial Roman villa was discovered to the south-east of the village (CHER 09841, TL 571 462), and partly excavated by Richard Neville between 1846 and 1860 (Neville 1851; 1857). A group of conical burial mounds containing extraordinarily rich cremation burials lie half a mile to the south of the villa, at Bartlow Hills (Hull 1963, 39-44), and may be related.

Significant Roman remains have also been found closer to the development site, within the area of the village college and its immediate surroundings. A small group of five fairly rich Roman inhumation burials, comprising three children and two women, were discovered during the construction of the Warden's house in the 1930s (CHER 06165), and probably represent a family burial ground. Sherds of possibly 2nd century Roman pottery were also recovered in the 1940s during the construction of a temporary building at the college, close to the northern part of the site (CHER 06100). Cropmarks or parchmarks of a possible Roman building have been identified in the arable field to the west of the college (CHER 10171), and scatters of Roman pottery have also been recovered from nearby (CHER 06084).

Roman roads run to the north of the site, on the other side of the valley, and to the west beyond Great Abington (now perpetuated by the route of the A11); the Icknield Way lies to the north-east of the village.

2.3 Saxon and Medieval

The present-day parish of Linton represents an amalgamation of three settlements: Great Linton, Little Linton and Barham. At the time of the Domesday Survey (1086) Great Linton is recorded as having 21 peasants and 6 servi; Little Linton had 10 peasants and 4 servi. By 1560 the two villages had combined and records indicate that there

were 92 households. The site of a possible Deserted Medieval Village (CHER 10110), probably the remains of Little Linton, lies to the north-west of the site, close to the site of a medieval manor (CHER 02413 and fishponds (CHER 02412). A medieval spearhead was also found close by in the spoil from the excavation of a sewer trench in the 1980s, near to the pumping station to the north-east of the college.

2.4 Post-Medieval

The site appears to have been under cultivation until the school was built in the 1930s; it was later extended to the west in the 1960s.

3 Original Aims and Objectives of the Excavation

The main aim of the project was to preserve the archaeological evidence contained within the excavation area by record and to attempt a reconstruction of the history and use of the site. A number of aims and objectives were identified (Macaulay 2004), based largely on the results of the evaluations and surveys undertaken during 2004.

3.1 Late Iron Age and Roman

The evaluation identified the presence of Roman remains, with the potential for earlier prehistoric (Iron Age, perhaps earlier) background data. These were characterised by cut features: predominately ditches, pits and post-holes were all revealed, and the priority will be to determine whether these remains relate to probable Romano-British agricultural field system and more perhaps to the known villa estates to the south-east in Linton and Bartlow.

RO1 *The characterisation of the form and development history of the settlement.*

Although only limited evidence of structures was revealed during the evaluation, the proximity to a known Roman settlement may mean structures might be present. If remains of any occupational evidence or domestic buildings survive, their form and associated artefacts will help to define their function, date and use and any subsequent modifications in form and usage. If evidence of crop or food processing survives (e.g. burnt grain, butchered animal bone) conclusions can be drawn on the type(s) of agricultural regimes that may have been in operation (both domestic and wild).

RO2 *The characterisation of the form, date of establishment, subsequent development of the field systems, and their relationship to the settlement.*

Field systems (and enclosures) of the Roman period have been suggested from both the evaluation and nearby cropmarks. These appear to have prehistoric pre-cursors (Iron Age), and this should be investigated. In addition the survival of organic material from Stage 1 sampling was very high and if sufficiently good samples can be taken from the primary fills of ditches, it will be possible to determine the agricultural regime being followed within the fields (i.e. whether livestock was being pastured or cereals grown).

RO3 *The determination of the relationship of the agricultural regime and any associated settlement with the local and regional economy. (cf Linton and Bartlow Villa's)*

Analysis of artefactual and ecofactual material may determine whether the area was a largely self-sufficient farming community or whether it was producing a surplus of either crops or meat for local population centres. Evidence of large-scale crop processing or butchery will be sought, as will evidence of importation of luxury or specialised items such as fine pottery (if present).

RO4 *The creation of a model of land-use and organisation over time.*

The evidence from this project will be set within the framework of existing knowledge of the archaeology of the area and will make a valuable contribution to ongoing local research.

3.2 English Heritage Research Priorities

There are a number of national research priorities that English Heritage (English Heritage 1997) identify which provide the framework for investigation and can be applied to the evidence found at Linton Village College.

RO5 ***'Processes of change'***

Briton into Roman (c 300 BC-AD 200)

A high level of continuity in settlement and land use and, by implication, in social and economic organisation, between the Late Iron Age and Romano-British periods is becoming increasingly apparent, as

are contemporary regional variations. Increasing awareness of the complexity of the transition, combined with issues of ethnicity, and social and economic dislocation, would seem to offer great potential for exploiting complex data sets.

R06 ***'Themes'***

Settlement hierarchies and interaction

The collection of artefacts, ecofacts and structural evidence from sites with well understood depositional processes and with good and consistent sampling techniques has been identified as a critical factor in the study of settlement hierarchies and interaction (English Heritage 1997).

4 Excavation Methodology

4.1 Evaluation

The evaluation was undertaken in response to a brief from the County Archaeology Planning and Conservation (CAPCA) Office (Thomas 2004a), which stated that the site had a high archaeological potential and therefore required a phased assessment of the archaeological remains. This comprised aerial photographic assessment, geophysical survey and trial-trenching:

4.1.1 *Aerial Photographic Assessment* (Summary based on Palmer 2004)

The assessment examined an area of 20ha, centred on TL 555 469, around the site.

The only archaeological features identified on the photographs examined were furlongs resulting from medieval cultivation, located in the southern parts of the village college grounds, adjacent to the Cambridge Road (Areas B and D, not illustrated).

4.1.2 *Geophysical Survey* (Summary based on Masters 2004, not illustrated)

A fluxgate gradiometer survey was undertaken over four areas (A – D) within the proposed development area. Magnetic anomalies were detected by the survey, some of which represent disturbance from modern intrusions such as goal posts and buried services. One area (C) revealed the remains of a possible droveway of Iron Age or Roman

date. Other diffuse anomalies indicated the presence of archaeological remains or geological features in this area.

4.1.3 Trenching and Watching Brief (Fig. 1)

As only limited parts of the main development site (Area B) were accessible at the time, the area of evaluation was considerably reduced from that envisaged in the original specification (Macaulay 2004). This proposed that the total length of evaluation trenching was to be 1375m, providing a 5% sample of all areas (A-D). Parts of Areas A, and Area D, were not trenched, however, as these areas needed to remain in use as playing fields; Area C was under crop and evaluation was deferred until early 2005. The amended trench location plans were approved by the CAPCA prior to the start of trenching.

Areas A and B
In May 2004 nine trenches were excavated under archaeological supervision in the designated parts of Areas A and B (Clarke 2004). The combined size of Areas A, B and D is 28,134 sq m, and the trenched area constitutes only a 1.75% sample of this. The trenches were largely located in Area B, around the perimeter of the current playing fields, and in a small grassed area to the north of these. This reduced sample for the evaluation resulted in large areas of the development site being untested and therefore no prediction could be made for the extent of the buried archaeological remains.

Despite the limitations of the evaluation, significant evidence of prehistoric and Roman activity was uncovered, with an apparent concentration in the north-eastern corner of Area B. Features included a number of Iron Age post-holes (with evidence of crop processing) and part of a Roman field system. A buried soil or colluvial layer was also encountered in many of the trenches, from which a small quantity of worked flints of possible Neolithic date were recovered.

Area C
Area C was initially investigated (Bailey 2005) by a series of 12 machine-excavated test pits (Fig. 1) positioned to identify changes in the soil profiles across this part of the site. This field was designated to become an additional playing field and the test pits were designed and recorded with particular reference to topographical, geophysical and archaeological factors to help determine to impact of the proposed groundworks.

A layer of buried soil or colluvium of varying thickness and similar characteristics to that encountered in Areas A and D, was recorded across the site. The only archaeological feature identified was a ditch aligned north-east to south-west in test pit 3. This may correspond to one of the parallel linear anomalies identified in the geophysical survey,

running the length of the field, and interpreted as an Iron Age or Roman drove way (Masters 2004, 4)

In March 2005 four additional, 75m long, trenches were excavated (Fig.1) by a 360° mechanical excavator, under archaeological supervision (Atkins 2005). These were positioned to determine if any features continued into this area from the 2004 excavations (Area B) and also to investigate the anomalies, such as the possible drove way and various diffuse features, identified by the geophysical survey. Terrace gravels were found in all trenches, directly below the 0.3m to 0.4m thick topsoil. No archaeological features were identified within the trenches.

Watching Brief: Areas B and D
A watching brief (Atkins 2005) was undertaken in March 2005 in the area of a proposed new 'all weather' sports pitch, which was replacing a former grass football pitch. The topsoil in this area had already been stripped off, without archaeological supervision, to a depth of between 0.3 and 0.4m when CAM ARC were contacted to monitor it. A plastic membrane had been laid which in turn had been covered with a layer of chalk. At the request of Andy Thomas (CAPCA) a *c.* 4m wide strip along the eastern and western side of the pitch was re-exposed to assess if archaeological remains existed beneath the plastic membrane. Here, natural geology was exposed, comprising clean orange brown sands with some mixed gravel and chalk. No archaeological features were present.

Additional watching brief (Hickling 2005) was undertaken in October 2005 to monitor groundworks in the area of the tennis courts; no archaeological features or finds were observed.

4.2 Excavation (Fig. 1)

The results of the 2004 evaluation, although limited due to the problems of access at the time, were significant and consequently led to a full archaeological condition being placed on the main development (Thomas 2004b). This specified the opening of two areas, covering a total of 1.7ha: Area A comprised *c.*2000 sq m and Area B *c.*15000 sq m.

Area A
Initially designed to be excavated in two halves (due to spoil storage problems), only half (1,383 sq m) of the new access route was actually fully excavated. In July 2004 the western half of the area was machined, exposing a subsoil or buried soil, through which a small number of features were cut. The buried soil contained evidence of Neolithic and Bronze Age activity in the form of flint working debris, tools and pottery. Following consultation with CAPCA, it was decided

to remove this layer, which in places was up to 0.8m thick, to investigate any features that might be sealed below it. A watching brief was maintained during groundworks in the eastern half of the area.

Following the excavation of the first half, information became available which established that the construction works for the new access road would not actually penetrate below topsoil. The remainder of the route, and the excavation of drainage pipe trenches, were subject to archaeological monitoring during October 2004.

Area B
Originally intended to be fully excavated in two stages (Macaulay 2004), Area B was reduced to five smaller areas (B1-B5, *c.*5,362 sq m in total) excavated concurrently, with some additional trenching in areas that had been previously inaccessible. It became apparent during the machine-excavation of Area B1 that there was very little archaeology in the western half of the area, which reiterated the results of the evaluation trenches in this area. Following consultation with Andy Thomas (CAPCA), the decision was made to trench the central part of Area B and the tennis courts. The relative absence of features in these trenches and in the playing field led to the decision not to fully excavate this area, but to concentrate on the eastern and northern parts of Area B, where archaeology was known to be present. The following areas were opened:

- B1: located along the southern half of the area, parallel with the terrace,
- B2: located in the eastern part, parallel with the current access road
- B3: located to the immediate north of B2 in the northeast corner
- B4: located to the west of B3, in the former football/tennis court
- B5: located to the west of B4, in the former tennis courts

This provided an area of *c.*0.5ha within the total development area of *c.*1.3ha. In March 2005 an additional small area (B3a) was excavated to the north-east to Area B3 following the removal a storage unit.

As with Area A, buried soil layers were present intermittently across Area B, and were found to be particularly thick in the western part of the area.

All of the open areas, in addition to the spoil heaps, were subject to metal-detecting survey throughout the excavation; dry-sieving of spoil from the ring-ditch and associated deposits was also undertaken concurrently with the excavation. All areas were secured with Heras-type fencing.

5 Summary of Excavation Results

The main phases of activity on the site spanned the Late Neolithic (*c.*3600 BC) to the Late Roman/Early Saxon period (early 5th century AD), although features directly associated with settlement appear to date predominantly to the Middle Iron Age (*c.* 300-100BC).

5.1 Provisional Site Phasing

As with most rural sites very little complex stratigraphy was present, although in some areas, such as B3 and B4, there were clusters of more dense intercutting features. Preliminary phasing is largely based on stratigraphic relationships, spatial associations and, to a certain extent, similarity of alignments of linear features. This has been combined where possible with dating provided by stratified artefacts, principally pottery and worked flint. Only relatively small amounts of pottery were recovered, making dating of some features problematic. Several group numbers have been created for larger features, such as ditches or the buried soil layer(s), which, along with all cut numbers, are highlighted in bold in this report. Five main periods have been provisionally identified, although these may be subject to refinement for analysis and publication:

Period 1: Neolithic to Early Bronze Age (*c.*3600BC - *c.*1800BC)
Period 2: Early to Middle Iron Age (*c.*800BC - 100BC)
Period 3: Late Iron Age to Early Roman (*c.*100BC - AD100)
Period 4: Romano-British to Early Saxon (*c.*AD100 - *c.*AD400)
Period 5: Post-medieval/Modern (*c.*1600 - present)

5.2 Period 1: Neolithic to Early Bronze Age (Figs 2-5)

5.2.1 Phase 1 Earlier Neolithic (3600-3300BC)

Two unstratified pottery sherds have been identified as being of probable Early Neolithic date (see Appendix 5), although other sherds might be identified following more detailed examination of the pottery.

5.2.2 *Phase 2 Late Neolithic/Early Bronze Age (c. 3000-1800BC)*

Area A (Figs 2- 4; Plates 1-4)

*Late Neolithic/Early Bronze Age Pit **153***
A sub-circular pit (**153**), very similar in shape and size to those found in Area B (see below) was investigated in Area A, *c.* 11m to the west of an ?Early Bronze Age ring-ditch (**183**, see below). The pit (Plate 1) produced 324 flints representing the waste and occasional utilised products of a variety of flake production/core reduction sequences; a feature of Late Neolithic flint technology. Five tools were also identified, including a scraper and a transverse arrowhead. The composition and freshness of the assemblage indicates that the material was worked nearby and deposited fairly quickly (see Appendix 4).

*Pits **177**, **179**, **186** and **189**,*
Four irregular and fairly shallow pits, between 0.55m and 2.1m long and 0.12m to 0.65m deep, produced moderate evidence of Late Neolithic flint working. Two of these also contained a small amount of undiagnostic prehistoric pottery (Appendices 4 and 5). The smaller pits (**177** and **179**) were positioned on the northern edge of ring-ditch **183**, whilst the larger, deeper pits (**186** and **189**) were located *c.*20m to the east of this feature.

Pits/Post-Holes, Tree Throws, ?Natural Hollows
Several small pits/post-hole-like features (**136**, **150, 126**, **148**, **119** and **120**) were investigated across Area A. These features ranged in size from 0.23m to 0.55m long and between 0.16m and 0.55m deep. One of the pits (**148**), located towards the middle of the area, produced a single Beaker sherd of Late Neolithic/Early Bronze Age date (see Appendix 5). The deepest feature, a large post-hole (**150**), found at the western edge of the area produced two Neolithic cores (see Appendix 4) that refitted. Environmental samples taken from a selection of these features contained small quantities of charcoal, with rare incidences of cereal and plant macrofossils (see Appendix 10).

*Ring-Ditch **183*** (Plates 2 and 3)
The removal (by machine) of the buried soil (199, see below) against the southern edge of Area A exposed approximately half of a ring-ditch with an internal diameter of *c.*7m; no evidence of a mound or central burial was present. The relationship between **183** and 199 was not clear in plan or section.

A moderate flint assemblage (116 pieces) was recovered, some of which is Late Neolithic, although this material may be residual, as evidence of Early Bronze Age flint working was also present (see Appendix 4). A small assemblage of pottery, comprising twenty-three sherds, datable to the later Neolithic/earlier Bronze Age was recovered;

a single sherd of Middle Iron Age pottery within this group is likely be intrusive (see Appendix 5).

Buried Soil 199
An extensive buried soil layer, or layers, was present up to a metre thick in places across Area A (see also equivalent layers in Area B below), and is likely to be the result of a combination of hillwash, wind-blown sediment and subsequent cultivation. This was investigated by a number of hand-excavated test-pits supplemented by the collection and plotting of surface finds.

A substantial quantity of flints (236 pieces) was recovered, most of which is characteristic of Late Neolithic flint working, although later prehistoric material was also present (Appendix 4). The pottery (0.37kg) is also chronologically mixed (Early Neolithic to Roman) and much later elements are present (see Appendix 5).

***Area B* (Figs 2-6; Plates 4 and 5)**

Late Neolithic/Early Bronze Age Pits
Six roughly circular pits (**204**, **226**, **470**, **551**, **574** and **693**) of varying size (up to 1.1m across and 0.63m deep) were investigated in Areas B1, B2 and B3, largely limited to the eastern edge of the area. The pits were notable for the similar depositional sequences from which large quantities of flint working waste, cores and occasional tools (see Appendix 4), in addition to Grooved ware pottery, animal bone (including aurochs bones; plate 1), burnt stones and occasional hazelnut shells were recovered.

The flint technology, which focused on the production of often quite broad, yet thin, flakes, and the diagnostic tool forms (including transverse arrowheads from four of the pits) indicate a Late Neolithic date for these pits. The Grooved ware pottery found in five of the pits also suggests a Late Neolithic/Early Bronze Age date for these features. Pit **551** in Area B1 is of particular interest as it contained over 83% of the Grooved ware assemblage for the site (see Appendix 5). This pit also produced two aurochs bones from a bull; other animal bones from the pits include those of domestic cattle and pigs.

Environmental samples taken from the various pit fills produced very small assemblages, however their composition is comparatively uniform. Small quantities of cereal grains, hazel nutshell fragments, charcoal and bone were recovered from all of the pits, possibly suggesting a common source for these deposits. Similar assemblages are known from a number of sites of comparable date in the eastern region such as Harford, Norwich and Flixton Quarry, Suffolk, where they have tentatively been interpreted as the seasonal burial of midden material (see Appendix 10). The flint assessment (Appendix 4) also indicated that the Neolithic pit assemblages comprised flint-working

waste probably deposited by small groups of people repeatedly visiting the site in order to exploit the good quality local flint.

Radiocarbon dating of some of the stratified organic (bone, nutshell) remains from the pits would be very useful in providing a more precise chronological framework for the pottery and flint assemblages, which in turn would help date the wider activity represented.

Contracted Burial 270 (Fig. 5; Plates 4 and 5)
A poorly-preserved crouched/contracted inhumation (270) of a female aged over 50 was discovered in a shallow, oval grave (**271**) located in the north-west corner of Area B2 (see Appendix 8). The burial was aligned approximately north-south, fairly loosely crouched/flexed and laid on its right side. No grave goods or artefacts (other than a small flint chip) were present and the date of the burial, which appears to be isolated, is not known at present. The burial is located some distance from the ring-ditch (in Area A) and apparent focus of earlier prehistoric ceremonial activity, and in proximity to the Iron Age (Period 2) features. The fairly relaxed position of the burial may indicate an earlier Bronze Age date (Mark Knight, pers. comm.), although crouched/contracted burials are becoming increasingly recognised at Iron Age sites such as Yarnton, Oxfordshire (Haslegrove *et al* 2001, 5). Radiocarbon dating of a sample of the skeleton is proposed to provide a more precise date, following which the burial may be re-phased.

The presence of charred cereal grains, weed seeds and tuber fragments within the grave is perhaps a little unusual, although these elements may all may be accidental inclusions within the grave fill (see Appendix 10).

Buried soil 721
An extensive buried soil layer, or layers, was present across large parts of Area B and, as in Area A, is likely to be a combination of hillwash, wind-blown sediment and cultivation. As with Area A, surface finds were individually plotted and collected, and a number of test pits were excavated by hand in Area B1 to investigate any apparent finds concentrations and record depth and deposit profiles.

Pits/post-holes, tree throws, ?natural hollows and animal burrows
A number of ephemeral pits and occasional elliptical ditch-like features of varying size and shape, with pale silty sand fills, were present particularly in Area B1 (**255**, **257**, **275**, **279**, **337**, **339**, **363**, **365**) and the southern part of B2 (**504**, **506** and **508**). A few of these features produced evidence of (non-diagnostic) flint working and could be prehistoric, although most are likely to be natural tree-throws and hollows.

Several irregular hollows and tunnels (not illustrated) were identified in B3 and B4 in particular, and are probably animal burrows. The presence of several intrusive rabbit bones in the features in these

areas provides additional evidence for this more recent disturbance (see Appendix 9).

Area C (Fig 1)

Layers of colluvium or hillwash, similar to those buried soils encountered in Areas A and B were also recorded in a number of test pits and trenches in Area C. No prehistoric features were present, although a small quantity of largely undiagnostic flint was recovered from the buried soil (Appendix 4).

5.3 Period 2: Early to Middle Iron Age (800-100BC) (Figs 2-6)

A small quantity of Early Iron Age pottery was recovered from the buried soil layers; no subsoil features of this date were present and most appear to be Middle Iron Age.

Area A (Fig 2)

A shallow ditch (**109/124**) aligned north-east to south-west towards the centre of Area A contained a small quantity (14 sherds weighing 0.059kg) of Middle Iron Age pottery, and could date to this period, although a sherd of Period 3/4 pottery was also retrieved from the surface of the ditch (Appendix 5). No other contemporary features were identified, although occasional sherds of Period 2 pottery were recovered from the buried soil (199) in this area (see above).

Area B (Figs 2-6; Plates 6 and 7)

The main focus of activity in this period was identified in the northern part of Area B, and comprises the remains of structures and pits associated with metalworking, small-scale craft working, cereal processing and other domestic activities.

Post-Hole Group ***642*** *(Plate 6)*
Numerous post-holes were recorded in Areas B3 and B4 in particular. The main group (**642**) was located in the southern part of Area B3 and comprised approximately thirty post-holes of varying size and shape.

Six of the post-holes produced Middle Iron Age pottery (see Appendix 5), and it is likely that the undated (but similar) features in this group are contemporary.

The structures represented are possibly related to the metalworking pits located to the north in Area B3 (see below), particularly as small quantities of metalworking waste (droplets and hammerscale, see Appendix 3) were recovered. However, environmental samples from some of the post-holes indicate that grain processing/storage was also

undertaken on the site in this period. The composition and preservation of the assemblages indicate that a high density of the grains was destroyed by intense burning, either during catastrophic fires, or as a result of the deliberate combustion of waste material (see Appendix 10).

A number of post-holes and small pits were also uncovered in Area B4 to the west, some of which are likely to be contemporary with post-hole group **642**. Although undated, a group of four post-holes (**312/314/316/318**) located close to the eastern edge of B4 is likely to be associated as these contained the distinctive chalk-rich fills noted in a number of the post-holes in B3. The four post-holes form an approximate square (c. 2m across) and could be the remains of a four-post structure such as a raised granary. A single sherd of ?Early Roman pottery (see Appendix 5) was recovered in one of the post-holes, but could be intrusive. A post-hole (**353**) located to the north of the four-post structure contained a small quantity of Middle Iron Age pottery, and is likely to be contemporary.

Ditch/Gully 251
A narrow curving ditch (**251**) was partially exposed against the northern edge of Area B4, truncated by Period 3/4 northern trackway ditch(es) **412/418** (Group **719**). Ditch **251** had a distinctive dark fill, which produced small quantities of Middle Iron Age pottery (see Appendix 5) and flint working flakes/chips. An environmental sample from this feature contained comparable remains to those identified in the assemblages from the Period 2 post-holes, although the density of material recorded is generally lower (see Appendix 10).

Metalworking and 'Ritual' Pits
Of particular significance was the discovery of several large pits, many of which produced evidence of metalworking in the form of smithy slag, hearth-lining, hammerscale and fuel ash. Three of the pits (**351**, **383** and **403**) were located against the northern edge of B3; the central pit (**383**) was the deepest (1.2m, Plate 7) and produced the most abundant evidence of smithying in association with Middle Iron Age pottery (see Appendices 3 and 5). A smaller pit (**230**) was found against the western edge of B3, truncated by Period 4 ditch **715,** and also contained metalworking residue. These features, combined with pit **424** in Area B4 (sealed beneath/truncated by Period 3 trackway ditch **719**), produced over 90% of the slag from the site; that from Period 3 and later deposits is likely to be residual.

Pits **501** (located in the east of Area B3), and **612** (in the area of post-hole group **642**) both produced Middle Iron Age pottery, although very little evidence of metalworking was found. This suggests that they may have had a more domestic function, although the environmental evidence does not suggest that they were used for grain storage (see Appendix 10). Animal bones, including those of cattle, sheep/goat and horse were found in some of the metalworking pits, whilst pit **520** (cut

by **501**) produced several frog bones (see Appendix 9). A small pit (**666**), truncated by Period 3 trackway ditch **718**, produced no datable finds although the similarity of its fill to those encountered in other Period 2 features suggests that it was contemporary.

Evidence of craft-working was also found in these pits. Sawn red deer antler fragments in addition to sawn goat and cattle horn cores were recovered from a number of the pits (Appendix 9) that also produced metalworking waste. A possible iron tool (a long thin shank; SF192) was also found in pit **230.** This is interpreted as a possible smith's punch, leather worker's awl or tooth from a wool comb or flax heckle, and provides further evidence for craft activities in this period (Appendix 2).

The environmental samples from these pits suggest that the material derives from scattered refuse associated with activities such as crop-processing and metalworking (see Appendix 10).

A deep, shaft-like pit (**457**) was partially exposed in the north-east corner of B3, from which sherds of Middle Iron Age pottery were recovered. No evidence of metalworking was found, although the shape and depth (>1.3m) of this pit/shaft indicates that it may have been a well, or it may possibly have had a more ritual function.

A very truncated pit (**424**) in Area B4 may also have had a ritual or ceremonial function, although metalworking residue was also found here. The pit was cut by a Period 3 ditch (**719**), and only the base and part of the northern edge survived, within which were several large sherds of Middle Iron Age pottery and a partial/sawn red deer antler (see Appendices 5 and 9). These artefacts appear to have been deliberately placed, rather than discarded as rubbish, particularly as antler would have been a valuable commodity in this period. A possible ritual element is also indicated for this period by the presence of a partial dog skull placed with a large sherd of Middle Iron Age pottery in a small pit (**656**) close to the southern edge of Area B3.

Additional Excavation Area (B3a; 2005)
Three pits (**1003**, **1006** and **1008**) and a truncated ditch (**1001**) were revealed to the immediate north of Area B3 following the removal of a metal storage container. The pits were very similar to those investigated in B3 and B4; no slag was recovered although small quantities of burnt flint and pottery of similar type to that found in the main area were present. The ditch could represent a contemporary northern boundary or internal division, aligned north-west to south-east.

Clay-Lined Pits
Five shallow bowl-shaped pits (**408**, **529**, **532**, **545** and **516**) lined with yellow chalky clay and filled with large heat-affected/burnt stones were excavated in the northern and western parts of Area B2. These

features, which ranged in size from 0.58m-0.8m across and 0.12m to 0.25m deep, are likely to be the truncated remains of pits designed for heating water.

The pits have been provisionally assigned to this period, although dating is problematic as the only artefact recovered was a small sherd of Period 3/4 pottery from the upper fill of **408**. Similar features have, however, been found on Middle Iron Age sites such as Warrens Field, Claydon Pike in the Cotswolds. Here a number of clay-lined pits were found in association with Middle Iron Age settlement remains (www.oxfordarch.co.uk/cotswoldweb/text/warrens_field_strat. pdf).

It is possible that any associated structural remains would not have survived at Linton due to later ploughing, especially if the foundations had been particularly shallow.

The environmental samples from these pit assemblages appear to be derived from low to moderate densities of scattered, possibly domestic, refuse (see Appendix 10). Of interest, several of the pits contained small quantities of metalworking residues, perhaps further suggesting that they might be contemporary with the Middle Iron Age activity in Areas B3 and B4.

5.4 Period 3: Late Iron Age/Early Roman (100BC to AD100) (Figs 2-6)

Area B

Relatively few features produced Late Iron Age/Early Roman pottery, however it is possible that the earliest elements of the trackway ditches **718** and **719** in Areas B3 and B4 may date to the latter part of this period. These ditches ran parallel, *c.*7.5m apart, with an area of intermittent metalling (415) surviving along the middle. The trackway truncated a number of Period 2 features, including pit **424** and pit/post-hole **420**, and was in turn traversed by several Period 4 ditches (see below).

Relatively few finds were recovered from the backfill of the ditches; the small quantity of pottery is very mixed, comprising Middle Iron Age, Late Iron Age and Roman sherds (Appendix 5). The Middle Iron Age pottery is likely to have been disturbed from the Period 2 features in this area, whilst the later (Period 4) pottery may date to the disuse of the trackway.

It is feasible that some of the undated post-holes and pits (**306**, **308**, **310**, **345**, **357**, **359**, **361** and **373**), identified to the south of the trackway are contemporary with it, perhaps representing the remains of short-lived structures possibly to shelter livestock.

A number of the Period 4 ditches in Area B2 may have had their origins in Period 3 (if not Period 2 or earlier), as small quantities of residual pottery and flint were present in the later assemblages. The ditch alignments also appear to have been perpetuated between the various periods identified, and do not match the current boundaries.

An unstratified but complete Colchester derivative brooch (SF100), dated *c.*AD 50-70 was found in the southern part of Area B1 (Appendix 2), where no apparent features of this date were located.

5.5 Period 4: Romano-British to Early Saxon (*c.*AD 100 to *c.*AD400) (Figs 2-6)

No features directly attributable to this phase were found in Area A.

Area B (Figs 2-5)

Most of the ditches recorded in Area B appear to date to the Roman period; no direct evidence of associated settlement activity was present.

The ditches were aligned north-east to south-west and appear to represent boundaries to fields, paddocks, small enclosures and possible trackways. The ditches could be traced from Area B5 across to B3 and down the length of B2 into B1, where they were less easily-defined. Differentiating the stratigraphic relationships between the ditches was very difficult due to the similarity of the sandy fills. Six of the ditches (**710**, **711, 712, 713, 714** and **715**) appeared to cut across the Period 3 trackway (**718** and **719**) in Areas B3 and B4, indicating that this feature did not continue in use for long in the Romano-British period and instead appears to have been superimposed by a series of smaller ditched enclosures.

Roman/Period 4 finds, including pottery, brick/tile, nails and two linch pins (SFs 200 and 202) possibly from carts, were recovered from the layer of silting overlying the metalled surface of the Period 3 trackway (see Appendices 2, 5 and 6). The pottery indicates a 4th or early 5th century date for the disuse of this surface, although it is unclear when the trackway fell out of use. The mettaling surface (415) clearly spread over the southernmost trackway ditch (**718**), suggesting that the surface post-dates the Period 3 ditched trackway, or perhaps represents a later repair/consolidation during the early part of Period 4.

The pottery recovered from the fills of the numerous Period 4 ditches was generally in small quantities with often-significant abrasion indicative of post-depositional disturbance such as middening and/or manuring (see Appendix 5). Pottery from these ditches is also mixed: the earliest is 2nd to 3rd century (*e.g.* from **713** and **715**) although later Roman pottery predominates. Several of the ditch sections produced

pottery characteristic of Early Saxon (5th century) manufacture that were found in conjunction with late Roman wares, suggesting some continuity between the two periods. Of interest in the assemblage is the relatively high number of mortarium sherds, which indicate that these vessels originated from a place where food preparation was being undertaken. Most of the Roman brick and tile (including tegula and box flue – see Appendix 6) from the site was found in the ditches, suggesting the presence of a Roman building in the vicinity.

A significant proportion of the assemblage comprises sherds of sandy grey ware of unsourced, but probably local, manufacture; some of these show evidence of mis-firing which may indicate the presence of a production site close-by.

Environmental samples from the ditches all contained an extremely low density of material, and it would appear most likely that the remains derive from either sparse scatters of refuse, or wind-blown detritus. A small number of mollusc shells were recorded from five assemblages, and these indicate that open grassland conditions prevailed in this period (see Appendix 10). The animal bone assemblage, mostly deriving from the ditch fills, indicates an increase in size of both cattle and horses from the preceding Iron Age period. Evidence for draught cattle was also found, represented by metapodials with broadened distal ends (see Appendix 9).

Several of the ditches (**710**, **711, 712** and **715**) could be traced extending across the length of Area B. These could represent the remains of narrow ditched trackways (*e.g.* **710** and **711** cutting across the Period 3 trackway in Area B3), or perhaps a major boundary. Ditches **710** and **711** truncated or ran within a few metres of six of the Period 1 'grooved ware' pits, perhaps suggesting the presence/perpetuation of a boundary or significant alignment here.

No features, other than ditches, produced Roman pottery, although occasional sherds were recovered from the 'buried soils' identified across the site; their presence likely to be a result of ploughing.

Several of the metal objects from the site (most of which were found by metal detector) are datable to the Roman period, and include a number of 3rd and 4th century coins (SFs 106, 110, 115, 117, 116, 126, 132, 133, and 134; Appendix 2).

This low density of finds and absence of features other than ditches indicates that the main focus of settlement lay away from the site in this period.

Area C (Fig. 1)

A probable ditch was recorded which is undated but was on a similar alignment and location to a possible droveway, identified by the geophysical survey. The droveway, represented by two parallel, linear anomalies, was interpreted as being of possible Roman date.

5.6 Period 5: Post-Medieval/Modern (c. AD1600 +)

Areas A, B and C

Very few post-Roman features, or pottery/finds, were present in any of the areas investigated. An assessment of the aerial photographic material for the site identified evidence of ridge and furrow in the southern part of Area C/D prior to the conversion to a sports field; no evidence for this was found during the excavation. A number of modern post-holes were located which are likely to relate to the college buildings and associated sports facilities. A small pit containing the burial of a young pig was found in Area B2; the condition of the bones indicates that this was a relatively recent event.

A large proportion of the metal-detected finds from the topsoil stripping date to the post-medieval period and include rumbler bells (SFs 101, 102 and 129), coins and jettons (SFs 88, 109, 11,1, 123 and 122), a cloth seal (SF130) and lead shot. The relative concentration of musket-sized lead shot (SFs 91, 108, 121, 127, 128 and 258) suggests that it might derive from military action. This evidence combined with the recovery of a number of Rose farthing tokens (SFs 876, 87, 103 and 211) dating to late in the reign of Charles I may place this military action to during the English Civil War (see Appendix 2).

6 Assessment of Archaeological Potential

6.1 Statement of Potential

The written and drawn elements of the contextual record form the main components of the excavation data and are sufficient to form the basis of the site narrative. The main phases of activity on the site span the Neolithic to Roman/Early Saxon periods, with very limited evidence for later occupation. Whilst all of these periods will be addressed by the aims and objectives of the post-excavation analysis, the main areas of research will focus on changing land-use and settlement within this river valley. The greatest potential for addressing regional and national research priorities lies in further analysis of the Neolithic pits, Early Bronze Age ring-ditch and Middle Iron Age metalworking and

settlement-related features in particular. Further study of the Roman fieldsystem within the wider topographical and archaeological context will also enhance understanding of the development and use of this important river valley.

6.2 Stratigraphic and Structural Data

6.2.1 Quantity of Written and Drawn Records

Area	LINVIC 04	LINVIC 04	LINVIC 04	LINVIC 05	Totals
Type	Evaluation	Area A	Area B	Area C	
Context register	2	3	15	(1)	20
Context numbers	55	92	516	13	676
Context records	53	91	497	2	643
Contexts not used			4		
Trench Record sheets	3				3
Watching Brief Record Sheets		2 (+ sketch section/location)			2
Level record sheets	3	6	21		30
Plan registers	1	1	6	(1)	8
Plans (sketch)				1	1
Plans at 1:10			2		2
Plans at 1:20	5		36		41
Plans at 1:50		16	63		79
Plans at 1:100			4		4
Total station survey			✓	✓	
Section register	1	1	4		6
Sections at 1:10	3	8	73		84
Sections at 1:20	13	16	47		76
Sections at 1:50		1			1
Sample register sheets	1	3	11	1	16
Photo register sheets	2	10	20		30
Black and White films	1	4	9		10
Colour print films		2	4		5
Colour slide	1	4	9		14
Digital photographs	40	84	464	13	601
Small/spot finds register sheets	(1)	(1)	7	(1)	7

Table 1: Quantification of Written and Drawn Record

6.2.2 *Quantity of Environmental Samples*

Environmental samples	**LINVIC 04 Evaluation**	**LINVIC 04 Area A**	**LINVIC 04 Area B**	**LINVIC 04 Area C**
Number of samples	11	21	134	1
Flotated samples	11	21	131	

Table 2: Environmental Samples

6.2.3 *Quantity of Finds*

Site/Area **Type**	**LINVIC 04** Evaluation (kg)	**LINVIC 04** Area A (kg)	**LINVIC 04** Area B (kg)	**LINVIC 05** Area C (kg)	**Total**
Flint (inc. unworked)	0.386	4.845	37.170	0.117	42.51
Pottery	0.61	0.66	5.69	0.09	7.05
Animal Bone/Antler	2.79	0.04	17.64	0.44	20.91
Human bone	-	-		-	
Querns, stone items	-	-	15.31	-	15.31
Unworked stone	0.823	0.69	50.45	-	51.97
Slag	-	-	3.853	-	3.85
CBM inc. fired clay	0.558	0.035	4.841	0.354	5.78
Metal Objects (no.)	2	8	81	7	98

Table 3: Principal assemblages by area

6.2.4 *Range and Variety*

Cut features comprise ditches, pits (including clay-lined pits), post-holes, graves (one human, one animal), 'tree-throws' and animal burrows.

Feature types often varied from period to period. Pits and a ploughed-out barrow largely represent the earlier prehistoric periods, which by the Iron Age had been replaced by much larger pits, numerous post-holes and a probable trackway. In contrast, feature-types associated with Roman occupation were dominated by ditches forming field systems and small enclosures, most of which were located in Area B.

Period / Feature Type	1	2	3	4	5
Pits	11	12+	-	1+	-
Possible pits/tree-throws	18	-	-	-	
Ditches	1	2	4+	14+	-
Post-holes		38	-	-	5+
Graves	1	-	-	-	1 (animal)
Buried soil	2?	?	?	-	-

Table 4: Summary of feature-type (ditches etc are grouped) by area

Deposits mostly comprise feature-fills, although buried soils and a metalled surface were also present. Most of the ditches contained single sandy silt fills, many of the post-holes were filled with distinctive chalk-and-charcoal-rich deposits, whilst the pits in Areas B3 and B4 generally contained a number of fills often indicative of ritual activities.

Relatively little complex stratigraphy was encountered, and features were on the whole cut into the natural underlying geology. One exception to this was an area of intercutting Roman ditches, which truncated a number of Iron Age pits, in the north of Areas B3 and B4.

6.2.5 Condition of the Excavation Area

The survival of archaeological features on the site was on the whole good, although horizontal truncation may have occurred as a result of medieval and post-medieval ploughing and, more recently, landscaping associated with the development of the college and playing fields. Deposits and features in the area of the tennis courts (B5) in the north-west of the site were the most severely truncated, and had been almost completely removed in some places. Evidence of animal activity (mainly rabbits), both in antiquity and recently, was also common, particularly in the northern parts of Area B.

A thick buried soil had survived well in Area A and the south-western part of Area B and over large parts of Area C, although this had been affected by later ploughing evident by the very mixed nature of the finds recovered. The presence of a ring-ditch in Area A demonstrates that any upstanding features such as mounds or banks have not survived.

6.2.6 *Condition of the Primary Excavation Sources and Documents*

The records are complete and have been checked for internal accuracy. Written and drawn records have been completed on archival quality paper and are indexed. All paper archives have been digitised into the individual site Access database. Site drawings have been digitised in AutoCAD. Site matrices have been drawn up for selected/more complex areas. All primary records are retained at the offices of the Archaeological Field Unit at Fulbourn. The Site Codes LIN VIC 04 and LIN VIC 05 are allocated and all paper and digital records, finds and environmental remains are stored under their respective site code.

The site data is of sufficient quality to address all of the project's Research Objectives and form the basis of further analysis and targeted publication of the key features, finds and environmental assemblages.

6.2.7 *Survey Data*

The main excavated areas (B and C) were located onto the Ordnance Survey with the aid of a Leica TCR705 Total Station Theodolite. All survey data is stored in digital format with the archive.

6.3 Artefact Assemblage Summaries

The following section comprised summaries of the reports contained within the appendices; reference to the project's original Research Aims and Objectives (outlined in Section 3 above) is included with the recommendations.

6.3.1 *Metal Objects* (Appendix 2)

A total of 91 objects were examined; most come from machining layers. They range in date from Roman to modern, with the majority of the datable items being either Roman or late medieval to early post-medieval in date. Coins form a substantial part of the collection, the majority coming from either the Late Roman period or the 17th century. In functional terms there are several dress accessories and general fittings, but the number of items of military equipment and of metal-working debris are unusually high and form the individual signature of this assemblage.

All the coins, several of the copper-alloy objects and one lead object (29 objects) have been conserved by Anne-Maria Bojko of Colchester Museums Conservation Service; all 33 iron objects are being X-radiographed.

Potential and Recommendations

No further detailed analysis of the metalwork is required. A report on the coins and other metal objects should form part of the published site report, providing references to comparable items and assemblages where appropriate. Such a report should concentrate on the stratified Roman, and only briefly catalogue the later items that have been selected for illustration as a sample of the later activity (not represented by subsoil features) in the area.

A limited number (maximum 11) of the items should be drawn, pending X-Ray of the iron.

The metalwork, integrated with the results of other artefacts and the stratigraphic data from the excavation, has good potential to contribute to a number of the project's Regional and Local Research Objectives, in particular ROs 1, 4, 5 and 6.

6.3.2 *Metalworking Debris (Slag) (Appendix 3)*

Although only a small quantity of slag and hearth lining (3.8535kg) was found it is significant due to the contexts in which it occurred. Slag was predominately found at the northern end of the site (Areas B4 and B5) in a series of Middle Iron Age pits: These produced 78.7% of the total slag and hearth lining; 6% was found in Romano-British ditches.

The majority of the slag was morphologically characteristic of smithy slag, of which 2.221kg were smithing hearth bottoms. Evidence that copper-alloy melting may have been taking place alongside iron smithing (but on a smaller scale) was also found.

Potential and Recommendations

Further work, comprising spatial distribution analysis of the slag, hammerscale and copper-alloy droplets, has potential to locate the position of the Middle Iron Age smithy. Research into comparative assemblages has the potential to explore whether pit fills represent 'structured' or ritual deposition. Microscopy and morphological examination of the slag assemblage will help to clarify whether a variety of different smithing processes were being undertaken on the site. This could be combined with XRF to determine the type of copper-alloy being used, for example tin or lead.

This further analysis has good potential to address the project's National, Regional and Local Research Objectives, in particular ROs 1, 3, 5 and 6

6.3.3 *Flint (Appendix 4)*

The site yielded a total of 3673 (41.42kg) flints, the majority (3522; 39.81kg) of which were worked and unburnt. The material was recovered from Period 1 (Neolithic and Bronze Age) features, and was residual within later features.
The majority of the material recovered from the site was from seven definite and two possible Late Neolithic pits. These yielded large assemblages of predominantly fresh flint working waste; waste flakes and blanks, cores, rejuvenation flakes, chunks, chips and some tools. The freshness of the material and the presence of large quantities of useless small, fine chips indicate that the material did not travel far between manufacture and deposition. Similar evidence has been noted at other Late Neolithic pit sites such as Middle Harling in Norfolk.

The pits at Middle Harling yielded comparable quantities of material as the Linton pits, which generally stand out from other sites in terms of quantity. Grooved Ware pits at other sites often yielded considerably less flint (between one and 43 flints), in contrast, pits at Linton and Middle Harling yielded up to 856 flints.

Potential and Recommendations

Further analysis of the lithic assemblage will focus on refitting the key assemblages from the Period 1 pits. This has the potential to increase understanding of the Late Neolithic flint working strategies carried out at the site, the purpose and use of the pits, the development of the site and issues of temporality in the Late Neolithic, and perhaps contribute to understanding of landscape use and occupation. Sourcing and researching comparative assemblages, such as Middle Harling, and Kilverston should also be undertaken.

This focused analysis has good potential to provide new information on this important aspect of the early history of the site's exploitation, and to contribute to the project's National, Regional and Local Research Objectives, in particular RO4.

6.3.4 *Prehistoric Pottery (Appendix 5)*

The prehistoric pottery assemblage contains 570 sherds weighing 3,598g. The earliest pottery present is of earlier Neolithic date (3600-3300BC). There is a substantial Later Neolithic/Early Bronze Age Grooved Ware (3000-2000BC) assemblage; Beaker (2600-1800BC) sherds are also present along with a moderate assemblage of Iron Age pottery mostly dating to *c*.300-100BC.

The majority of the sherds are in poor condition and show considerable degradation to the surfaces. It is possible that this is the result of the corrosive action of acid sandy soils.

Most of the Iron Age pottery was recovered from the fills of pits, post-holes and ditches. Four main fabric groups are present, with most sherds being made of sandy, quartz rich fabrics. Vessel forms include several slack shouldered jars typical of Middle Iron Age assemblages in Cambridgeshire.

Potential and Recommendations

It is recommended that the entire assemblage be (rapidly) rescanned to check for additional earlier Neolithic sherds that may have been misidentified. Detailed analysis will include an examination of the Neolithic pit fills to establish the nature of the deposits found there, in particular to look for the presence of 'structured' deposits. This would be of particular interest if associated with a radiocarbon date. Detailed analysis will also include an examination of the Iron Age pit fills, postholes and ditches and include integration of site data and phasing.

Further analysis of the prehistoric pottery, and research into comparative assemblages, has good potential to contribute to the project's National, Regional and Local Research Objectives, in particular RO4.

6.3.5 Romano-British Pottery (Appendix 5)

A total of 257 sherds, weighing 3.247kg, of Romano-British pottery was recovered, most deriving from ditches. All of the pottery is abraded; the poor condition is an indication of post-depositional disturbance, perhaps the result of middening and/or manuring as part of waste management during the Roman period.

The majority of pottery found (by sherd count) consists of utilitarian sandy grey ware sherds of unsourced, but probable local manufacture; signs of mis-firing may indicate that a production site lay close-by.

Although a small amount of the assemblage is transitional to the Iron Age and other material is Early Roman, the majority is Mid- to Late-Roman in date. A large proportion of the Late Roman sherds are mortarium sherds, which indicates that much of this pottery has originated from a place where food was being prepared.

Also of interest are the Early Saxon handmade reduced ware vessel fragments found in conjunction with these late Roman wares, which suggest some continuity between the two chronological periods.

Potential and Recommendations

Further work should comprise full fabric and form analysis of this material, integrated with the phased site data and the results combined

with previous research in the area to establish (if possible) where the pottery originated from.

This additional work has good potential to show how local goods combined with traded goods to provide sufficient ceramic wares for the community. It would also be possible to see how pottery use changed through time as this pottery assemblage spans the whole of the Roman period and continues into the Early Saxon era.

The further analysis of the Romano-British pottery has good potential to contribute to all of the project's Research Aims ROs 1-6.

6.3.6 *Brick, Tile and Fired Clay (Appendix 6)*

Roman Brick and Tile

A small quantity (28) of Roman brick and tile fragments weighing 3.92kg were collected from 24 contexts, mostly comprising Roman (Period 4) ditches. Some was also recovered from deposits overlying the Late Iron Age/Roman trackway, a pit and post-hole, and several unstratified/machining layers. The fragments were on the whole fairly small and often abraded, and include several examples of tegula and box-flue tile. A partial (human?) print and several possible faint signatures were noted. At least two different fabrics were recorded: most are an orange sandy quartz, although shell-tempered fragments were also identified.

This assemblage, although small, indicates the presence of a Roman building somewhere in the vicinity of the site.

Fired Clay

A small assemblage (53 pieces weighing 0.9kg) of undiagnostic fired clay was recovered from 16 contexts, mostly comprising Middle Iron Age pits and post-holes. Sixteen fragments (weighing 0.256kg) of possible daub were also recovered from two contexts, both fills of Roman ditches.

Post-Roman brick and tile

Very little post-Roman brick and tile was present: a small quantity (0.354kg) of post-medieval tile was recovered from unstratified/surface contexts in Area C.

Potential and Recommendations

No further work is required on this material, other than integration with the site phasing and a short summary to be included for publication.

This data will add to the general interpretation of site activities, particularly the later Roman/earlier Saxon phase of activity and, combined with this, has some potential to address the project's National, Regional and Local Research Objectives, in particular ROs 2 and 3.

6.3.7 Querns, Stone Objects and Unworked/Burnt Stone (Appendix 7)

Five stone items, comprising the upper parts of two rotary querns and three smoothing or rubbing stones, were recovered from features dating from the Middle Iron Age and Roman periods (Periods 2 and 4). Sandstone was favoured for the latter activity from both early and late contexts, whilst Millstone Grit was used for the Middle Iron Age rotary quern and Rhineland Lava for the Roman quern.

A moderate assemblage (51.97kg) of unworked stone was also recovered from 30 contexts dating from the Neolithic to Roman periods. Much of the stone is sandstone, and most shows evidence of heating or burning.

Potential and Recommendations

No further analysis of the stone is required; however the results will be integrated with the site phasing and a summary will be included in the publication report.

This data will add to the general interpretation of site activities and, combined with this, has good potential to address the project's National, Regional and Local Research Objectives, in particular ROs 2 and 3.

6.4 Environmental Remains

6.4.1 Human Bone (Appendix 8)

A single, crouched inhumation burial of a mature adult female was identified in the north of Area B. The skeleton is moderately well preserved; most of the vertebral column is missing, as are all the carpal bones and the ribs survive only as scraps. Indications of osteoarthritis were recorded and at least nine teeth had been lost prior to death; the surviving teeth are very heavily worn.

Potential and Recommendations

No further analysis of the human bone is required, however radiocarbon (C14) dating is recommended as no associated dating material was recovered. A summary report, including the integration of

the radiocarbon date and comparative research, will be included in the publication report.

The establishment of the date of the burial will contribute to the overall site interpretation and has the potential to contribute to the project's Regional and Local Research Objectives, in particular RO4.

6.4.2 *Animal Bone (Appendix 9)*

A total of 304 "countable" animal bones was recovered from deposits dating from all of the main periods on the site. The bones primarily derive from the fills of pits, post-holes and ditches. Condition varied from poor to excellent with most fragments fairly well preserved.

The small Late Neolithic-Early Bronze Age (Period 1) assemblage includes two bones of the extinct aurochs. In the Iron Age sheep/goat is slightly more frequent than cattle; the sheep/goat mandibles display a wide range of ages. The cattle were fairly small shorthorned beasts; pony sized horses and medium sized dogs are also present. Evidence was found for the working of antler and horn during the Early to Middle Iron Age (Period 2); one bone tool was also recovered. There is evidence for an increase in size of both cattle and horses in the Romano-British (Period 4) period. Evidence for draught cattle was found, represented by metapodials with broadened distal ends.

Potential and Recommendations

No further work is recommended on this material. All countable elements have been fully recorded and entered on to an Access database. The results, integrated with the final stratigraphic phasing and other ecofactual and artefactual data, will be included in the publication report, as they provide important evidence for farming and craft working activities throughout the main periods of occupation on the site.

This assemblage has good potential to address all of the project's Research Objectives (ROs 1 – 6).

6.4.3 *Environmental Remains (Appendix 10)*

Samples for the extraction of the plant macrofossil assemblages were taken from across the excavated area; 129 were submitted for assessment.

During the Late Neolithic to Early Bronze Age (Period 1), the site appears to have been used on a seasonal basis, with midden material apparently being regularly buried prior to the abandonment of the site. Contemporary parallels for this practise are known from elsewhere within the eastern region.

During the Early to Middle Iron Age (Period 2), activity on site appears to have been at its height, with evidence for grain processing/storage and iron smithing. The composition and preservation of the assemblages indicate that a high density of the grains in particular were destroyed by intense burning, either during catastrophic fires, or during the deliberate combustion of waste material.
By the later Iron Age and Early Roman periods (Period 3), activity on the site was curtailed, with only limited evidence for scattered refuse, and by the later Roman to Early Saxon periods (Period 4), assemblages are primarily composed of low densities of probable wind-blown detritus.

Potential and Recommendations

Of the 129 samples assessed, only five (from Period 2 post-holes and pits) contain a sufficient density of material (i.e. 100+ specimens) for further quantitative analysis. However, it should be noted that the analysis of such heavily burnt material from what appear to be secondary contexts is of doubtful value to the overall interpretation of the site.

A fully-integrated summary of this assessment should be included within the publication report. Material suitable for either C14 or AMS dating is present within a number of samples (most particularly those from the Period 1 deposits), and can be easily separated for this purpose.

The incorporation of the environmental remains will aid the interpretation of activities and changes in site use from the Neolithic through to the Late Roman/Early Saxon periods. This has good potential to address all of the project's National, Regional and Local Research Objectives (ROs 1-6).

7 Updated Research Aims and Objectives

Completion of the post-excavation assessment has shown that all of the original aims and objectives of the excavation can be met through the analysis of the excavated materials. A number of new objectives have also been identified as a result of the assessment process, many of which will contribute to a variety of research themes at national, regional and local levels.

The following research objectives draw upon national (English Heritage 1997; Haselgrove *et al* 2001) and regional (Brown and Glazebrook 2000) research assessments and agendas. These supplement the original Research Objectives (ROs 1-6) outlined in Section 3 above.

7.1 Research Priorities

7.1.1 *National* (English Heritage 1997)

RO7 *Communal monuments into settlement and field landscapes (c.2000-300 BC)*
Understanding the gradual change from the monument-dominated landscape of the Neolithic and Early Bronze Age to the settlement-dominated landscape of later prehistory: the processes involved and regional variation.

RO8 *Briton into Roman (c.300 BC-AD 200)*

Understanding continuity in settlement and land use and in social and economic organisation between the Late Iron Age and Romano-British periods: regional variations, complexity and ethnicity.

7.1.2 *Regional*

RO9 *Investigation of datable pottery assemblages, contributing to the establishment of regional pottery sequences.*

RO10 *Understanding shifting settlement patterns and land-use in the eastern region, particularly in valley locations.*

RO11 *Investigation of the adoption of an agrarian economy and changing patterns in agricultural production and consumption through full quantification and standardised reporting of environmental remains.*

RO12 *Investigation of regional and chronological variations in the nature and context of deposition, particularly in the late Neolithic/Early Bronze Age and Middle Iron Age.*

RO13 *Investigation of the chronology, range and distribution of metalworking sites in the Iron Age.*

7.1.3 *Local*

RO14 *Investigation of Neolithic exploitation and occupation along the Granta valley.*

RO15 *Study of the later Neolithic and Early Bronze Age monumental and ceremonial landscape of the Granta valley and its immediate environs.*

RO16 *Understanding Iron Age settlement form and function in south-eastern Cambridgeshire, with a focus on evidence for economic specialisation (metalworking/craft production).*

RO17 *Investigation into the ritual aspects of metalworking on Iron Age sites in the area.*

RO18 *Understanding the Iron Age origins of the site and continuity of use into the Romano-British period.*

RO19 *Investigation of contemporary field system alignments and enclosure patterns revealed by similar excavations, combined with aerial photographic/cropmark evidence to understand the land division and management of this part of the valley in the Roman period.*

RO20 *Exploration of environment, economy and exchange networks in south Cambridgeshire/north Essex.*

7.2 Project Research Objectives

In the light of the potential established by the assessment, a number of revised aims and objectives have been defined to maximise the potential of the site data. The following are based on period-specific aims.

RO21 *To investigate whether the Late Neolithic and Early Bronze Age deposits represent continuous occupation or more seasonally-based activities.*

- A combined approach to the study of pottery, flint working strategies and environmental remains from depositional sequences identified in the Neolithic pits, in addition to the ring-ditch and buried soils, to establish the nature and temporal use of the site in the earlier prehistoric period. Do the pit fills in particular represent 'structured' deposits, if so are the sequences similar and comparable between the different pits?

- Integration of radiocarbon dating of the human skeleton with animal bones/nutshell fragments from the late Neolithic pits in particular will advance understanding of the chronology and use of the site.

- It is crucial to explore the spatial distribution and siting of the Late Neolithic pits with reference to the local topography and geology: do the pits form any significant clusters, alignments or associations?

RO22 *To investigate the evidence for metalworking, craft and ritual activities on the site in the Middle Iron Age*

- Integration of the study of pottery, smithing waste, metal work, faunal remains and environmental data from the numerous pits and post-holes, to establish the apparent specialisation and ritual aspect of this period of the site's occupation. Do the dumps of smithing waste, pottery, animal bone (including a partial dog skull, an antler and fragments of worked horn) in the pits represent 'placed' deposits, indicating strong ritual associations? If so are the sequences similar and comparable between the different pits?

- Do the post-holes represent a number of structures, if so are they associated with the pits and what might their function have been? Are there comparable sites in the locality which might inform on reasons for the site's location?

RO23 *To explore evidence for the environment and economy of the site in the Iron Age*

- What evidence for mixed farming economy and local environment can be inferred from the faunal remains and environmental data?

- Is the pottery assemblage similar to that excavated at nearby contemporary sites, and if so what does this suggest about regionality and trade links?

RO24. *To investigate whether settlement activity ceased on the site in the later Iron Age, and explore the potential reasons for this.*

- The infilling of the pits in the Middle Iron Age and general absence of settlement features definitely dating to the later Iron Age/Early Roman period may suggest that the site was abandoned. A possible explanation for this may be sought by investigation of the stratigraphic relationships combined with the artefactual remains relating to the creation of the trackway in particular, which cut a swathe across the pits and other features of the settlement.

- How does the trackway relate to known communication routes, such as nearby Roman roads and the course of the River Granta?

RO25 *To understand the development of the field system and enclosures in the Roman period and how they related to the landscape and any nearby Roman settlement.*

- Analysis of the alignment and stratigraphic relationships of the ditches combined with study of the pottery, metal finds, faunal remains and environmental data to determine the types of farming regimes employed during the Roman period. Was this a predominantly mixed economy, or more pastoral/animal-dominated? What evidence is there for the proximity, and type of, contemporary settlement? Does the alignment mirror that found at nearby sites, and if so does this suggest a planned landscape?

- Does the presence of locally-produced pottery indicate the presence of a nearby, as yet unsourced, production site?

RO26 *To investigate the abandonment of the site in the Early Saxon period, and explore the reasons for this*

- Analysis of the pottery assemblage to determine the longevity of site use, does this fit into the general pattern for this period in south Cambridgeshire?

RO27 *To explore the evidence for military action in the 17th century*

- Research into military skirmishes in the parish during the Civil War to determine whether the notable presence of military-related items can be associated with a known event.

8 Methods Statements

The assessment and updated research objectives have identified the key areas for future analysis and wider dissemination through publication. This further work will aim to present a synthesis of the project results, concentrating on the earlier prehistoric elements of the site, in addition to the Middle Iron Age settlement and metalworking remains and the Romano-British field system. Analysis of the finds assemblages will focus on the Neolithic, Iron Age and Roman pottery, the large stratified flint assemblage and the metalworking residues.

The following section summarises which elements have been identified for full, partial or no further analysis in order to meet the potential of the excavated data and the Updated Research Aims of the project. Detailed task lists are presented in Section 10. The project team members (and initials) are outlined in Table 5.

8.1 Full Analysis

8.1.1 *Stratigraphic Analysis (Tasks 1-17)*

Full but selective further stratigraphic analysis, concentrating on the following key sequences and areas (to address ROs 7, 8, 12, 13; 14-21, and 24-26):

- Finalise site groups and phasing, with particular emphasis on the Late Iron Age/Early Roman trackway ditches and the Roman field system ditches (RC). Also to include comparative analysis of the Late Neolithic pit fills to determine whether they represent structured deposits (RC with SP and EB)
- Full integration of the artefact dating and phasing (RC)
- Compilation of text sections for all features, ordered by phase, and group to enable interpretation and discussion and to provide information for key specialists (RC)
- Compilation of group, phase and site narrative (RC), and site phase/group plans drawn to illustrate the development of the site (ILL)

8.1.2 *Pottery Analysis (Tasks 25-26)*

Full cataloguing (fabric identification) and analysis of the stratified Neolithic, Iron Age and Roman pottery assemblages (to address ROs 7-9, 12, 14-18 and 21-26):

- Rapid scan of the assemblage in order to identify any additional Early Neolithic sherds (SP)
- Detailed investigation of the pottery from the Late Neolithic pit fills and the Middle Iron Age pits and post-holes (SP)
- Investigation of the Roman and Early Saxon pottery from the ditch fills (AL)

8.1.3 *Flint Analysis (Task27)*

Cataloguing of the flint has already been undertaken; further analysis will concentrate on the Late Neolithic pit assemblages (to address ROs 7-10, 12, 14-16 and 21):

- Refitting of the main pit assemblages (EB)
- Research into comparative assemblages (EB)

8.2 Partial Analysis

8.2.1 Metalworking Analysis (Task 28)

Focussed additional analysis of the Middle Iron Age metalworking residues (to address ROs 7, 10, 12-13, 16-18 and 24):

- Spatial distribution analysis of the metalworking residues should help to determine the location of the smithy (TE)

8.3 Little/No Further Analysis (Tasks 29a-e)

8.3.1 Miscellaneous Finds

No further work is recommended for a number of the finds assemblages, other than integration of the results during analysis, adding final phasing. These are generally relatively small assemblages where catalogues and appropriate levels of analysis have already been undertaken as part of the assessment process and will only require small amounts of work for publication. All of these assemblages have potential to address the research objectives (in brackets), and as such will provide the basis for summaries for inclusion in the publication

- Metal objects: summary report on the stratified Roman (and earlier objects?), with brief catalogue the later items that have been selected for illustration, and discussion of comparable objects (NC) (ROs 22, 25 and 27)
- Stone Objects: summary report and catalogue (RC) (ROs 12, 16; 22)
- Human bone: integration of C14 date; summary report (ND) (ROs 7 and 21)
- Animal bones: Integration of final phasing; summary report and catalogue (IB/RC) (ROs 7, 8, 10-12, 15, 20, 21-24)
- Plant macrofossils: Integration of final phasing; summary report and catalogue (VF/RC) (ROs 7, 8, 10-12, 16, 18 and 20-24).
- Miscellaneous finds (brick/tile, fired clay, burnt stone): Integration of final phasing; summary report and catalogue (CF/RC) (ROs 7, 8, 10-11, 10, and 20-23)

8.4 Documentary Studies (Task 8)

Research into documentary and cartographic evidence, in addition to other sources such as aerial photographic surveys, will be undertaken to place the site within its wider context. This will focus on exploring

the evidence for earlier prehistoric ceremonial and monumental features along the valley, contemporary Iron Age activity and the location of Roman settlements, villas, field systems and routeways (RC) (ROs 7, 8, 13, 15-17, 19-20 and 25-27).

8.5 Radiocarbon Dating (Task 30)

Radiocarbon dating will be used to date the crouched/contracted burial to determine whether it is Bronze Age or later. The dating will be performed by the University of Waikato; a suitable bone has been selected by the Osteologist. Radiocarbon dates (maximum of three) will also be sought from suitable environmental remains (nutshell; animal bone) in the Late Neolithic pits to aid more precise dating of the Grooved ware pottery assemblages (ROs 7 and 21).

9 Report Writing, Archiving and Publication

9.1 Report Writing (Tasks 9 -14; 18-23)

Tasks associated with report writing and illustration are identified in Table 6 below.

9.2 Archiving (Task 17)

Excavated material and records will be deposited with, and curated by, Cambridgeshire County Council (CCC) in appropriate county stores under the Site Code LIN VIC 04 and LIN VIC 05 and the county HER code ECB 2035 (LIN VIC 05). A digital archive will be deposited with ADS. CCC requires transfer of ownership prior to deposition. During analysis and report preparation, CAM ARC will hold all material and reserves the right to send material for specialist analysis.

The archive will be prepared in accordance with current CAM ARC guidelines, which are based on current national guidelines.

9.3 Publication (Tasks 9-14; 16)

It is proposed that following further analysis and the production of an archive report, the key results of the project should be published in PCAS, under the title (TBC) 'Neolithic exploitation and Middle Iron Age metalworking in the Granta Valley: Excavations at Linton Village College, Cambridgeshire, 2004-5' by R. Clarke. This will focus on the prehistoric elements of the site, with particular emphasis on the Neolithic 'Grooved ware' pits and the Middle Iron Age metalworking

pits within their contemporary landscapes. This synthesis will comprise approximately 10 pages of text, 6 figures, 15 plates and *c.*10 tables.

10 Resources and Programming (Fig. 7)

In order to realise the site's full potential, to meet the original and updated project aims and research objectives, as well as to contribute to broader research topics, the following resources and programming are required to complete the analysis and report writing phases. A Gantt chart showing a simplified project plan to supplement the Task Identification (Table 6) is included as Fig. 7.

10.1 Staffing and Equipment

10.1.1 Project Team

Name	Initials	Project Role	Establishment	No. of days	Day rate/cost
Rachel Clarke	RC	Project Officer	CAM ARC	32	
Stephen Macaulay	SPM	Project Manager	CAM ARC	3	
Elizabeth Popescu	EP	Editor/publications management	CAM ARC	2	
Crane Begg	CB	Report illustration Illustrate selected small finds, flint and pottery	CAM ARC	8	
Ian Baxter	IB	Animal bone	Freelance	1	£150
Anne-Maria Bojko	AMB	Metal conservation/X-ray	Colchester Museum	-	£677.48 (total)
Nina Crummy	NC	Metalwork	Freelance	1	£136
Emma Beadesmoor	EB	Flint	Freelance	6	£100/£600
Val Fryer	VF	Environmental Remains	Freelance	1	£126
Sarah Percival	SP	Prehistoric pottery	NPS	4	£195/£780
Alice Lyons	AL	Roman-British and early Saxon pottery	Freelance	3	£195/£585
Illustrator	ILL	Digitise selected sections. Illustrate selected small finds, flint and pottery	CAM ARC	12	
University of Waikato	UW	Carbon-14 dating	University of Waikato	3+ samples	c. £200 per sample
Assistant	ASST	Archiving	CAM ARC	2	
Natasha Dodwell	ND	Human bone	Freelance	0.5	£120/£60
Tom Eley	TE	Slag/metalworking debris	CAM ARC	1.5	

Table 5: Project team

10.2 Task Identification

Task No.	Task	Staff	No of Days
Stratigraphic analysis and report preparation			
1	Finalise site phasing of key groups	RC	2
2	Submit samples for C14 dating	RC	0.5
3	Disseminate final phasing to relevant specialists	RC	0.5
4	Compile archive report for archaeological sequence	RC	4
5	Write Period/Group text	RC	4
6	Review and collate results of specialist analysis	RC	2
7	Liaison with specialists	RC /SPM	1
8	Collate and review background evidence/research into comparative sites	RC	2.5
9	Write background text	RC	1.5
10	Write discussion and conclusions	RC	3
11	Produce synthesis for publication and collate/edit captions, bibliography, appendices etc	RC	6.5
12	Internal edit	EP/SPM	1.5
13	Incorporate internal edits	RC	3
14	Final edit	EP/SPM	1
15	Final edits & HER summary	RC	1.5
16	Collate/submit publication synthesis to PCAS/journal	RC	0.5
17	Archiving	RC /ASST	3
Illustration tasks			
18	Compile list of illustrations/liaison with illustrators	RC	1
19	Produce plans/sections/location drawings	ILL	5
20	Publication figure preparation	CB	3
21	Finds illustration (pottery, metal finds, flint)	CB/ILL	18
22	Finds photography (Roman pottery)	ASST	2
23	Check/edit finds illustrations	EB; SP; NC; RC/ILL	2
24	Project Management	SPM/RC	3
Finds Analysis			
25	Prehistoric pottery: scan, full identification/catalogue/analysis of Grooved ware pits and MIA assemblage, study of comparative groups, preparation of report	SP	4
26	Roman and Early Saxon pottery: full identification/catalogue/analysis, research into comparative assemblages, preparation of report	AL	3
27	Lithics: Refitting of pit assemblages; research into comparative assemblages/sites, preparation of report	EB	6
28	Metalworking debris: spatial analysis/preparation of report	TE	2
29	Integration of final phasing/C14 dating, preparation of summary reports:		
29a	Metal Objects	NC	0.5
29b	Stone objects	RC	0.25
29c	Human bone	ND	0.5
29d	Animal bones	IB	0.5
29e	Environmental remains	VF	0.5
Dating			
30	Radiocarbon dating of 3 samples	UW	£450
Meetings			
31	Post-excavation meetings	RC/SPM/ EP	1.5

Table 6: Breakdown of principal tasks

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Particular thanks are also due to the students and teachers (especially the head teacher, Mr Bush) at Linton Village College, for their enthusiasm and interest in the excavation.

Bibliography

Atkins, R.	2005	*Linton Village College: Area C Evaluation Trenching (LIN VIC 05): Preliminary Summary Statement.* CAM ARC Internal Report
Bailey, G.D.,	2005	Linton Village College: Area C Test Pits (LIN VIC 05): Preliminary Summary Statement. CAM ARC Internal Report
British Geological Survey (BGS)	1973	*Geological Survey of Great Britain (England and Wales).* Solid Drift Edition, Map Sheet 205.
Brown N. and Glazebrook J. (ed)	2000	*Research and Archaeology: A framework for the Eastern Counties. 2. Research Agenda and Strategy.* East Anglian Archaeology Occasional Paper No. 8.
Clarke, R.,	2004	*Iron Age and Roman Remains at Linton Village College, Linton, Cambridgeshire: An Archaeological Evaluation.* CAM ARC Internal Report
English Heritage	1997	*English Heritage Archaeology Division research agenda.* Draft report
Ette, J. and Hinds, S.,	1993	*Excavations at Linton Roman Villa.* CAM ARC Report

Haselgrove, C., *et al* (eds.)	2001	*Understanding the British Iron Age: An Agenda for Action.*
Hickling, S.,	2005	'Linton Village College, Site Visit 20.10.05, Tennis Court Site' CAM ARC Internal Note
Hull, D.,	1963	'A Gazetteer of Roman Essex'. *Victoria County History of Essex* 3 39-44
Kemp, S. N.,	1999	*A Middle Iron Age site at Abington Park, Great Abington, Cambridgeshire* CAM ARC Report
Macaulay, S.	2004	*Specification for Archaeological Excavation: Land adjacent to Linton Village College (Linton Special School): Stage 2 (Area A Road Corridor), Stage 3 (Area B north)& Stage 4 (Final PX & Publication).* CAM ARC Internal Report
Masters, P.	2004	*Fluxgate Gradiometer Survey: Land at Linton Village College, Linton, Cambridgeshire.* PreConstruct Geophysics
Neville R. C.,	1851	'The Roman Villa at Hadstock, Essex. Discovered by the Hon Richard Neville, FSA' *Archaeological Journal* 8 27-55
Neville R. C.,	1857	'Notes on Hadstock Villa' *Archaeological Journal* 14 63-65
Palmer, R.	2004	*Land west of Linton Village College, Area centred TL555469, Cambridgeshire.*
Shotliff, D.	1992	*Archaeology of Little Linton Farm Pipeline* CAM ARC Internal report
Thomas, A.	2004a	*Brief for Archaeological Evaluation: Linton Special School, adjacent to Linton Village College.* CCC (CAPCA)
Thomas, A.	2004b	*Brief for Archaeological Excavation: Linton Special School, adjacent to Linton Village College.* CCC (CAPCA)

Appendix 1: Health and Safety Statement

The CAM ARC will ensure that all work is carried out in accordance with Cambridgeshire County Council's Health and Safety Policies, to standards defined in *The Health and Safety at Work, etc. Act, 1974* and *The Management of Health and Safety Regulations, 1992,* and in accordance with the manual *Health and Safety in Fieldwork Archaeology* (SCAUM 1997).

Risk assessments prepared for the CAM ARC office will be adhered to.

The CAM ARC has Public Liability Insurance. Separate professional insurance is covered by the Public Liability Policy held by the CAM ARC as part of Cambridgeshire County Council. The CAM ARC's insurance cover is:

Employers Liability	£20,000,000
Public Liability	£30,000,000

Full details of Cambridgeshire County Councils' Health and Safety Policies and the archaeological unit's insurance cover can be provided on request.

Appendix 2: Metalwork and other objects

By Nina Crummy

1 Introduction and Summary

A total of 91 objects were examined; most come from machining layers. They range in date from Roman to modern, with the majority of the datable items being either Roman or late medieval to early post-medieval in date. Coins form a substantial part of the collection, the majority coming from either the Late Roman period or the 17th century. In functional terms there are several dress accessories and general fittings, usually the best represented groups of material, but the number of items of military equipment and of metal-working debris are unusually high and form the individual signature of this assemblage.

2 Condition

The copper-alloy and lead(-alloy) objects are in good condition and quite lightly corroded. The larger iron objects appear to be well preserved, with only a thin layer of corrosion products obscuring the details of form.

The objects are packed to a high standard of storage in either polythene bags or small crystal boxes supported by pads of foam or acid-free tissue. The bags and boxes are stored in larger crystal boxes or airtight Stewart boxes with silica gel.

3 Assemblage

The assemblage can be divided by material thus:

copper-alloy	39
lead(-alloy)	19
iron	33
	91

Table 7: Number of metal objects by material

The proportion of non-ferrous to ferrous objects is high and reflects the use of metal-detectors to recover objects from the surface layers removed by machine. The majority of the non-ferrous finds are from these layers, in particular 100, 200, and 206. The balance is more typical for the stratified items, of which eight are non-ferrous and 18 ferrous.

The objects are briefly listed in Tables 9-12. Each has been assigned to one of the functional categories defined in Crummy 1983 and 1988 and the results are shown in the table below. Categories represented in this assemblage are: 1...dress accessories; 3...textile manufacture, 4...household equipment; 6...weighing; 8...transport; 10...tools; 11...general fittings; 13...military equipment; 15...metal-working; and 18...miscellaneous. Coins are treated as a separate, unnumbered, group. Categories not represented here are toilet and medical instruments, recreation, literacy, buildings and services, agriculture, religion, or the manufacture of bone or ceramic objects.

Material	Coins & jetons	Categories									
		1	3	4	6	8	10	11	13	15	18
copper-alloy	18	4	-	1	-	3	-	2	-	7	4
lead(-alloy)	-	-	1	-	1	-	-	-	13	4	-
iron	-	5	-	-	-	2	1	21	1	-	3
Totals	**18**	**9**	**1**	**1**	**1**	**5**	**1**	**23**	**14**	**11**	**7**

Table 8: Number of metal objects by category

The coins are all of copper alloy and range in date from the 3rd century to the 17th century. Though the majority can be confidently identified to reign or general period, the surface details are obscured by corrosion products and some identifications are likely to change after conservation. A coin of Constans came from ditch fill 201, but the remainder are from machining layers. The other Roman coins include issues from the second half of the 3rd century and the last two-thirds of the 4th century, with the latest probably being an issue of the House of Theodosius (AD 388-402) with possible double-struck reverse. There are no medieval coins but a clipped fragment is probably from a jeton of late medieval or early post-medieval date. Jetons were tokens used in the reckoning of accounts that were sometimes illegally passed off as coinage. The assemblage also includes a jeton issued by Wolf Laufer of Nuremberg in the later 16th and early 17th century, a type well-represented on sites in the eastern region. The majority of the legible post-medieval coins are Rose farthing tokens of Charles I, struck from the mid 1630s to abut 1644, and there is also a farthing of Charles II, the year of issue obscured by corrosion but broadly dated *c* 1672-85.

The dress accessories (Category 1) consist of a complete Colchester derivative brooch, dated *c* AD 50-70, a worn and corroded finger-ring of uncertain date, fragments of two double buckles, probably of 17th century date, several iron hobnails (at least some probably Roman) and a possible iron cleat, or sole reinforcement.

The only evidence for textile manufacture (Category 3), which formed a major element of the economy in the area in the medieval and early post-medieval periods, is a lead cloth seal. Similarly, domestic household implements (Category 4) are represented only by a later post-medieval tea- or coffee-spoon, and a cylindrical lead object is possibly a weight from a steelyard (Category 6).

Evidence for transport (Category 8) in the Roman period consists of a well-preserved linch pin with anchor-shaped head from context 322 and one with ovoid head, probably worn, from 205; both are unstratified. Fragments of three rumbler bells are probably from post-medieval harness, but all three come from machining layers and may be more modern.

Only one item may be a tool (Category 10), a long thin shank from the fill 229 of pit **230**, which may contain dump from the smithy. This may be a smith's punch, leather-worker's awl or possibly a tooth from a wool comb or flax heckle; X-radiography will reveal the precise original form and dimensions and whether or not any working tip remains.

The largest functional group is that of general fittings (Category 11). The majority are iron nails, some of which are from machining layers and likely to be post-Roman, while others are stratified in Roman features; a few may perhaps be pre-Roman. Also included among the ironwork are a split-spike loop, some strap fragments and a piece of a possible pintle, all of which could derive from wooden furniture or structures. The ?pintle fragment is probably post-medieval or modern; the other pieces may be Roman. The fittings of copper-alloy are an ornate post-medieval casting with relief decoration and a stud.

An iron arrowhead (Category 13) from ditch fill 481 is corroded and damaged and needs to be X-radiographed before it can be accurately dated. There are also

thirteen pieces of lead shot; twelve are of the size suitable for muskets and one is a small piece of birdshot used in hunting not warfare. The larger shot may also have been used for hunting, but its concentration in this area does suggest that it derives from military action, possibly, given the recovery from the site of so many Rose farthing tokens dating to late in the reign of Charles I, during the English Civil War.

A crucible sherd and several small fragments of waste debris point to copper-alloy-working (Category 15) in the vicinity; two of the pieces are in a pit fill that may be associated with the smithy. There are also two pieces of lead-working waste and a small neatly-cut square plaque that may be a blank cut ready for melting and casting. Similar small-scale evidence for lead-working is common on Roman, medieval and later sites and generally reflects the use of the metal in building works rather than the industrial production of artefacts. At Linton, however, the fragments may perhaps derive from the production of lead shot.

Miscellaneous items (Category 18) are comparatively few in number. They include a square copper-alloy plaque with unusual engraved(?) decoration and some small pieces of copper-alloy sheet with repoussé mouldings, probably from a box lock-plate or similar sheet fitting. A few miscellaneous pieces of ironwork may be identifiable after X-radiography.

4 Recommendations

1 All the coins, several of the copper-alloy objects and one lead object should be conserved (29 objects). All the ironwork should be X-radiographed (33 objects). This should facilitate dating of the non-iron objects and accurate identification and dating of the corroded ironwork. It is recommended that the X-radiography be carried out at Colchester Museum (contact: annemaria.bojko@colchester.gov.uk) and the conservation work at either the Fitzwilliam Museum, Cambridge, or at Colchester Museum.

2 A report on the coins and other metal objects should form part of the published site report, providing references to comparable items and assemblages where appropriate. Such a report should concentrate on the stratified Roman (and earlier objects?), and only briefly catalogue the late medieval and early post-medieval items that have been selected for illustration as a sample of the later activity in the area.

3 A limited number of the items should be drawn and these are indicated in Section 5 of this assessment. Given the corroded nature of the ironwork the precise number cannot be accurately given at this stage but the maximum should be no greater than 6 copper-alloy, 1 lead, and 4 iron objects (11 in all), and is likely to be less.

Bibliography

Crummy N. 1983 *The Roman small finds from excavations in Colchester 1971-9,* Colchester Archaeological Report 2 (Colchester)

Crummy N. 1988 *The post-Roman small finds from excavations in Colchester 1971-85,* Colchester Archaeological Report 5 (Colchester)

5 Catalogue

Coins and jeton

SF	Context	Trench/ Area	Context type	Material	Identification	Clean	Date
87	100	A	machining layer	cu-al	Charles I, Rose farthing token	y	1635/6-1644
88	100	A	machining layer	cu-al	Wolf Laufer, Nuremberg jeton	y	late 16th-early 17th century
86	100	A	machining layer	cu-al	Charles I, Rose farthing token	y	1635/6-1644
115	200	B1	machining layer	cu-al	irregular	y	3rd-4th century
103	200	B1	machining layer	cu-al	Charles I, Rose farthing token	y	1635/6-1644
117	200	B1	machining layer	cu-al	barbarous radiate	y	270-90
211	200	B1	machining layer	cu-al	Charles I, Rose farthing token	y	1635/6-1644
116	200	B1	machining layer	cu-al	House of Constantine, rev. Fel Temp Reparatio, hut	y	350-60
106	201	B1	top of ditch fill	cu-al	Constans, rev. Gloria Exercitus, 1 standard	y	335-41
109	205	B3	machining layer	cu-al	illegible	y	?post-medieval
126	206	B2	machining layer + metal-detected finds	cu-al	Victorinus/Tetricus I	y	268-70/270-3
123	206	B2	machining layer + metal-detected finds	cu-al	Charles II, farthing	y	1672-85
122	206	B2	machining layer + metal-detected finds	cu-al	illegible, probably a post-medieval farthing token or local trader's token	y	17th century?
132	206	B2	machining layer + metal-detected finds	cu-al	House of Valentinian	y	364-78
133	206	B2	machining layer + metal-detected finds	cu-al	House of Constantine copy	y	330-60
134	206	B2	machining layer + metal-detected finds	cu-al	barbarous radiate, obv. Tetricus I	y	270-90
110	322	B4	machining layer + metal-detected finds	cu-al	?House of Theodosius, rev. ?double-struck	y	late 4th century
111	323	B5	machining/cleaning layer	cu-al	jeton fragment?, clipped	y	late medieval/early post-medieval

Table 9: Coins and jeton

Copper-alloy

SF	Context	Trench/ Area	Context type	Identification	Clean	Illustrate	Category	Date
89	100	A	machining layer	(tea-)spoon, round-bowled	-	-	4	18th-19th century
78	103	A	surface finds below topsoil	copper-alloy-working waste	-	-	15	-
102	200	B1	machining layer	rumbler bell fragment	y	y	8	post-medieval/modern
101	200	B1	machining layer	rumbler bell fragment	y	-	8	post-medieval/modern
100	200	B1	machining layer	Colchester BB derivative brooch, Harlow type	y	y	1	50-70
118	200	B1	machining layer	double buckle fragment	y	y	1	early post-medieval
107	200	B1	machining layer	refrozen dribble	-	-	15	-
199	206	B2	machining layer + metal-detected finds	double buckle fragment	y	y	1	early post-medieval
129	206	B2	machining layer + metal-detected finds	rumbler bell fragment	y	-	8	post-medieval/modern
125	206	B2	machining layer + metal-detected finds	cast decorative plaque with relief ornament	-	-	11	post-medieval
124	206	B2	machining layer + metal-detected finds	stud	-	-	11	-
120	206	B2	machining layer + metal-detected finds	plaque with random engraved ?decorative scoops	y	y?	18	post-medieval
248	229	B3	pit fill, ?smithy dump	crucible sherd with traces of copper(-alloy)	-	-	15	-
198	229	B3	pit fill, ?smithy dump	copper-alloy-working waste	-	-	15	-
195	252	B4	ditch fill	repoussé-decorated sheet fragments	y	-	18	-
217	300	B3	post-hole fill	heat-affected lump	-	-	15	-
206	300	B3	post-hole fill	3 heat-affected fragments	-	-	15	-
207	301	B3	post-hole fill	sheet fragments and small ?heat-affected lumps	-	-	18	-
203	322	B4	machining layer + metal-detected finds	refrozen dribble	-	-	15	-
113	322	B4	machining layer + metal-detected finds	repoussé-decorated sheet fragment	y	-	18	post-medieval?
104	348	B3	pit fill	finger-ring	y	y	1	-

Table 10: Copper-alloy

Lead or lead-alloy

SF	Context	Trench/ Area	Context type	Identification	Clean	Illustrate	Category	Date
91	100	A	machining layer	shot	-	-	13	post-medieval
90	100	A	machining layer	cylindrical ?weight	-	-	6	-
79	103	A	surface finds below topsoil	lead-working waste	-	-	15	-
108	200	B1	machining layer	2 shot	-	-	13	post-medieval
119	200	B1	machining layer	shot	-	-	13	post-medieval
112	200	B1	machining layer	square plaque, ?blank cut for casting	-	-	15	-
114	205	B3	machining layer	?lead-working offcut or waste	-	-	15?	-
121	206	B2	machining layer + metal-detected finds	shot	-	-	13	post-medieval
128	206	B2	machining layer + metal-detected finds	shot	-	-	13	post-medieval
127	206	B2	machining layer + metal-detected finds	shot	-	-	13	post-medieval
135	206	B2	machining layer + metal-detected finds	lead-working waste	-	-	15	-
130	206	B2	machining layer + metal-detected finds	cloth seal	y	y	3	medieval/early post-medieval
258	800	-	unstratified	6 shot	-	-	13	post-medieval

Table 11: Lead or lead-alloy

Iron

SF	Context	Trench/ Area	Context type	Identification	Clean	X-ray	Draw	Category	Date
1	49	3	ditch fill	nail	-	y	-	1 1	-
255	200	B1	machining layer	1) nail; 2) nail; 3) 2 nails; 4) 2 nails; 5) 3 nails	-	y	-	1 1	-
256	200	B1	machining layer	bar or spike	-	y	-	1 8	-
200	205	B3	machining layer	linch pin	-	y	y	8	?Roman
257	206	B2	machining layer + metal-detected finds	?pintle fragment	-	y	-	1 1	-
201	206	B2	machining layer + metal-detected finds	nail	-	y	-	1 1	-

192	229	B3	pit fill, ?smithy dump	tool/shank?	-	y	y?	1 0 ?	-
196	231	B3	ditch fill (R-B)	hobnail	-	y	-	1	-
197	231	B3	ditch fill (R-B)	hook or nail	-	y	-	1 1	-
191	231	B3	ditch fill (R-B)	split-spike loop	-	y	-	1 1	-
202	322	B4	machining layer + metal-detected finds	linch pin	-	y	y	8	Roman
204	324	B3	ditch fill	nail	-	y	-	1 1	-
240	466	B3	pit fill	?strap terminal	-	y	-	1 1	-
213	481	14	ditch fill	arrowhead	-	y	y	1 3	-
249	483	B4	layer	nail	-	y	-	1 1	-
215	484	B4	layer	nail; tapering strip	-	y	-	1 1	-
218	510	B2	ditch fill	fragment	-	y	-	1 8	-
251	647	B3	surface of ditch 329	?hobnail	-	y	-	1 ?	-
245	647	B3	surface of ditch 329	2 hobnails	-	y	-	1	-
252	647	B3	surface of ditch 329	nail	-	y	-	1 1	-
254	647	B3	surface of ditch 329	fragment	-	y	-	1 8	-
253	647	B3	surface of ditch 329	?cleat fragment	-	y	-	1 ?	-
250	9999	-	unstratified	nail	-	y	-	1 1	-

Table 12: Iron

Appendix 3: Metalworking Debris

By Tom Eley

1 Introduction and Methodology

A relatively small quantity (3.8535kg) of slag and hearth lining was recovered, principally from Middle Iron Age (Period 2) pits and post-holes.

The principal method used was a visual assessment of the morphological characteristics to assign the slag by-product to a metallurgical process, either iron smelting or smithing. Mass, magnetic response and the size of plano-convex bottoms (PCB's) were also recorded. The magnetic response, tested with a magnet, was used to identify slag with a high iron or magnetite content. Magnetite is a product of reducing conditions in a smelting furnace; but it is not possible to distinguish between the two without further analysis. Slag was recovered during excavation and from environmental samples taken from features; hammerscale was also recovered from samples.

Slag with a metallic smooth, ropey, flowed surface are considered to derive from the bloomery smelting process whereby iron ore is converted direct into wrought iron, but contained within a 'spongy' mass of slag called a bloom. To obtain a usable iron the bloom needs to be worked to remove the slag termed 'primary smithing'.

The secondary smithing process converts bar iron into tools, equipment and utensils and repairs damaged items. Slags with no characteristic shape and a rough, coarse exterior are thought to derive from this process, but they can sometimes be formed in the smelting furnace. Smithing hearth bottoms are an exception; they have a distinctive plano-convex shape, created by the shape of smithing hearth's base from a heated agglomeration of iron, slag, hearth lining, flux and charcoal.

2 Results

Slag Type	Total (kg)	%
PCB	2.221	57.6
C.B.M	0.473	12.3
Smithing Slag	0.312	8.1
Undiagnostic	0.799	20.7
Fuel Ash Slag	0.004	0.1
Smelting Slag	0	0.0
Bloom frag?	0.031	0.8
Cu-Alloy Crucible	0.003	0.1
Cu-Alloy droplets	0.0105	0.3
	3.8535	100.0

Table 13: Slag type by weight and percentage

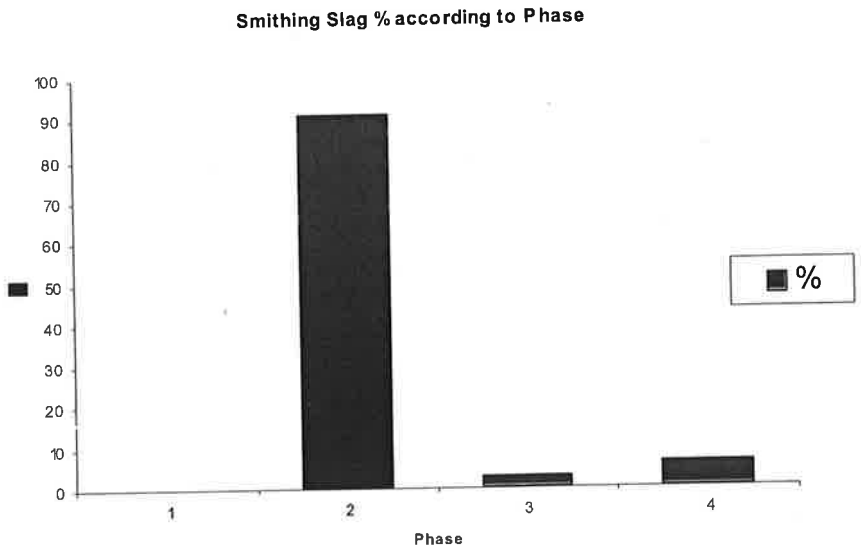

Chart 1. Percentage of slag found according to site period

3 Discussion

Although only a small quantity of slag and hearth lining was found at Linton it is significant due to the contexts in which it occurred. Slag was predominately found at the northern end of the site in a series of Middle Iron Age pits: **230**; **349/351**; **383**; **403** and **424**. 78.7% of the total slag and lining came from these Iron Age pits and 6% from Romano-British ditches, over 90% of the total slag found can be dated to the Middle Iron Age on associated pottery (*see Chart 1*). The slag found in the Romano-British ditches mainly occurred where they cut the Middle Iron Age pits, indicating the slag was re-deposited. Contexts containing significant amounts of slag and hearth lining from these pits were: 382 (1.584kg); 229 (0.704kg); 348 (0.516kg); 402 (0.109g) and 422 (0.116kg).

The majority of the slag (2.533kg = 65.7%) was morphologically characteristic of smithy slag, of which 2.221kg were smithing hearth bottoms. The smithing hearth bottoms were not very large varying from 0.012kg to 0.188kg, though only three out of 43 fragments were over 0.1kg. The slag was often brittle, breaking during excavation or the assessment, perhaps due to age or as a result of the particular smithing process. Only 0.799kg of the slag was undiagnostic and none was characteristic of smelting slag.

A total of 0.473kg of ceramic burnt material was identified and thought to be smithing hearth lining. The majority (0.437kg) of the lining was found in 382 and primarily consisted of three large lumps, one of which may have a tuyere blowing hole. A small fragment of ceramic with attached Cu-oxide residue was found in 229 and small droplets of Cu-alloy were found in: 229, 300, 301 and 638. It indicates that Cu-alloy melting may have been taking place alongside iron smithing but on a smaller scale.

Contexts 229 and 382 were distinctive fills consisting almost entirely of ash and charcoal that suggests the selective deposition of hearth waste in pits **230** and **383**. Both these pits have been dated to the Middle Iron Age and the relatively homogenous nature of each fill suggests they were contemporary. Contexts 229 and 382 also contained a large (?possible anvil) stone in the former, and a quern stone in the latter. Whilst quern stones are not known to have metallurgical function, the inclusion of a large stone in each is intriguing. Are these 'structured' or ritual

deposits and are there any parallels? The metal object (SF192) identified in 229 could be related to metallurgy, perhaps a scribe for decorating Cu-alloy objects.

The smithing taking place at Linton appears to have been on a small scale. There was probably a small amount of Cu-alloy smithing occurring at the same time. The hearth debris was dumped in specific locations in pits **230**, **349/351**, **383**, **403** and **424**. The location of the smithy could be identified using an analysis of the spatial distribution of slag and hammerscale.

4 Recommendations

The majority of the slag dates to the Middle Iron Age (Period 2) with some residual material occurring in 2nd to 4th century AD contexts, this probably being reworked Middle Iron Age material. The unusual nature of the contexts in which the slag was found indicates the presence of an Iron Age smithy in the immediate vicinity, is this within the area excavated? A spatial distribution analysis of the slag, hammerscale and cu-alloy droplets could locate the position of the smithy. Evidence of iron working and iron objects are rare from the Middle Iron Age, the deposits found were also unusual because of the high concentrations of iron smithing debris and copper-alloy melting. Are these deposits unique or are there other comparable features within Britain and do they represent 'structured' or ritual deposition?

Serneels has analysed a smithing slag assemblage from Chables and recognised different smithing processes based upon microscopy and morphological examination (Serneels and Perret 2003). A similar investigation could be attempted on the Linton assemblage to determine if a variety of different processes were being practised. XRF could also be used to determine the type of copper-alloy being used, e.g. was it alloyed with tin or lead.

Bibliography

Serneels, V. and Perret, S. 2003 'Quantification of smithing activities based on the investigation of slag and other material remains'. *Archaeometallurgy in Europe*, Proceedings, Vol. 1 469.478.

Appendix 4: Flint

By Emma Beadsmoore

1 Introduction

The site yielded a total of 3673 (41427g) flints, the majority, 3522 (39811g), of which were worked and unburnt; of the remaining 151,88 were worked and subsequently burnt, whilst 63 (866g) were burnt although not worked. The material was recovered from Neolithic and Bronze Age features, and was residual within later features in five areas of excavation and a series of trenches.

1.1 Area A

Late Neolithic pit

Features within Area A yielded 760 flints; including a cohesive assemblage of 324 flints recovered from one pit 153, listed by type and quantity in Table 14. An assessment of the pit 153 assemblage suggests it contained the waste and occasional utilised products of a variety of flake production/core reduction sequences. Although flakes of varied morphology were produced, there was a discernible tendency towards either narrow or broad thin flakes characteristic of Late Neolithic flake production/core reduction. Although the majority of the cores recovered from the pit were only fragments, combined with the waste flakes, their morphology suggests that many of the flakes were manufactured from discoidal, single and mutli-platform or sometimes irregular cores. The form of the flakes removed was frequently controlled by facetting the platform, as well as hard platform trimming down the core face. Core rejuvenation flakes were also used to remove awkward flake scars and areas of cortex, or to modify difficult core angles, thereby extending the use life of the core. These features and strategies are part of systematic flake production/core reduction sequences, which are also characteristic of Late Neolithic flint working. Only five of the 234 flints had been utilised, including two edge worn flakes, a scraper and a serrated flake; types of tools that are common in Late Neolithic assemblages. Whilst the fifth tool, a chisel transverse arrowhead, is a key chronologically diagnostic tool type for Late Neolithic flint working.

Large quantities of flint working debris in the form of small chips were recovered from the pit, and all stages of the core reduction sequence were represented in appropriate quantities in the form of chunks, primary, secondary and tertiary flakes and cores, suggesting that the flint must have been worked nearby, or even into the pit. Furthermore, the predominant freshness of the material implies that it was deposited quite quickly. Yet full reduction sequences do not seem to have been deposited; products were utilised or retained, or just avoided being deposited in the pit. A few flakes also suggest that flake production/core reduction was not the only focus of flint working; several flakes were the potential by-products of the later stages of biface manufacture and thinning. Future work focusing on refitting the assemblage recovered from pit **153** could clarify the extent of the reduction sequences deposited in the pit, the quantity of biface by-products and the relationship between the two types of flint working strategies.

Two other pits in Area A also yielded small assemblages of flint, pits **186** and **189**, listed by context, quantity and type in Table 14. Both pits yielded flint working waste; predominantly waste flakes and flake blanks and a few scrapers. The flakes were generally manufactured from systematically reduced, sometimes discoidal cores, and

were reminiscent of the Late Neolithic material recovered from pit **153**. Although the scrapers were not clearly chronologically diagnostic, they were also loosely compatible with scrapers recovered from Late Neolithic contexts.

	Context (feature)							
	153	186	189	165	171	175	177	Sub totals
Chip/chunk	172	9	10	13		21	4	229
Primary flake	5	1						6
Secondary flake	84	5	12	8	3	33		145
Tertiary flake	51	6	1	6	4	15		83
Secondary blade				1				1
Tertiary blade						2		2
Core rejuvenation flake	1			1	1	3		6
Single platform core				1				1
Discoidal core	1							1
Core fragment	5	1			1			7
End scraper			1			1		2
Side scraper			1					1
End and side scraper	1	1						2
Serrated flake	1							1
Edge used flake	2					1		3
Transverse arrowhead						1		1
Unworked burnt chunk		1						1
Hammerstone	1							1
Totals	324	24	25	30	9	77	4	493

Table 14: Area A, Neolithic pits and ring ditch flint

Ring-ditch 183

An assemblage of 116 flints was recovered from a ring-ditch (**183**) in Area A (segments 165, 171, 175), listed by context, quantity and type in Table 14. The material comprised flint working waste, including a couple of cores and three utilised flakes. Some of the flint working waste was comparable to the material recovered from pit **153**, although other flakes were irregular and non-diagnostic. One of the tools, a large chisel transverse arrowhead, is also Late Neolithic. However, another of the flakes was retouched as a small, almost thumbnail scraper, of a type more common in Beaker or Early Bronze Age contexts. Late Neolithic and Early Bronze Age flake production/core reduction blanks and waste flakes can be difficult to distinguish, and evidence for both Late Neolithic and Early Bronze Age activity was provided by the tools. The Late Neolithic material may be residual, already existing in the landscape when the ring ditch was excavated and inadvertently incorporated into it. Interestingly, less complete reduction sequences were recovered from the ring ditch than the Neolithic pits, suggesting a more complex route from manufacture to deposition. Other later ditches at the site also have residual Late Neolithic material in them (see below). A pit (**177**) on the side of the ring ditch yielded some tiny chronologically non-diagnostic chips.

Buried Soil Layers

	Context										
	100	**101**	**103**	**110**	**111**	**112**	**116**	**137**	**139**	**163**	**Sub totals**
Chip/ chunk	12	7	11	4	1	6	4			6	51
Primary flake	3										3
Secondary flake	29	18	38	1	2			1	3	10	102
Tertiary flake	17	4	25	1	1	1			1	6	56
Secondary blade		1	1								2
Irregular core	2		1								3
Multiple platform core	1										1
Core fragment	1									2	3
Flake knife			1								1
Bifacial flaked implement			1								1
End scraper	1		1								2
End and side scraper		1	2								3
Serrated flake		1	1							1	3
Edge used flake			1								1
Retouched flake			1								1
Transverse arrowhead					1						1
Unworked burnt chunk	1			1							2
Totals	67	32	84	7	5	7	4	1	4	25	236

Table 15: Area A, Buried soil layer flint

A substantial quantity of material, 236 flints, was recovered from layers (100, 101, 103, 110, 111, 112, 116, 137, 139, 163) within Area A and is listed by context, type and quantity in Table 15. The material comprised a mixture of flint working waste and tools. Many of the blanks and waste flakes were the products and by-products of a similar systematic technology to the Late Neolithic material recovered from pit **153**. However, the layers also yielded more expediently manufactured flakes and unsystematically reduced cores; focused simply on the production of flakes, regardless of their morphology. Whilst this group of material could be the chronologically non-diagnostic by-products of Neolithic flint working, it is also potentially later prehistoric, suggesting that the layers could have contained chronologically mixed material, which is reflected in the morphology of tools. Neolithic serrated flakes and scrapers were recovered in addition to a Late Neolithic chisel transverse arrowhead, a Late Neolithic/Early Bronze Age knife as well as a potentially later prehistoric scraper.

Residual Flint

Thirty one flints were recovered from a later ditch, three post-holes and a hollow, listed by context, type and quantity in Table 16. Comprising predominantly fine chips and a few chronologically non-diagnostic flakes, the majority of the material could not be dated. Although, the quantity of flint recovered from the layers suggest that residual flint would have been present at the site and could easily have become incorporated into later features. One of the post-holes **150** yielded two refitting cores, one of which was worked systematically off one section of platform; controlled and careful core reduction is more common in Neolithic than later prehistoric flint working.

	Context (feature)							
	109	121	124	132	144	150	192	Sub totals
Chip/chunk	13	2	1		2			18
Secondary flake			1	2			3	6
Tertiary flake	1							1
Irregular core			1			1		2
Single platform core						1	1	2
End & side scraper							1	1
Unworked burnt chunk	1							1
Totals	15	2	3	2	2	2	5	31

Table 16: Area A, residual flint

1.2 *Area B1*

A total of 2359 flints were recovered from a variety of pits, post-holes, ditches and layers in Area B1.

Neolithic pits

Four pits in Area B1 (**204**, **226**, **470** and **551**) yielded a total of 2064 flints; listed by context, type and quantity in Table 17. The material was the product of a comparable technology to the flint recovered from pit **153** in Area A. Flint working waste and flake blanks had been struck from predominantly irregular and discoidal cores, as well as single, two, multiple and opposed platform cores. The flakes and the generally exhausted cores were then deposited in the pits. The platforms of the cores were sometimes facetted to control the form of the removals; the flake production/core reduction strategies show a slight tendency towards narrow or broad yet thin flakes. Considerable quantities of fresh chips and chunks and some primary flakes were also deposited in the pits, indicating that flint working had been carried out near or into the pits; the waste generated had a seemingly uncomplicated route to deposition. The small chips would have been the useless by–products of flint working, whilst the chunks were either core fragments, the products of early decortification, miss hits or the result of nodule testing.

The flake production/core reduction strategies, focused on the production of sometimes narrow, but often quite broad yet thin, systematically manufactured flakes, link the material to the Late Neolithic. The pits also yielded tools frequently recovered from Late Neolithic contexts. A chisel transverse arrowhead was recovered from three of the pits. The pits also yielded a flake knife, bifacially flaked implements and a variety of scrapers and utilised flakes. A flake struck from a polished implement, probably an axe, was recovered from one pit. The morphology of the flake suggests it was not removed to sharpen the axe; the axe may have served instead as raw material, worked to produce flakes.

Although the focus of the flint working seems to be on flake production/core reduction, as with the material recovered from pit **153** in Area A, a group of flakes were potentially the by-products of biface manufacture, although no axes were recovered from the pits. Further work refitting the material within the pits could help to clarify the relationship between the two flint working strategies.

	Context (feature)				
	204	226	470	551	Sub totals
Chip/chunk	130	226	90	142	588
Primary flake	8	23	9	7	47
Secondary flake	134	228	74	154	590
Tertiary flake	120	252	54	120	546
Secondary blade	2	5	1		8
Tertiary blade	2	11	3	2	18
Core rejuvenation flake	5	21	3	3	32
Irregular core	7	6	2	12	27
Single platform core	6	5	1	1	13
Two platform core		1			1
Opposed platform core	3				3
Multiple platform core	6	4		1	11
Discoidal core	8	7	5	2	22
Core fragment	10	6	1	10	27
Flake knife				1	1
Bifacially flaked fragment	1	1		1	3
Bifacially flaked implement	1				1
End scraper		1	3	9	13
End and side scraper			7	1	8
Core scraper		1			1
Serrated flake	1	2		5	8
Serrated blade				3	3
Edge used flake	6	20	5	3	34
Retouched flake	3	5		2	10
Retouched and worn flake			1	1	2
Retouched and worn blade				1	1
Transverse arrowhead		1	1	1	3
Flake from a polished implement				1	1
Unworked burnt chunk	7	30	1	3	41
Hammerstone			1		1
Totals	460	856	262	486	2064

Table 17: Area B1, Neolithic pits

Layers

A quantity of flint was recovered from a series of layers within Area B1, listed by context, type and quantity in Table 18. The material was similar in character to the flint recovered from layer deposits in Area A. Comprising almost exclusively flint working waste, the material includes the by-products of comparatively systematic flake production/core reduction, focused on manufacturing narrow or broader yet thin flakes. Some of the material within the layers was therefore reminiscent of the material deposited in the Late Neolithic pits. Yet other flints recovered from the layers were less systematically manufactured, and whilst they could be the chronologically non-diagnostic by-products of generally systematic Late Neolithic flint working, they may also be the product of expedient later prehistoric technologies.

	Context												Sub totals
	207	216	217	218	219	220	221	227	228	237	248	399	
Chip/ chunk	2	8	1	1	1	9	2	3	1			1	29
Primary flake		1		3					1				5
Secondary flake	9	7	3	2		7	4	6	2	1		4	45
Tertiary flake	3	1	1		4	2	6	2	1			4	24
Secondary blade	1											1	2
Tertiary blade							1						1
Core re-juvenation flake	1							1					2
Irregular core									1				1
Multiple platform core											1		1
Retouched flake		1											1
Totals	16	18	5	6	5	18	13	12	6	1	1	10	111

Table 18: Area B1, buried soil layer flint

Residual Flint

The remaining flint recovered from Area B1 was from a variety of ditches, pits, post-holes and spreads, and is listed by context, type and quantity in Tables 19 and 20. The material is generally limited in quantity per context and frequently had traces of damage. Many of the flints were comparable to the material deposited in the Late Neolithic pits. This material would have existed in the area when the later ditches and pits were excavated, becoming inadvertently incorporated into the features. However, as with the flint recovered from the layers, and the later features in Area A, many of the flints are the products of expedient flint working and are potentially later prehistoric.

	Context								Sub totals
	200	209	236	275	279	320	339	341	
Chip/chunk			1				2		3
Primary flake			3						3
Secondary flake	5	1	30	4	1			2	43
Tertiary flake			5	3			1		9
Tertiary blade			1			1			2
Irregular core			3						3
Core fragment			1						1
Retouched flake	2		2						4
Totals	7	1	46	7	1	1	3	2	68

Table 19: Area B1, residual flint

	Context									Sub totals
	363	365	371	378	468	489	529	24 549	547	
Chip/chunk	7	1	3	2	4		2	12		31
Primary flake			1							1
Secondary flake	5	1	4	2	20	2		15		49
Tertiary flake	6		2		2			14		24
Secondary blade	1									1
Tertiary blade	2									2
Irregular core			2					1		3
Single platform core								1		1
Core fragment	1							2		3
Retouched flake								1		1
Totals	22	2	12	4	26	2	2	46		116

Table 20: Area B1, residual flint (cont'd)

There are three exceptions to the general trend of damaged and limited quantities of earlier material residual in later features. Pit **363** yielded slightly more than the other discrete features in the area, although not of comparable quantity to the material recovered from the Late Neolithic pits. The flint deposited in pit **363** was the product of systematic flake production/core reduction strategies focused on the manufacture of narrow flakes and blades. The core reduction strategies that generated the material differed slightly to the technology responsible for the Late Neolithic material, although the limited quantity of material recovered from pit **153** could be unrepresentative. The systematic nature of the flint working and the tendency towards narrow flakes and blades links the material to the Neolithic.

Two ditch slots also yielded larger quantities of flint than the other, later features; slots **468** and **547**. Both of the slots cut through two of the Late Neolithic pits, **470** and **551**. Hence the noticeably larger quantities of material in these ditch slots had originated in the pits; the flint from the ditch slots was basically technologically compatible with the pit material.

1.3 Area B2

A total of 209 flints were recovered from pits, post-holes, ditches and layers in Area B2.

Late Neolithic pit 574

One pit (**574**) yielded over half of the flints recovered from Area B2; the 114 flints are listed by type in Table 21. The material is comparable to the flint recovered from the Late Neolithic pits in Areas A and B1, although there are noticeably fewer tools; pit **574** yielded only two scrapers. The bulk of the material is flint working waste from generally systematic flake production/core reduction strategies, again generally focused on the manufacture of either thin and broad or narrow flakes. Again, the considerable quantities of chips, chunks and the presence of primary flakes indicate that the material was not moved far between manufacture and deposition.

	Context 574
Chip/chunk	32
Primary flake	6
Secondary flake	32
Tertiary flake	33
Secondary blade	2
Tertiary blade	1
Irregular core	2
Discoidal core	1
Core fragment	3
End scraper	2
Total	114

*Table 21: Area B2, Late Neolithic pit **574***

Layers

Eighteen flints were recovered from a layer and the surface of Area B2, and are listed by context, type and quantity in Table 22. The deposits yielded flint working waste comprising flakes, chunks and cores, similar in character to the Neolithic material recovered from the site.

	Context		
	206	9999	Sub totals
Chip/chunk	1		1
Primary flake	2		2
Secondary flake	4	3	7
Tertiary flake	3	1	4
Opposed platform core		1	1
Two platform core	1		1
Multiple platform core	1		1
Discoidal core	1		1
Totals	13	5	18

Table 22: Area B2, layers

Residual Flint

The remaining 77 flints recovered from Area B2 were residual in later features, and are listed in Tables 23 and 24. The potential exception is a small chip recovered from **271**, a burial. However, as the flint was tiny and chronologically non-diagnostic, it is not clear whether it was inadvertently incorporated into a later feature, or is broadly contemporary with the burial itself.

	Context											Sub totals
	271	355	375	18 388	436	440	459	465	471	474	508	
Chip/ chunk	1	1	2					1		3		8
Primary flake										1		1
Secondary flake		5	3	2	4	3				12	1	30
Tertiary flake		1	3	2	2		1			1		10
Core re-juvenation flake					1							1
Opposed platform core					1							1
Unworked burnt chunk			1						1	2		4
Totals	1	7	9	4	8	3	1	1	1	19	1	55

Table 23: Area B2, residual flint

Many of the residual flints from the later features were either small, or fragmentary, or chips and chunks, none of which were chronologically diagnostic. Yet a Late Neolithic chisel transverse arrowhead was recovered from ditch **542**, and other unutilised flakes were also potentially Late Neolithic.

	Context										Sub totals
	511	20 513	516	535	542	576	589	612	614	67 8	
Chip/chunk					2	3					5
Primary flake		2	1			1					4
Secondary flake		1		1				1			3
Tertiary flake			1			1	1	1	1	1	6
Secondary blade										1	1
Transverse arrowhead					1						1
Unworked burnt chunk	1	1									2
Totals	1	4	2	1	3	5	1	2	1	2	22

Table 24: Area B2, residual flint from later features

1.4 Area B3

Of a total of 276 flints recovered from Area B3, the majority were from one feature, the seventh Neolithic pit identified at the site, **693**. The remaining material was collected from layers and later ditches, pits and post-holes.

Late Neolithic Pit 693

Pit **693** yielded a similar assemblage of flint to the other Late Neolithic pits at the site; the flints are listed by type and quantity in 25. The assemblage comprised the partial waste and occasional products of comparatively systematic flake production/core

reduction strategies. The assessment of the material suggests that, as with the other Late Neolithic pit assemblages, many of the flints were fresh, deposited soon after they were manufactured, whilst a limited number were more abraded and had potentially been exposed to some degree of weathering.

	Context
	693
Chip/chunk	59
Primary flake	4
Secondary flake	66
Tertiary flake	50
Secondary blade	4
Tertiary blade	3
Core rejuvenation flake	1
Single platform core	2
Discoidal core	1
Core fragment	2
End scraper	1
End and side scraper	1
Serrated flake	1
Edge used flake	2
Flake from polished implement	4
Total	201

*Table 25: Area B3, Late Neolithic Pit **693***

The representation of all stages of the reduction sequence in the pit suggests that the material was not moved too far between manufacture and deposition. Further work could consider the relationship between the more weathered and fresher material, in association with refitting to try and articulate the route of the flint from manufacture, through use, to deposition.

Another common feature of pit **693** and the other Late Neolithic pits is the use of primary chalk flint as a raw material. Yet the assessment of the material also suggests that some derived, slightly rolled flint was also exploited. Again, further work in conjunction with refitting could focus on clarifying the relationship between different flint working strategies and raw material types. Interestingly, pit **693** yielded four flakes of comparable pale white flint removed from a polished axe, suggesting that material was also brought in from elsewhere, even if was in the form of an axe. The axe may have been used as raw material for flake production strategies, rather than functioning as a tool. Polished axe flakes, but no axe, have been recovered from other Late Neolithic pits and were also interpreted as flake production blanks rather than sharpening flakes (Bishop 2000).

Buried Soil Layers

A considerably smaller quantity of flint was recovered from layers in Area B3 than in the other areas, probably because there was less dense Late Neolithic activity in the form of cut features; the Area B3 flint is listed in Table 26. Three contexts yielded eight flints, limited in quantity and generally non-diagnostic in form, the material included a Neolithic used blade and a sub-circular scraper comparable to scrapers recovered from Early Bronze Age contexts.

	Context			
	205	694	705	Sub totals
Chip/chunk		1		1
Primary flake				
Secondary flake		2		2
Tertiary flake	1	1	1	3
Opposed platform core				
Two platform core				
Multiple platform core				
Discoidal core				
Sub-circular scraper	1			1
Edge used blade		1		1
Totals	2	5	1	8

Table 26: Area B3, buried soil flint

Residual Flint

The remaining 67 flints in Area B3 were recovered from later pits, ditches and post-holes, and are listed in Tables 27, 28 and 29. The material comprised flint working waste, predominantly flakes, only one core and no products or utilised pieces. The majority of the flakes were chronologically non-diagnostic, although, as with the residual flint recovered from later features in the other areas; several of the flakes would be indistinguishable within the Late Neolithic pit assemblages.

	Context												Sub totals
	230	231	283	285	291	293	294	300	349	457	493	495	
Chip/ chunk		6					1						7
Secondary flake			1		2			1					4
Tertiary flake				1		1	1	1	1			1	6
Second-ary blade												1	1
Tertiary blade	1												1
Irregular core											1		1
Unworked burnt chunk										1			1
Totals	1	6	1	1	2	1	2	2	1	1	1	2	21

Table 27: Area B3, residual flint

	Context								
	499	501	520	605	38 620	622	624	635	Sub totals
Chip/chunk		1			1	1			3
Secondary flake	2	1	1	1	1		1		7
Tertiary flake	1		1		2	2		1	7
Tertiary blade							1		1
Unworked burnt chunk					1				1
Totals	3	2	2	1	5	3	2	1	19

Table 28: Area B3, residual flint cont'd

	Context								
	639	12 660	652	656	664	1003	1005	1008	Sub totals
Chip/chunk		1		4				3	8
Primary flake					2				2
Secondary flake		2		4	2	2			10
Tertiary flake	1	1		1	1		1		5
Secondary blade							1		1
Unworked burnt chunk		1							1
Totals	1	5		9	5	2	2	3	27

Table 29: Area B3, residual flint cont'd

Area B4

Only 17 flints were recovered from Area B4, from layers and residual in a later pit and ditches. Two layer contexts yielded three flints, listed in Table 30. Two of the flints were loosely datable to the Neolithic.

	Context		Sub totals
	424	483	
Secondary flake	1	1	2
Tertiary flake	1		1
Totals	2	1	3

Table 30: Area B4, buried soil/layer flint

The flint inadvertently incorporated into later features comprised flint working waste and two utilised pieces, including material potentially manufactured during the Neolithic. The flint is listed in Table 31.

	Context								Sub totals
	251	253	322	335	359	373	418	558	
Chip/chunk	2								2
Secondary flake	2			2		1	1		6
Tertiary flake		1	1						2
Secondary blade								1	1
Core fragment					1				1
End scraper				1					1
Retouched flake							1		1
Totals	4	1	1	3	1	1	2	1	14

Table 31: Area B4, residual flint

1.5 *Evaluation*

Flints recovered during the evaluation from features subsequently exposed during the excavation have been included in the appropriate sections above. However, the evaluation yielded a further 52 flints, listed by context, type and quantity in Table 32.

	Context													Sub totals
	3	4	29	31	34	36	46	48	50	51	54	800	805	
Chip/ chunk							3	5	1		1	1		11
Secondary flake	1			1		2	1	3	6		2		1	17
Tertiary flake	1	1	1	1	1		2	1	6	2	1			17
Core rejuvenation flake									1	1				2
Irregular core									1			1		2
Single platform core											1			1
Retouched flake												1		1
Unworked burnt chunk			1											1
Totals	2	1	2	2	1	2	6	9	15	3	5	3	1	52

Table 32: Evaluation flint

The material was recovered from ditches, layers, a post-hole and a later prehistoric pit. The flint comprised predominantly chronologically non-diagnostic flint working waste, although a few of the flakes were reminiscent of the material recovered from the Late Neolithic pits. This material was therefore residual, already existing in the landscape to become inadvertently incorporated into later features. Other, expediently manufactured flints were potentially later.

2 Discussion

The majority of the material recovered from the site, 2752 flints, was from seven definite and two possible Late Neolithic pits. The pit assemblages had the same

general themes, albeit with some slight variations. All of the definite Late Neolithic pits yielded large assemblages of predominantly fresh flint working waste; waste flakes and blanks, cores, rejuvenation flakes, chunks, chips and some tools. The freshness of the material and the presence of large quantities of useless small fine, awkward and pointless to carry chips indicate that the material did not travel far between manufacture and deposition. This type of evidence for a certain degree of immediacy between manufacture and deposition has been noted at other Late Neolithic pit sites (Healy 1995).

The focus of the flint working was on flake production/core reduction strategies with a tendency towards manufacturing broad and thin as well as narrow flakes. The broad thin flakes would have been the ideal blank for modifying into transverse arrowheads, and indeed all of the arrowheads recovered from the site were struck from discoidal type cores. The serrated flakes however, tended to utilise narrower, thin flakes; whilst chunkier flakes from earlier in the reduction sequences were selected for retouch into scrapers. Yet not many of the actual products of the flake production/core reduction strategies were recovered from the pits. Combined with the high numbers of small chips, waste flakes, discarded and exhausted cores and chunks, this supports the argument that the pits contained flint working waste.

Healy interpreted the large quantities of flint working waste and limited number of utilised pieces recovered from Late Neolithic pits at Middle Harling as the remains of knapping sequences, discarded or cleared out of harms way into pits (Healy 1995); an interpretation that also suits the Linton material. The Grooved Ware pits at Middle Harling in Norfolk yielded comparable quantities of material as the Linton pits, which generally stand out from other sites in terms of quantity. Grooved Ware pits often yielded considerable less flint, for example at Edgerley Drain Road in Fengate Peterborough, Grooved Ware pits yielded between 1 and 43 flints (Beadsmoore 2005). In contrast, pits at Linton and Middle Harling yielded up to 856 flints.

Considerable quantities of Late Neolithic material were recovered from many of the later features at the site and from extensive layers across the areas. The flint's more complex route between manufacture and deposition was reflected in the frequently abraded condition of the material. The large quantities of residual material at the site, provides evidence for comparatively high levels of Late Neolithic activity; either the result of repeated visits or one off episodes of occupation. Late Neolithic material was also recovered from the ring ditch; although the large quantities of Late Neolithic material found in later features at the site suggest that it is potentially residual. An Early Bronze Age tool form was also recovered from the ring ditch, and is more likely to be broadly contemporary with the feature.

The assemblage of Late Neolithic flint recovered from the site is interesting because of the large quantity of material recovered both from the pits and from later features. The site may have been focused on targeting a good source of raw material, manufacturing flint tools from the nodules and depositing the waste and some older tools in pits, whilst retaining the new products. However the polished axe fragments indicate that material was also brought to the site.

2.1 Potential and Recommendations

The freshness and morphology of the flint indicates that the assemblages were largely the discarded waste of flint working sequences. This, combined with the large quantities of small chips, suggests that the material had not moved far between manufacture and deposition. Refitting could help to unravel how much of the sequences were deposited in the pits. Refitting would also be a useful tool in trying to understand the temporal relationships between features. If material refits between pits it suggests the pits have a closer temporal relationship than if the material only refits within individual pits. Refitting a large assemblage of earlier Neolithic flint recovered from pits at Kilverstone in Norfolk (Beadsmoore forthcoming)

demonstrated a close temporal relationship within but not between pit clusters. This suggested that small groups of people had come back repeatedly to the landscape rather than a number of groups occupying the site in one episode of activity. Refitting the assemblages from Linton could potentially be as fruitful, and would be a promising focus of future work.

The residual flint and material recovered from the layers would not necessarily reward extensive reanalysis. However, refitting-focused future work has the potential to increase our understanding of the Late Neolithic flint working strategies carried out at the site, the purpose and use of the pits, the development of the site and issues of temporality in the Late Neolithic, and even potentially contribute to current understanding of landscape use and occupation.

Bibliography

Beadsmoore, E. L	forthcoming	'Flint Report' in Garrow, D., D. Gibson & S. Lucy. Forthcoming. *Excavations at Kilverstone, Norfolk: The Neolithic pits, later prehistoric, Romano-British and Anglo-Saxon occupation and later activity*. East Anglian Archaeology.
Beadsmoore, E. L	2005	*Edgerley Drain Road, Fengate, Peterborough.* Cambridge Archaeological Field Unit Report No. 686.
Bishop, B.	2000	'Lithic Assessment' in *Excavations at Babraham Road, Cambridge*. Site code: AM BAB 98.CAM ARC Internal Report
Healy, F	1995	'Lithics Report' in A. Rogerson. *A Late Neolithic, Saxon and Medieval Site at Middle Harling, Norfolk* East Anglian Archaeology No **74**.

Appendix 5: Prehistoric and Romano-British Pottery

By Sarah Percival and Alice Lyons

1. Introduction

The pottery from Linton Village college, Cambridgeshire comprises a multi-period assemblage of prehistoric, Romano-British, Early Saxon (and a single post-medieval) sherds. A total of 858 sherds, weighing 7.053kg, were recovered. Later Neolithic to Early Bronze Age, Middle Iron Age and Romano-British sherds are the most common (Table 33).

Pottery Spot date	*Quantity*	*Weight (g)*	*Weight (%)*
Earlier Neolithic	2	14	0.20
Later Neolithic Early Bronze Age	254	951	13.48
Earlier Iron Age	12	62	0.88
Middle Iron Age	277	2439	34.58
Iron Age	7	89	1.26
Prehistoric (not closely datable)	18	43	0.61
Romano-British	257	3247	46.04
Early Saxon	30	204	2.89
Post-medieval	1	4	0.06
Total	**858**	**7053**	**100.00**

Table 33: Pottery by period

2 The Prehistoric Pottery

By Sarah Percival

The prehistoric pottery assemblage contains 570 sherds weighing 3,598g. The earliest pottery present is of earlier Neolithic date (3600-3300BC). Later Neolithic Early Bronze Age Grooved Ware (3000-2000BC) and Beaker (2600-1800BC) are also present along with a moderate assemblage of Iron Age pottery mostly dating to the mid Iron Age *c.* 300-100BC.

Pottery Spot date	*Quantity*	*Weight (g)*
Earlier Neolithic	2	14
Later Neolithic Early Bronze Age	254	951
Earlier Iron Age	12	62
Middle Iron Age	277	2439
Iron Age	7	89
Not closely datable	18	43
Total	***570***	***3598***

Table 34: Quantity and weight of pottery by spot date

2.1 Earlier Neolithic

Two sherds of earlier Neolithic date were recovered from two contexts, both unstratified surface finds (Trench A 103; Trench B3 701). Both are rim sherds in coarse flint tempered fabric, one is externally thickened and the other is rolled (Smith 1965, 49). The rims are almost certainly from undecorated, round based bowls which date to around 3600-3300BC (Gibson 2002, 72). Flint tempered fabrics were used throughout the Neolithic and Early Bronze Age and well into the Iron Age making precise dating of undiagnostic body sherds difficult. It is possible therefore that other earlier Neolithic sherds are present in the assemblage.

2.1.1 Recommendations

It is recommended that the entire assemblage be (rapidly) rescanned to check for additional earlier Neolithic sherds that may have been misidentified. The earlier Neolithic sherds should be included in the publication text, this will include a discussion of contemporary assemblages from the region (maximum 0.5 of a day).

2.2 Later Neolithic/Early Bronze Age

The later Neolithic/Early Bronze Age pottery makes up just over a quarter of the entire site assemblage (951g; 26.43%). The assemblage contains a substantial quantity of Grooved Ware (163 sherds; 597g) and three Beaker sherds (70g). The reminder of the sherds have no distinguishing characteristics and cannot be closely identified. The majority of the sherds are in poor condition and show considerable degradation to the surfaces. It is possible that this is the result of the corrosive action of acid sandy soils.

The Grooved Ware is found in two grog-tempered fabrics. Fabric G1 is of well worked slightly micaceous clay with frequent sub-rounded grog, G2 is similar but contains numerous vacuoles indicating where grog has been eroded from the body of the fabric. The sherds are decorated with horizontal incised grooves and fingertip impressions indicative of the Clacton substyle (Longworth 1971).

Grooved Ware was recovered from seven contexts, two ditch fills and five pits (Table 35). Of particular interest is pit 551, which contained over 83% of the total Grooved Ware assemblage (497g).

Feature type	Feature	Quantity	Weight *g)
Ditch	547	2	11
	549	2	7
Pit	204	22	35
	226	16	38
	470	9	7
	551	108	497
	unknown	4	2
Total		163	597

Table 35: Quantity and weight of Grooved Ware by feature

Linton Village College is situated within the valley of the River Granta which flows north towards the Fenland basin. The site lies close to the watershed where the river systems spilt between those that drain into the Fens and those which flow south and east towards the estuaries of the Stour, Orwell and Blackwater. As such it is typical of many Grooved Ware finds spots which are often located close to the sources and estuaries of major rivers (Cleal 1999, 5). Grooved Ware has been found at other sites near Linton such as South Barrow, Cherry Hinton, at sites at Ely, Over and Chippenham (Longworth and Cleal 1999, 180) and in a series of pit deposits at Flixton, Suffolk. The fills of the pits at Flixton varied, some had been carefully placed

around the base of feature whilst others seem to have been dumped into the pits within a dark burnt mixed deposit, perhaps collected from a dump or midden (Percival 2004). It is recommended that detailed study of the pit assemblages found at Linton should be undertaken to establish the nature of the deposits here. Recent studies of radiocarbon dates associated with Grooved Ware suggest that the tradition was current between 3000 and 2000 BC (Garwood 1999, 152).

Three Beaker sherds were found. Two large flint tempered sherds from a coarse, heavily rusticated vessel came from subsoil (163) and from surface cleaning (103). A single fine, comb-impressed sherd came from a pit (148). The distribution of the Beaker sherds suggests that they may have originally been mostly disposed of in surface deposits in contrast with the Grooved Ware, which was mostly found in pits. Beaker dates are generally believed to fall within the period 2600-1800BC (Kinnes *et al* 1991).

2.2.1 Recommendations

The Grooved Ware assemblage is of great interest as this type of pottery remains poorly understood in non-monumental contexts in the region (Garwood 1999, 154). Detailed analysis will include an examination of the pit fills to establish the nature of the deposits found there, in particular to look for the presence of 'structured' deposits. This would be of particular interest if associated with a radiocarbon date. Full analysis of the Grooved Ware assemblage will take 2 days, to include integration of site data and phasing and the selection of a maximum of 30 sherds for illustration with full catalogue for publication.

2.3 Iron Age

The assemblage has been provisionally dated to two phases within the Iron Age, earlier (800-300BC), and middle (300-100BC) (Table 34). These phases are based on form, though most sherds are undecorated body sherds and are therefore hard to classify accurately.

The assemblage contains four main fabric groups, with most sherds being made of sandy, quartz rich fabrics (56.75% 2042g). Smaller numbers of flint, grog and shell tempered sherds are also present. Vessel forms include several slack shouldered jars typical of Middle Iron Age assemblages in Cambridgeshire. One sherd, from layer 101, has a sharp angular shoulder perhaps indicating that it may be of an earlier Iron Age date.

The vessels are largely undecorated. One sherd has a double row of impressed triangles and one is fingertip impressed. One sherd of possible earlier Iron Age date has a double incised line. Five sherds of scored ware are present, distinguished by scored or slashed surface treatment. This type of pottery appears to have been current in Cambridgeshire around the mid 3rd centuries BC (Hill and Braddock forthcoming), though in the Nene Valley and Leicestershire scored ware appears to have been in use much earlier, from around the 5th centuries BC (Knight 2002, 134).

Most Iron Age pottery was recovered from the fills of pits (50% 1220g), post-holes (19% 470g) and ditches (15% 365g). Small quantities were also found in colluvium, subsoil layers and during cleaning. All putative Earlier Iron Age pottery was found in a subsoil layer (101).

The assemblage suggests low-density settlement at the site in the middle of the Iron Age period with some possible earlier activity for which no subsoil features survive. The assemblage is typical of many contemporary assemblages being composed chiefly of plain wares with a small number of decorated sherds and scored wares which may represent imports to the site (Hill and Braddock forthcoming). Contemporary sites include Hinxton Road, Duxford which lies *c* 7k to the west of

Linton Village College and contains a similar range of forms and fabrics (Percival forthcoming).

2.3.1 *Recommendations*

The Iron Age assemblage adds to a growing number of contemporary sites in the region. Detailed analysis will include an examination of the pit fills, post-holes and ditches and include integration of site data and phasing and the selection of a maximum of 20 sherds for illustration with full catalogue for publication. This will take 1.5 days.

3 The Romano-British Pottery

By Alice Lyons

A total of 257 sherds, weighing 3.247kg, of Romano-British pottery was recovered. The majority of this pottery came from ditches (Table 36), thought to be the remains of a field system associated with a large villa (SMR 09841) located to the south of the village of Linton. All of the pottery is abraded, most significantly and some severely. The poor condition of the pottery is an indication of post-depositional disturbance, perhaps the result of middening and/or manuring as part of waste management during the Roman period.

Feature type	Sherd Count	Weight (g)	Weight (%)
Ditch	165	2252	65.18
Unstratified/unlisted	48	681	19.71
Layer	64	456	13.20
t-hole	7	30	0.87
Gully	1	22	0.63
Fill	2	11	0.32
Pit	1	3	0.09
Total	288	3455	100.00

Table 36: Pottery quantified by feature type

The majority of pottery found (by sherd count) are utilitarian sandy grey ware sherds of unsourced, but probable local manufacture. Indeed, some of the sherds showed signed of mis-firing which may indicate a production site lay close-by. Pottery of this type is common throughout the Roman period.

The most frequent pottery type found by sherd weight are the Horningsea-type storage jar fragments. The Horningsea kilns (Tomber and Dore 1998, 116) lay *c.* 17km to the north-west of Linton and have a distinctive fabric and form which make it easily identifiable in northern East Anglian assemblages. Although produced throughout most of the Roman period, these jars are particularly common in the 2nd and 3rd centuries (Evans 1991).

Period	Fabric	Sherd count	Weight (g)	Weight (%)
Roman	Horningsea-type ware	22	969	28.05
	Sandy grey ware	86	585	16.93
	Nene Valley colour coat	17	561	16.24
	Oxfordshire red colour coat	42	283	8.19
	Sandy reduced ware	16	196	5.67
	Oxfordshire white colour coat	9	135	3.91
	Hadham red ware or Oxfordshire red colour coat	11	100	2.89
	Sandy oxidised ware	8	79	2.29
	Sandy grey ware (fine)	15	76	2.20
	South Midland shell tempered ware	5	48	1.39
	Sandy grey ware (grog inclusions)	3	37	1.07
	Amphora	1	35	1.01
	Samian	2	35	1.01
	Sandy grey ware (flint)	2	34	0.98
	Miscellaneous shell tempered ware	5	30	0.87
	Sandy grey ware (limestone inclusions)	1	20	0.58
	?South Midland shell tempered ware	5	8	0.23
	?Pottery or fired clay sandy oxidised fabric	1	5	0.14
	?Oxfordshire red colour coat	2	4	0.12
	Miscellaneous red ware	1	4	0.12
	Miscellaneous ?pottery	1	1	0.03
	Miscellaneous fragment	1	1	0.03
	White ware	1	1	0.03
Early Saxon	Handmade sandy reduced ware	28	188	5.44
	Handmade sandy flint tempered reduced ware	2	16	0.46
Post-medieval	Glazed red earthern ware	1	4	0.12
Total		288	3455	100.00

Table 37: Pottery quantified by period and by fabric

Although a small amount of the assemblage is transitional to the Iron Age (13 sherds; weighing 0.237kg) and other material is Early Roman (42 sherds; weighing 0.360kg) the majority of this assemblage is Mid to Late Roman in date. Indeed the lack of early fine wares (only two sherds of Samian (Tomber and Dore 1998, 25 to 41); weighing 0.035kg were retrieved) confirms this.

Late Roman Nene Valley colour coat (Tomber and Dore 1998, 118) dishes and bowls are present within the assemblage, as are South Midland shell tempered ware (Tomber and Dore 1998, 212) jars. Of particular interest is the significant proportion of the assemblage (14.99 % by weight) that is made up from Oxfordshire red colour coat (Tomber and Dore 1998, 174), Oxfordshire white colour coat (Tomber and Dore 198, 176) and Hadham (Hertfordshire) red ware (Tomber and Dore 1998, 151) or Oxfordshire red colour coat wares. These are Late Roman fabrics which were imported into northern East Anglia from the end of the 3rd century – a trade which continued into the early 5th century. Many of the sherds found here are mortarium sherds – a specialist Roman vessel designed to grind food – which indicate much of this pottery has originated from a place where food was being prepared.

Also of interest are the Early Saxon handmade reduced ware (30 sherds; weighing 0.204kg) vessel fragments found in conjunction with these Late Roman wares which suggest some continuity between the two chronological periods.

3.1 Recommendations

It is suggested that full fabric and form analysis of this material, integrated with the phased site data should be undertaken (1 day).

The results of this work should be combined with previous research in the area to establish (if possible) where the pottery originated from. This will show how local goods combined with traded goods to provide sufficient ceramic wares for the community. It would also be possible to see how pottery use changed through time as this pottery assemblage spans the whole of the Roman period and continues into the Early Saxon era (0.5 day).

Some of the sherds may be selected for illustration or photography (0.5 day). It is suggested that photography may give a better representation of the level of abrasion on the surviving sherds. This work would be submitted for publication in an appropriate format (1 day).

A total of 3 days further work on the Roman pottery assemblage is recommended.

Bibliography

Cleal, R.,	1999	'The What, Where, When and Why of Grooved Ware'. In R. Cleal and A. MacSween (ed.s) *Grooved Ware in Britain and Ireland.* Neolithic Studies groups Seminar Papers 3. Oxford, Oxbow.
Evans, J.,	1991	'Some notes on the Horningsea Pottery' *Journal of Roman Pottery Studies Volume 4*, 33-43
Garwood, P.,	1999	'Grooved Ware in Southern Britain; Chronology and Interpretation'. In R. Cleal and A. MacSween (ed.s) *Grooved Ware in Britain and Ireland.* Neolithic Studies groups Seminar Papers 3. Oxford, Oxbow.
Gibson, A.M.,	2002	*Prehistoric Pottery in Britain and & Ireland.* London. Tempus.
Hill J.D. and Braddock, P.,	Forth-coming	*The Iron Age pottery from Haddenham V.* In Evans and Hodder forthcoming.
Kinnes, I., Gibson, A., Ambers, J., Bowman, S., Leese, M., and Boast, R.,	1991	'Radiocarbon dating and British Beakers: the British Museum programme' *Scottish Archaeological Review* 8, 35-78.
Knight, D.,	2002	'A Regional; Ceramic Sequence: Pottery of the First Millennium BC between the Humber and the Nene'. In Woodward, A. and Hill, J.D. (eds.) *Prehistoric Britain The Ceramic Basis*, 143-160. Oxbow Books, Oxford.
Longworth, I.,	1971	. 'The Neolithic Pottery' in G.J. Wainwright and I.H. Longworth. *Durrington Walls Excavations 1966, 68.* Society of Antiquaries, London.

Longworth, I. and Cleal, R.,	1999	'Grooved Ware Gazetteer'. In R. Cleal and A. MacSween (ed.s) *Grooved Ware in Britain and Ireland.* Neolithic Studies groups Seminar Papers 3. Oxford, Oxbow.
Percival, S.,	2004	*The deposition of Grooved Ware pottery at Flixton Park Suffolk.* Unpublished MA dissertation for Southampton University
Percival, S.,	forthcoming	'The Iron Age Pottery' in Roberts J., Prehistoric, Roman and Anglo-Saxon Remains at Land off Hinxton Road, Duxford, Cambridgeshire
Smith, I.F.,	1965.	*Windmill Hill and Avebury (*Oxford, Clarendon Press)
Tomber, R. and Dore, J.,	1998	*The National Roman Fabric Reference Collection. A Handbook*, MoLAS Monogr. 2

Appendix 6: Brick, Tile and Fired Clay

By Rachel Clarke and Carole Fletcher

1 Introduction and Methodology

A small assemblage of brick, tile and fired clay was recovered; this has been catalogued onto an Access database, and is described, where diagnostically possible, by date and type.

Period	Roman brick and tile	Fired clay/ daub	Post-medieval tile
1		0.030	
2		0.809	
3		0.073	
4	3.31	0.006	
5			
unstrat	0.61		0.354
Total	3.92	0.918	0.354

Table 38: Brick, tile and fired clay by period and weight

2 Roman Brick and Tile

A small quantity of twenty-eight Roman brick and tile fragments weighing 3.92kg was collected from twenty-four contexts, mostly comprising Roman (Period 4) ditches. Brick and tile was also recovered from silty deposits overlying the Late Iron

Age/Roman trackway, a Roman pit and post-hole, and several unstratified /machining layers.

Type

The fragments were on the whole fairly small and often abraded, and include several examples of tegula and box-flue tile. A partial (human?) print and several possible faint signatures were noted. At least two different fabrics were recorded: most are an orange sandy quartz, although shell-tempered fragments were also identified.

3 Fired clay

A small assemblage (53 pieces weighing 0.9kg) of undiagnostic fired clay was recovered from sixteen contexts, mostly comprising Middle Iron Age (Period 2) pits and post-holes. Sixteen fragments (weighing 0.256kg) of possible daub were also recovered from two contexts, both fills of Roman ditches.

4 Post-medieval brick and tile

Very little post-medieval brick and tile was present: a small quantity (0.354kg) of post-medieval tile was recovered from unstratified/surface contexts in Area C.

5 Conclusions and Recommendations

The Roman brick and tile appears to represent background scatter, and largely derives from the infilled Roman ditches in Area B2. Their presence, however, does indicate that a substantial Roman building may lie in the vicinity of the site. The fired clay was mostly found in Middle Iron Age features, and could derive from nearby structures or features associated with metalworking. No further work is required on this material, other than integration with the site phasing and the preparation of a short summary to be included for publication.

This data will add to the general interpretation of site activities, particularly the later Roman/earlier Saxon phases.

Appendix 7: Querns, Utilised Stone and Unworked/Burnt Stone

By Tikshna Mandal and Rachel Clarke

1 Introduction

Five stone items, all from features dating to the Middle Iron Age to the 2nd-3rd century AD (Period 2-3) show evidence of having been used. Two of the items can be identified as the upper stones of rotary querns, whilst the other three were used as rubbing and smoothing stones. Sandstone was favoured for the latter activity from both early and late contexts whilst Millstone Grit was used for the Middle Iron Age rotary quern and Rhineland Lava for that dating from the Roman period. The early quern stone was obviously quite sophisticated despite the rough workmanship.

Smoothing stones were picked for their regular shape or sometimes only for a convenient surface (as SF 246), reflecting the item or substance being smoothed.

Trench/Area	SF No	Context	Cut	Period	Material	Description	Weight (kg)
B3	208	382	**383**	MIA (2)	Millstone Grit	Rotary Quern, Upper Stone	5.192
B3	209	381	**383**	MIA (2)	Sandstone	Rubbing/smoothing stone	2.951
B3	212	449	**450**	2nd-3rdC (4)	Lava	Rotary Quern, Upper Stone	0.382
B2	214	406	**408**	Late 1st-4thC	Sandstone	Rubbing/smoothing stone	2.288
B3	246	229	**230**	MIA	Sandstone	Rubbing/smoothing stone	4.50
B3	-	229	**230**	MIA	Green Sandstone	Unworked	2.915

Table 39: Querns and other worked/utilised stone

2 Catalogue

2.1 Small find No. 208:

A large fragment of upper stone made from Millstone Grit, with a surviving diameter 240mm and height of 120mm. The stone is non-circular, with sides roughly fashioned, flat-based, with an uneven upper surface. The working lower surface is weathered but clearly was worn and shows no tool marks. Surviving in section are the eye of diameter 22 mm and height 80 mm leading from the hopper or feeder hole, a shallow depression on the top surface of width 85 mm. The eye is non-central at a minimum of 94 mm and maximum of 124 mm to the outside edge. At some point the stone was exposed to burning and broken post-use. The source of this stone is unknown and the item should be drawn. Found in a pit and thought to be a smithy dump of Middle Iron Age use. An illustration of this item would be useful.

2.2 Small find No. 209:

Fragment of a roughly hewn, rectangular sandstone, 210 mm long, used as a rubbing stone. The base of the stone is mostly of natural formation, tapering between 26 to 37 mm in height for 110 to 160mm of its length. At the highest point the tablet sits on an irregularly hewn, bumpy step, 95 to 43mm deep, to give a total height at the top end of 64mm, creating a sloping working surface sitting on an unevenly formed but stable base. The working surface is smooth throughout with a distinctive oval-shaped, smoothened working area near the top of 55 x 125mm. This smoothing area appears to be present in its entirety but the stone has been clearly broken down its length, leaving a tablet 97 to 107mm wide. An illustration of this stone may be useful.

2.3 Small find No. 212:

A small outer fragment of upper stone of a rotary quern made of Lava. The original diameter suggested is 360 mm and surviving depth is 60 mm. Parallel linear grooves of 3-4 mm width decorate the outer edge, running top to bottom. The lower surface is worn and has a shallow concavity rising to meet the convex surface of the lower stone. The rough upper surface was worked to taper down towards a shallow groove running parallel 42 mm from the outer edge. The purpose of this feature other than

as a decorative device is puzzling and an illustration of this stone may prove useful. The stone has been exposed to some charring.

2.4 *Small find No. 214:*

This is a fragment of unshaped tabular sandstone. The lower surface was roundly tapering from one side to the other, with a width of 158mm, maximum depth of 55 mm and a surviving length of 183mm. The deepest edge is smooth and slightly concave but the stone probably had only one working surface, the top surface, a slightly concave expanse where surviving patches are glassy smooth suggesting 'rubbing/smoothing activity'.

2.5 *Small find No. 246:*

A large fragment of a smoothing stone. The stone was roughly rectangular in shape, being 210mm wide, 270mm long and 56 – 85mm deep. The stone has a roughly flat base and uneven surface. There are a number of what are probably natural features on the stone (holes and grooves) but only a single working surface: this is one of the narrow edges; 123mm from one end the straight edge slopes down, shallowly concave, perhaps used whilst sitting on its rectangular end. The stone has been exposed to some burning.

2.6 *Miscellaneous*

A large fragment of heavily abraded friable green sandstone was recovered from context 229. There are no surviving surfaces or signs of working.

3 Unworked/burnt stone

A moderate assemblage (51.97kg) of unworked stone was recovered from 30 contexts, dating from the Neolithic to Roman periods. Much of the stone is sandstone, most of which shows evidence of heating or burning.

Period/ Feature type	1 by weight (kg)	2 by weight (kg)	3 by weight (kg)	4 by weight (kg)
Pits	21.9	28.53		0.29
Post-holes		0.20		
Ditches			0.68	0.35
Other	0.02			
Total	21.92	28.73	0.68	0.64

Table 40: Unworked stone by period, feature and weight

4 Recommendations

No further work is recommended for this material, for which quantification and catalogues, where appropriate, have been produced. Integration with final site phasing will be undertaken, and summary reports will be collated for publication.

Appendix 8: Human Bone

By Natasha Dodwell

1 Introduction and Methodology

A single crouched/contracted inhumation burial, was identified in Area B (B2). The body (271) was buried in a shallow, sub-circular grave, on its right side, in a tightly flexed/crouched position. It was aligned north-south with the head facing westwards.

General methods used in the osteological evaluation of the skeleton are those of Bass (1992), Buikstra and Ubelaker (1994) and Brickley and Mckinley (2004). An assessment of age was based on the stages of dental development and eruption (Ubelaker 1989) and epiphyseal union, and the morphology of the auricular surface (Lovejoy *et al* 1985). The skeleton was sexed using diagnostic traits on the pelvis and skull.

The skeleton is moderately well preserved; all the skeletal elements are represented but are fragmentary and many of the joint surfaces are missing or damaged. Most of the vertebral column is missing, as are all the carpal bones and the ribs survive only as scraps. The cortical bone is abraded and has been etched by root activity (grade 4, Brickley and Mckinley 2004).

The body is that of a mature adult female (over 50 years old). The estimated height of the woman, based on the length of the left ulna, is 1.58m ± 43mm. Osteophytes, porosity and eburnation, changes characteristic of osteoarthritis were recorded in the right wrist (the proximal end of the right 1st metacarpal) and upper spine (the right superior articulating facet of a lower cervical vertebra and on the bodies of 2 cervical vertebrae). At least 9 teeth had been lost prior to death and the surviving teeth were very heavily worn. A large caries was recorded on the mandibular premolar and lines of enamel hypoplasia, indicative of episodes of childhood illness or dietary stress were recorded on the maxillary canine. A loose 3rd molar and an incisor root were also recovered.

-	-	-	5	4	3	2	1	-	-	-	-	-	-	-	-
X	X	X	X	X	3	2	1	1	2	3	4	X	X	X	X

No datable finds were recovered from the grave fill and the grave's position in relation to other datable features on the site gives no hint as to the age of the burial. The crouched position of the skeleton suggests a prehistoric date for the burial but it is strongly recommended that bone be submitted for carbon 14 dating. The mid shaft of the right femur has been selected as a suitable bone for analysis.

2 Recommendations

Apart from carbon 14 dating, no further work is necessary on the skeleton. If the site proceeds to publication, and assuming a C 14 date can be obtained, the current author would wish to review this text and make a contribution to any discussion of comparative burials in the region.

Bibliography

Bass, W.M. 1992 *Human Osteology* Columbia, Missouri Archaeology Society

Brickley, M. and Mckinley, J.I. (eds.)	2004	*Guidelines to the Standards for Recording Human Remains* IFA Paper No. 7
Buikstra, J. E. and Ubelaker, D. H. (eds)	1994	*Standards for the collection from human skeletal remains* Arkansas Archaeological Survey. Research Series No. 44. Fayetteville: Arkansas Archaeological Survey
Lovejoy, C. O., Meindl, R. S., Pryzbeck, T. R. and Mensforth, R.P	1985	*Chronological Metamorphosis of the Auricular Surface of the Ilium: A New method for the Determination of Age at Death* American Journal of Physical Anthropology 68: 15-28
Ubelaker, D.H.	1989	*Human Skeletal Remains: Excavation, Analysis, and Interpretation* Taraxacum Press, Washington, D.C

Appendix 9: Animal Bone

By Ian Baxter

1 Introduction

A total of 304 "countable" (see below) animal bones were recovered from the site (Table 41). The bones primarily derive from the fills of pits, post-holes, ditches and other linear features. A small number of bones were also found in animal burrows. The site was subject to intense rabbit activity and all of the rabbit bones recovered are intrusive. Condition of the animal bone fragments varied from poor to excellent with most fragments fairly well preserved. Some contexts contained a high proportion of unidentified and uncounted fragments largely consisting of long bone splinters. Animal bones were recovered from deposits dating from the following periods:

Late Neolithic-Early Bronze Age (Period 1)
Early-Middle Iron Age (Period 2)
Late Iron Age-Early Roman (Period 3)
Mid Roman-Early Saxon (Period 4)
Post-medieval-Modern (Period 5)

2 Methods

All of the animal bones recovered were hand-collected. A bias against the bones of the smaller species is therefore to be expected.

The mammal bones were recorded on an Access database following a modified version of the method described in Davis (1992) and used by Albarella and Davis (1994). In brief, all teeth (lower and upper) and a restricted suite of parts of the skeleton was recorded and used in counts. These are: horncores with a complete transverse section, skull (zygomaticus), atlas, axis, scapula (glenoid articulation), distal humerus, distal radius, proximal ulna, radial carpal, carpal 2+3, distal metacarpal, pelvis (ischial part of acetabulum), distal femur, distal tibia, calcaneum (sustenaculum), astragalus (lateral side), centrotarsale, distal metatarsal, proximal

parts of the 1st, 2nd and 3rd phalanges. At least 50% of a given part had to be present for it to be counted.

The presence of large (cattle/horse size) and medium (sheep/pig size) vertebrae and ribs was recorded for each context, although these were not counted. "Non-countable" elements of particular interest were recorded but not included in the counts.

The ilium and main long bones were recorded and used in counts for anuran amphibians, with generic identification based on the morphology of the ilium following Gasc (1966).

The separation of sheep and goat was attempted on the following elements: horncores, dP_3, dP_4, distal humerus, distal metapodials (both fused and unfused), distal tibia, astragalus, and calcaneum using the criteria described in Boessneck (1969), Kratochvil (1969), Payne (1969 and 1985) and Schmid (1972). The shape of the enamel folds (Davis 1980; Eisenmann 1981) was used for identifying equid teeth to species. Equid postcrania were checked against criteria summarized in Baxter (1998).

Wear stages were recorded for all P_4s and dP_4s as well as for the lower molars of cattle, sheep/goat and pig, both isolated and in mandibles. Tooth and mandibular wear stages follow Grant (1982) and are retained on the database.

Bone measurements are retained on the database. These in general follow von den Driesch (1976). All pig measurements follow Payne and Bull (1988). Humerus HTC and BT and tibia Bd measurements were taken for all species as suggested by Payne and Bull (1988) for pigs.

3 Late Neolithic-Early Bronze Age (Period 1)

A total of 26 countable animal bone fragments were recovered from features dating from the Late Neolithic to Early Bronze Age. Two aurochs (*Bos primigenius*) bones were found in Pit **551** (fill 597), a complete metacarpal and a distal tibia (Plate 8). The metacarpal is large and came from a bull. In Chart 2 the distal breadth and distal depth of the Linton metacarpal are compared with those found at the Mesolithic site of Star Carr in Yorkshire. If the multiplication factor for domestic bulls published by Matolcsi (1970) is used the resulting withers height is 165cm. Aurochs bones dating from 2619-2345 BC and 2006-1690 BC were recovered from Babraham Road, Cambridge (M. Hinman pers. com.). The latest dated remains of aurochs in Britain come from Charterhouse Warren Farm, Blagdon in Somerset (1295 bc or 1629 BC; Clutton-Brock and Burleigh 1983). The aurochs remains were accompanied by those of domestic cattle and pigs. Within the small Late Neolithic to Early Bronze Age sample from the site domestic cattle and pigs occur at similar frequency and sheep/goats are scarce. A cattle metatarsal from 597 has a broadened distal epiphysis, a condition frequently observed in draught animals (Bartosiewicz *et al.* 1997).

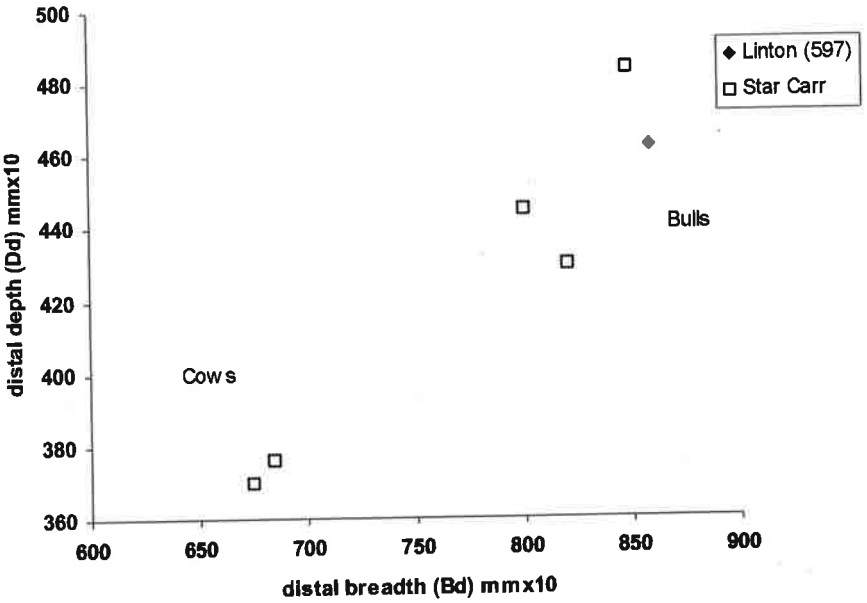

Chart 2: Dimensions of the Linton aurochs metacarpal compared with those at Star Carr, Yorkshire. Star Carr based on Legge and Rowley-Conwy (1988).

4 Iron Age (Period 2)

The Iron Age assemblage is the largest recovered from the site amounting to 86 fragments of animal bones. Sheep/goat are slightly more frequent than cattle, pig is absent, horse and dog occur at low frequency together with hare. Red deer is represented by antler fragments. The cattle are a shorthorned type; no small horned cores were present in the assemblage. Frequently the cattle horncores are grooved. Only one cattle bone sufficiently complete to calculate a withers height was found, a metacarpal from Pit **403** (577) derives from a beast of approximately 112cm. The majority of the cattle bones and teeth belong to adults. The associated vertebrae and ribs of a single individual were found in ditch **253** (252). The remains include four cervical vertebrae, nine thoracic vertebrae and at least four ribs.

Both sheep and goats are represented at the site but the majority of ovicaprids are sheep. The only goat fragments seen are two horncores from pit **383** (382). The more complete core is small and probably female. Of eight mandibles recovered two came from animals aged under 6 months, one from an animal aged 1-2 years, two 2-4 years and three from animals 4-8 years old (Table 42).

Horse remains include a metacarpal from post-hole **420** (419) from a pony sized animal of around 1.2 hands based on the multiplication factors of Kiesewalter (1888). A metacarpal of similar size found in pit **383** (381) has proximal and distal exostoses on the posterior surface. Dog remains include a fragmentary cranium found in pit **656** and an ulna found in ditch **245**. Both came from medium sized animals. A hare innominate was found in pit **403** (577) and the remains of at least five frogs in pit **520** (517).

4.1 *Evidence of Craft Working*

Sawn red deer antler fragments were found in pits **348** and **424**. The specimen from **424** is a beam fragment sawn off above the brow tine with one terminal tine still

attached and the other tines sawn off (Plate 10). An antler crown sawn from the beam and with the tines sawn off was found in **348**. Sawn cattle horncores were found in pits **351** (350, Plate 9), **383** (381) and **424** (422). A sawn goat horncore was found in pit **383** (382). The deer antlers were probably seasonally collected and conserved for use in the construction of artefacts such as combs, pins, needles and hammers. The saw marks on the cattle and goat horncores relate to the removal of the horn sheath. A gouge made from the tibia of a sheep/goat was found in pit **424** (Plate 11).

5 Late Iron Age and Romano-British (Periods 3-4)

A total of 69 countable fragments of animal bones were recovered from features dating from the Late Iron Age and Romano-British periods, primarily from the fills of ditches. Cattle are the most frequent taxon, followed by horse. Pig is present at low frequency. This bias towards the bones of the larger species is probably primarily due to the location of the ditches peripheral to areas of human occupation (Wilson 1996). Complete metapodials (n = 4) give withers heights of between 109-126cm. All four cattle mandibles recovered derive from adult beasts. Metatarsals found in ditch **552** and layer 702 have broadened distal epiphyses typical of draught animals (Bartosiewicz *et al.* 1997). The few sheep/goat mandibles found came from animals aged between 1-2 years and 2-4 years.

Horse metapodials found in pit **355** and ditch **14** came from animals of 13 and 13½ hands based on comparisons in Vitt (1952) and the factors of Kiesewalter (1888). An unworn upper P^3 found in ditch **497** came from an animal added between one year four months and three years six months (Levine 1982). An astragalus from ditch **658** has slight eburnation indicative of osteoarthritis on the distal articular surface. A hare metatarsal was found in ditch **410**.

6 Modern (Period 5)

The recent burial of a pig aged between one and one and a half years (Silver 1969) was found in **465**.

7 Undated

An assemblage of horse and cattle remains was found in feature **446** located in a subsoil layer over Middle Iron Age Pit **408** against the northern edge of Area B3. These bones are not stained dark brown like those comprising the modern pig burial and, while they must be considered unstratified, may be much earlier in date. Bones of at least two horses are present, including a mandible fragment with deciduous dentition which has dI_3 un-erupted derived from an animal aged less than 6-9 months (Sisson and Grossman 1953). The other bones are a cattle mandible, isolated cattle teeth and a rabbit femur.

8 Summary and Conclusion

The small Late Neolithic-Early Bronze Age assemblage includes two bones of the extinct aurochs including a metatarsal from a bull. During this period the bones and teeth of domestic cattle and pigs occur at similar frequency while those of sheep/goat are scarce. There is evidence for the presence of draught cattle. In the Iron Age sheep/goat is slightly more frequent than cattle. Goat is represented by horncores but most of the sheep/goats were probably sheep. The sheep/goat mandibles display a wide range of ages. The cattle were fairly small shorthorned beasts. Pony sized horses and medium sized dogs are also present in the Iron Age assemblage.

Evidence was found for the working of antler and the horn of cattle of goats during the Early to Middle Iron Age in the form of sawn antler craft waste and sawn horncores. One bone tool was also recovered. There is evidence for an increase in size of both cattle and horses in the succeeding Romano-British period. Evidence for draught cattle was found, represented by metapodials with broadened distal ends.

9 Recommendations

No further work is required on the animal bone, other than integration of final phasing and preparation of a summary report for publication

Taxon	Period								Total
	1 Late Neolithic-Early Bronze Age	2 Early – Middle Iron Age	2-3	3 Late Iron Age-Early Roman	3-4	4 Mid Roman-Early Saxon	5 Post-medieval/ Modern	Undated	
Aurochs (*Bos primigenius*)	2	-	-	-	-	-	-	-	**2**
Cattle (*Bos* f. domestic)	10	14 *[2]*	3	1	1	32	-	7	**67** *[2]*
Sheep/Goat (*Ovis/Capra* f. domestic)	1	20	1	-	-	9	-	-	**31**
Sheep (*Ovis* f. domestic)	(-)	(7) *[2]*	(-)	(-)	(-)	(1)	(-)	(-)	**(8)** *[2]*
Goat (*Capra* f. domestic)	(-)	(1) *[1]*	(-)	(-)	(-)	(-)	(-)	(-)	**(1)** *[1]*
Red Deer (*Cervus elaphus*)	-	+	-	-	-	-	-	-	**+**
Pig (*Sus scrofa*)	11	-	-	-	-	2	98[1]	-	**111**
Equid (*Equus* sp.)	-	1	-	-	-	1	-	-	**2**
Horse (*Equus caballus*)	-	2	-	2	1	10	-	8	**23**
Dog (*Canis familiaris*)	-	1	1	-	-	-	-	-	**2**
Hare (*Lepus* sp.)	-	1	-	1	-	-	-	-	**2**
Rabbit (*Oryctolagus cuniculus*)	2	20	-	2	-	7	1	1	**33**
Anuran Amphibian (*Rana/Bufo* sp.)	-	22[2]	-	-	-	-	-	-	**22**
Frog (*Rana* sp.)	(-)	(3)	(-)	(-)	(-)	(-)	(-)	(-)	**(3)**
Total	**26**	**81**	**5**	**6**	**2**	**61**	**99**	**16**	**304**

Table 41: Number of Identified Specimens (NISP).

"Sheep/Goat" and "Anuran Amphibian" also include the specimens identified to species. Numbers in parentheses are not included in the total of the period. "+" means that the taxon is present but no specimens could be "counted" (see text). Numbers of counted horncores for each taxon are given in square brackets. All the rabbit remains are intrusive and include partial skeletons.

[1] partial skeleton
[2] MNI= 5

Taxon/Period	Mandibular wear stages												
	A		B		C		D		E		F		Total
	n	%	n	%	n	%	n	%	n	%	n	%	n
Sheep/Goat													
2	2		-		1		2		3		-		8
4	-		-		1		2		-		-		3

Taxon/Period	Mandibular wear stages										
	Juvenile		Immature		Subadult		Adult		Elderly		Total
	n	%	n	%	n	%	n	%	n	%	n
Cattle											
2	-		-		-		-		1		1
4	-		-		-		4		-		4
Pig											
1	-		-		1		-		-		1
4	-		-		-		1		-		1

Table 42: Mandibular wear stages (following Crabtree 1989 and O'Connor 1988). Only mandibles with two or more teeth (with recordable wear stages) in the $dP_4/P_4 - M_3$ row or isolated worn M_3 are considered. Percentages not calculated when number of mandibles less than 10.

References

Albarella, U. and Davis, S.J.M.	1994	*The Saxon and Medieval animal bones excavated 1985-1989 from West Cotton, Northamptonshire.* London: English Heritage AML Report 17/94.
Bartosiewicz, L., Van Neer, W. and Lentacker, A.	1997	*Draught Cattle: their osteological identification and history.* Koninklijk Museum voor Midden-Afrika, Tervuren, België, Annalen Zoölogische Wetenschappen/Annales Sciences Zoologiques, Musée Royale de l'Afrique Central, Tervuren, Belgique.
Baxter, I.L.	1998	'Species identification of equids from Western European archaeological deposits: methodologies, techniques and problems'. In Anderson, S. (ed.) *Current and Recent Research in Osteoarchaeology*, pp. 3-17. Proceedings of the third meeting of the Osteoarchaeological Research Group. Oxford: Oxbow.
Boessneck, J.	1969	'Osteological Differences between Sheep (*Ovis aries Linne*) and Goat (*Capra hircus Linne*).' In: Brothwell, D.R. and Higgs, E. (eds.). *Science in Archaeology*. London: Thames and Hudson, pp. 331-359.
Clutton-Brock, J. and Burleigh, R.	1983	'Some archaeological applications of the dating of animal bone by radiocarbon with particular reference to post-Pleistocene extinctions'. In: Mook, W.G. and Waterbolk, H.T. (eds.). *Proceedings of the first International symposium 14C and archaeology*, pp. 409-19. Strasbourg: Council of Europe PACT 8.
Crabtree, P.	1989	*West Stow, Suffolk: Early Anglo-Saxon Animal Husbandry.* East Anglian Archaeol. 47
Davis, S.J.M.	1980	'Late Pleistocene and Holocene equid remains from Israel'. *Zoological Journal of the Linnean Society* 70(3): 289-312.
Davis, S.J.M.	1992	*A rapid method for recording information about mammal bones from archaeological sites.* London: English Heritage AML Report 19/92.
Driesch, A. von den.	1976	*A Guide to the Measurement of Animal Bones from Archaeological Sites.* Peabody Mus. Bull. 1. Cambridge 10: 127-226, Mass.: Harvard University.
Eisenmann, V.	1981	'Etude des dents jugales inferieures des *Equus* (Mammalia, Perissodactyla) actuels et fossiles'. *Palaeovertebrata*
Gasc, J.P.	1966	'Les amphibiens'. In: Lavocat, R. (ed.) *Atlas de Préhistoire. Vol. III. Faunes et Flores Préhistoriques de l'Europe Occidentale*, pp. 475-8. Paris: Éditions N. Boubée Et C^{ie}.
Grant, A.	1982.	'The Use of Tooth Wear as a Guide to the Age of Domestic Ungulates'. In: Wilson, B., Grigson, C. and Payne, S. (eds.). *Ageing and Sexing Animal Bones*

from Archaeological Sites. BAR Brit. Ser. 109: Oxford, pp. 91-108.

Kiesewalter, L 1888 *Skelettmessungen an Pferden als Beitrag zur theoritischen Grundlage der Beurtilungslehre des Pferdes*. Diss. Leipzig.

Kratochvil, Z 1969 'Species criteria on the distal section of the tibia in *Ovis ammon* F. *aries* L. and *Capra aegagrus* F. *hircus* L. *Acta Veterinaria'* (Brno) 38: 483-490.

Legge, A.J. and Rowley-Conwy, P.A 1988 *Star Carr Revisited. A re-analysis of the large mammals*. London: Birkbeck College.

Levine, M.A. 1982 'The Use of Crown Height Measurements and Eruption-Wear Sequences to Age Horse Teeth'. In: Wilson, B., Grigson, C. and Payne, S. (eds.). *Ageing and Sexing Animal Bones from Archaeological Sites*. BAR Brit. Ser. 109. Oxford, pp. 223-250.

Matolcsi, J. 1970 'Historische Erforschung der Körpergröße des Rindes auf Grund von ungarischem Knochenmaterial. Zeitschr'. f. Tierzüchtg. u. Züchtungsbiol., Hamburg 87:89-137.

O'Connor, T.P. 1988 'Bones from the General Accident Site, Tanner Row'. *The Archaeology of York* 15/2. London: Council for British Archaeology.

Payne, S. 1969 'A metrical distinction between sheep and goat metacarpals'. In: Ucko, P. and Dimbleby, G. (eds.) *The domestication and exploitation of plants and animals*, pp. 295-305. London: Duckworth

Payne, S. 1985 *Morphological distinctions between the mandibular teeth of young sheep,* Ovis, *and goats,* Capra. J.A.S. 12: 139-147.

Payne, S. and Bull, G 1988 *Components of variation in measurements of pig bones and teeth, and the use of measurements to distinguish wild from domestic pig remains*. Archaeozoologia 2: 27-65.

Schmid, E. 1972 *Atlas of Animal Bones for Prehistorians, Archaeologists and Quaternary Geologists*. Amsterdam, London & New York: Elsevier.

Silver, I.A. 1969 'The Ageing of Domestic Animals'. In: Brothwell, D. and Higgs, E. (eds.). *Science in Archaeology*. London: Thames and Hudson, pp.283-302

Sisson, S. and Grossman, J.D. 1953 *The Anatomy of the Domestic Animals*. Philadelphia and London: W.B. Saunders

Vitt, V. 1952 Loshadi Pezyryksich kurganov. Sovetskaja Archeologija 16: 163-205.

Wilson, B.. 1996 Spatial Patterning among Animal Bones in Settlement Archaeology. BAR Brit. Ser. 251. Oxford

Appendix 10: Charred Plant Macrofossils And Other Remains

By Val Fryer

1 Introduction

Samples for the extraction of the plant macrofossil assemblages were taken from across the excavated area, and 129 were submitted for assessment.

2 Methods

The samples were bulk floated by the Archaeological Field Unit, with flots being collected in a 500 micron mesh sieve. The dried flots were scanned under a binocular microscope at magnifications up to x 16, and the plant macrofossils and other remains noted are listed form part of the archive. Two sample tables have been included in this appendix: Tables 43 and 44. Nomenclature within the tables follows Stace (1997) for the plant remains and Kerney and Cameron (1979) for the molluscs. All plant macrofossils were charred. Modern contaminants including fibrous and woody roots, seeds, fungal sclerotia and arthropod remains, were present throughout.

3 Results of assessment

Plant macrofossils

Cereal grains/chaff, seeds of common weed species and nutshell fragments were recovered at varying densities from all but twenty one samples. Preservation was poor to moderate, with a high density of the grains being severely puffed, distorted and fragmented, probably as a result of combustion at very high temperatures and the subsequent disturbance of the charred material.

Cereals

Oat (*Avena* sp.), barley (*Hordeum* sp.) and wheat (*Triticum* sp.) grains were recorded from a number of the Late Neolithic/Early Bronze Age (Period 1) samples, although frequently as single specimens. A single spelt wheat (*T. spelta*) glume base was noted in sample 14 from a buried soil horizon, but this is most likely to be intrusive from overlying deposits.

Wheat and barley grains were frequently abundant within the Period 2 (Early to Middle Iron Age) deposits, most notably from within the post-hole fills. Glume bases of both emmer (*T. dicoccum*) and spelt wheat occurred at moderate densities in a number of samples, and whole spelt spikelets, still tightly encased within the glumes, were recorded from sample 6 (post-hole [31]). Asymmetrical lateral grains of six-row barley (*Hordeum vulgare*) were present within samples 54 and 63. Oat grains were present, but rare, and a single possible rye (*Secale cereale*) grain was noted within sample 86 (post-hole [420]).

Oats, barley and wheat grains were again recovered from the Period 3 and 4 (Late Iron Age, Roman and Early Saxon) deposits, although mostly at very low densities. Spelt glume bases were present in only five assemblages, and a single bread wheat

(*T. aestivum/compactum*) type rachis node was noted in sample 4 from Period 4 ditch [33].

Wild Flora

Although recorded from a number of samples, weed seeds were surprisingly rare, and were frequently present as single specimens within an assemblage. Most were of common segetal or grassland species including buttercup (*Ranunculus* sp.), small legumes (Fabaceae), black bindweed (*Fallopia convolvulus*), goosegrass (*Galium aparine*), grasses (Poaceae), chickweed (*Stellaria media*) and dock (*Rumex* sp.). Brome (*Bromus* sp.) fruits, which are of a similar size to grains, did occur more frequently within the cereal rich assemblages from the Period 2 deposits. Single sedge (*Carex* sp.) fruits from samples 18, 85 and 86 were the sole wetland plant macrofossils recorded.

Hazel (*Corylus avellana*) nutshell fragments were moderately common within the Period 1 pit fills, but were rarely recovered from other deposits.

Other Plant Macrofossils

Charcoal/charred wood fragments were present or common in most assemblages. Small pieces of charred root/stem were also occasionally recorded, but other plant remains were extremely rare. Indeterminate tuber fragments were recovered from sample 78 (Period 1 grave [271]) and sample 52 (Period 3 post-hole [318]), and a small elongated *Prunus* type thorn was noted within sample 86 from Period 2 post-hole [420].

Molluscs

Although specific sieving for the retrieval of molluscan remains was not undertaken, small assemblages were recovered from fourteen samples. As most of the specimens recorded were abraded and fragmented, it was assumed that they were most likely to be contemporary with the features from which the samples were taken. All four of Evans (1972) ecological groups of terrestrial taxa were represented, with open country species occurring most frequently. A small number of freshwater obligate taxa were also recorded.

Other Materials

Fragments of black porous and tarry material were present throughout, and most are probable residues of the combustion of organic remains at very high temperatures. Bone fragments, including burnt pieces, were also present in samples from all periods of the sites occupation/utilisation. The small coal fragments may all be intrusive residues from more recent activities. Industrial residues were most common in the Period 2 deposits, and included ferrous globules, hammer scale and fuel ash slag and other vitreous residues. Other remains were rare, but did include small fragments of burnt or fired clay, small mammal and amphibian bones and small pieces of possible lava and glass.

4 Discussion

For the purposes of this discussion, samples will be dealt with by period and, where appropriate, function.

4.1 *Period 1 Pit Fills* (Table 43)

Twenty five samples are from pit fills of Late Neolithic or Early Bronze Age date. Although the majority of the assemblages are very small (<0.1 litres in volume), their composition is comparatively uniform (comprising small numbers of cereal grains, hazel nutshell fragments, charcoal and bone), possibly indicating that they have a common source. Similar assemblages have now been recorded from a number of Late Neolithic, Beaker and Early Bronze Age features within the eastern region (most recently from Harford, Norwich (Fryer, forthcoming b) and Flixton Quarry, Suffolk (Fryer forthcoming c), where they have been tentatively interpreted as the seasonal burial of midden material.

4.2 *Period 1 Ditch Fills and Buried Soil Horizons*

Plant macrofossils, including charcoal fragments, are rare within these eleven assemblages, and it would appear most likely that the material is derived from a low density of scattered refuse of unknown origin.

4.3 *Other Period 1 Features*

The presence of charred cereal grains, weed seeds and tuber fragments within grave **271** (samples 48 and 78) is perhaps a little unusual, although it should be noted that all may be accidental inclusions within the grave fills. The remaining four assemblages contain insufficient material for accurate interpretation.

4.4 *Period 2 Post-Hole Fills* (Table 44)

A total of twenty-four samples are from fills within post-holes of Middle Iron Age date. The composition of the assemblages would appear to indicate that activity on site was at its zenith during this period, with evidence for cereal processing/storage (see particularly samples 6, 54, 57 and 114) and possible small-scale iron smithing (samples 86 and 121). However, it should also be noted that the post-hole samples are remarkable for their evidence of at least one episode of intense burning. A high density of the grains are severely puffed and fragmented, and porous and tarry residues are abundant. Similar assemblages have been noted from other Middle to Late Iron Age and Early Roman deposits (at, for example, St Osyth, Essex (Fryer forthcoming a) and Beck Row, Mildenhall (Fryer 2004), where catastrophic fires destroyed grain storage facilities, namely four-post structures and granary buildings. The resulting debris was spread across the site prior to the reconstruction of the buildings, and this material, either deliberately or accidentally, readily became incorporated into a large number of contemporary features. Similar intensely burnt assemblages may also be created when residual grain from storage pits is destroyed by burning (for example at Fison Way, Thetford (Murphy, 1992)), although there does not appear to be any evidence for such storage at the current site.

4.5 *Period 2 Pit and Ditch Fills and Other Features*

The samples from the pits, ditches and other features of Period 2 date have assemblages broadly consistent with those from the post-holes (see above), although the density of material recorded is generally lower. At the time of writing, it is assumed that the material is derived from scattered refuse associated with on-site activities including cereal processing and storage. Smithing waste (i.e. ferrous globules and hammer scale) is again present, most notably within sample 68 from pit **349**.

Bibliography

Evans, J.,	1972	*Land Snails in Archaeology*. London
Fryer, V.,	2004	Charred plant macrofossils and other remains' in Bales, E. *A Roman Maltings at Beck Row, Mildenhall, Suffolk* East Anglian Archaeology Occasional Paper No. 20, 49 - 53
Fryer, V.,	forthcoming (a)	'Charred plant macrofossils and other remains from three Middle Iron Age granaries at Lodge Farm, St. Osyth, Essex' .Forthcoming in East Anglian Archaeology
Fryer, V.,	forthcoming (b)	'Charred plant macrofossils and other remains' from the Harford Park and Ride Site, Norwich. Forthcoming in East Anglian Archaeology
Fryer, V.,	forthcoming (c)	'Charred plant macrofossils and other remains from sites FLN 057 and FLN 059, Flixton Park Quarry, Suffolk'. Assessment reports for Suffolk County Council Archaeology Service
Kerney, M.P. and Cameron, R.A.D	1979	*A Field Guide to the Land Snails of Britain and North-west Europe*. Collins
Murphy, P.,	1992	'Plant remains and the environment' in Gregory T., *'Excavations in Thetford 1980 – 1982, Fison Way. Volume 1* East Anglian Archaeology **53**, 175-181
Stace, C.,	1997	*New Flora of the British Isles*. Second edition. Cambridge University Press.

Key to Selected Tables

x = 1 – 10 specimens xx = 10 = 50 specimens xxx = 50+ specimens
b = burnt fg = fragment tf = testa fragment
ph = post-hole feat. = feature B.soil = buried soil

NB: Only principal assemblages from Period 1 and 2 are included in the following section

Sample No.	39	40	41	42	43	44	90	91	92	103	104
Context No.	235	222	223	224	225	249	469	502	509	572	573
Feature No.	226	226	226	226	226	226	470	470	470	574	574
Cereals											
Hordeum sp. (grains)			x				xcf				
Triticum sp. (grains)						x	x				x
Cereal indet. (grains)			x	x			x				
Tree/shrub macrofossils											
Corylus avellana L.			xcf	xx			xxx	xxx		x	xx
Other plant macrofossils											
Charcoal <2mm	x	x	xx	xxx	xx	x	xxx	xxx	xx	xx	xx
Charcoal >2mm			x	xx	x		xx	x		x	x
Charred root/stem							x				
Indet.seeds											x
Molluscs											
Woodland/shade loving species											
Clausilia sp.							x				
Open country species											
Pupilla muscorum							x				
Marsh species											
Vertigo sp.							x				
Other materials											
Black porous 'cokey' material	x		x	x			x			x	x
Black tarry material				x						x	
Bone				x xb	xb		x xxb	x xb		xb	xx xb
Burnt concretions							x				
Burnt/fired clay				x			xx				x
Small coal frags.							x				
Small mammal/amphibian bone			x								
Volume of flot (litres)	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.2	0.2	<0.1	<0.1	<0.1
% flot sorted	100%	100%	100%	100%	100%	100%	50%	50%	100%	100%	100%

Table 43: Charred plant macrofossils and other remains from a selection of the Period 1 pit fills

4.6 *Period 3 Features*

Samples are from post-holes, pit fills, ditches and other features) including a possible buried soil. Compared to the Period 2 samples, the assemblages are very limited, and it would appear that the site may have been little used or peripheral to any main centre of activity during this later Iron Age and Early Roman period. All nineteen assemblages appear to be derived from low to moderate densities of scattered refuse, although the origin of this material is not known. Cereals occur most frequently, possibly indicating the presence of some domestic refuse, although it should be noted that some material may be residual from the underlying Period 2 deposits.

4.7 *Period 4 Features*

The remaining seventeen samples of Mid-Roman to Early Saxon date all contain an extremely low density of material, with none of the assemblages exceeding 0.1 litres in volume. Cereal grains and chaff elements are still present, although frequently as single specimens within an assemblage, and it would appear most likely that all material is derived from either exceedingly low density scatters of refuse or wind-blown detritus. The assemblages from samples 9 (ditch **38**) and 105 (from ditch **575**) consist almost entirely of mollusc shells. Open country taxa, particularly those associated with open grassland habitats, are predominant, although the presence of a limited number of shade loving species may also be indicative of intermittent lightly shaded or overgrown areas. A small number of mollusc shells are recorded from five other assemblages, and these indicate that open grassland conditions still prevailed.

5 Conclusions and Recommendations for Further Work

In summary, although the small size of the assemblages may have precluded some more detailed interpretation of the features, a broad outline of site use can be surmised. During the Late Neolithic to Early Bronze Age, the site was possibly used on a seasonal basis. Evidence from the many pit fills may indicate that midden material was regularly buried prior to the abandonment of the site, and contemporary parallels for this practise are known from elsewhere within the eastern region. During the Early to Middle Iron Age, activity on site appears to have been at its height, with evidence for grain processing/storage and iron smithing. However, few, if any, of the Period 2 deposits appear to contain material in a primary context. The composition and preservation of the assemblages indicate that a high density of the grains in particular were destroyed by intense burning, either during catastrophic fires, or during the deliberate combustion of waste material. This burnt matter then appears to have been spread across the site, becoming incorporated within a range of features including post-holes, pits and ditch fills. By the Later Iron Age and Early Roman periods, activity on the site was curtailed, with only limited evidence for scattered refuse, and by the later Roman to Early Saxon periods, assemblages are primarily composed of low densities of probable wind-blown detritus.

Of the one hundred and twenty nine samples assessed, only five (Period 2 post-hole samples 6, 54, 57 and 114 and Period 2 pit sample 7) contain a sufficient density of material (i.e. 100+ specimens) for further quantitative analysis. However, it should be noted that the analysis of such heavily burnt material from what appear to be secondary contexts is of doubtful value to the overall interpretation of the site and, as a result, the final decision on whether this work should proceed must rest with the excavator. If it is decided that additional analysis is not required, it is strongly recommended that a written summary of this assessment is included within any publication of site data. Material suitable for either C14 or AMS dating is present within a number of samples (most particularly those from the Period 1 deposits), and can be easily separated either by the author or by a member of the Archaeological Field Unit team.

Sample No.	6	53	54	55	57	58	59	60
Context No.	**30**	**280**	**282**	**284**	**288**	**290**	**292**	**294**
Feature No.	**31**	**281**	**283**	**285**	**289**	**291**	**293**	**295**
Cereals								
Avena sp. (grains)	xcf				xcf			xcf
Hordeum sp. (grains)	xx	x	xx		xxx	x	x	xx
H. vulgare L. (asymmetrical lateral grains)			x					
Triticum sp. (grains)	xxx		xxx	x	xxx	xxx	x	xx
(glume bases)		x	x		xx			
(spikelet bases)		x	x	x	x			
T. dicoccum Schubl. (glume bases)	xcf				xcf			
T. spelta L. (glume bases)	x		x		xxx	x		x
(spikelets)	x							
(spikelet forks)	x							
Cereal indet. (grains)	xxx	xx	xxx	xx	xxx	xxx	x	xx
Herbs								
Bromus sp.	x		xx	x	xx	x		x
Fallopia convolvulus (L.)A.Love	x							
Silene sp.					x			
Tripleurospermum inodorum (L.)Schultz-Bip		xfg						
Other plant macrofossils								
Charcoal <2mm	xxx	xx	xxx	xxx	xxx	xxx	xx	xx
Charcoal >2mm	xx		xx	x	xx	x	x	x
Charred root/stem	x					x		
Indet.seeds		x						
Other materials								
Black porous 'cokey' material	xxx	x	xxx	xx	xxx	xxx	x	xx
Black tarry material	xx							
Bone		x	x	x			x	
Ferrous globules						x		
Small mammal/amphibian bone		xb						
Vitrified material				x	x			
Sample volume (litres)								
Volume of flot (litres)	**0.2**	**<0.1**	**<0.1**	**<0.1**	**0.3**	**0.1**	**<0.1**	**<0.1**
% flot sorted	**50%**	**100%**	**100%**	**100%**	**25%**	**100%**	**100%**	**100%**

Table 44: Charred plant macrofossils and other remains from a selection of the Period 2 post-holes

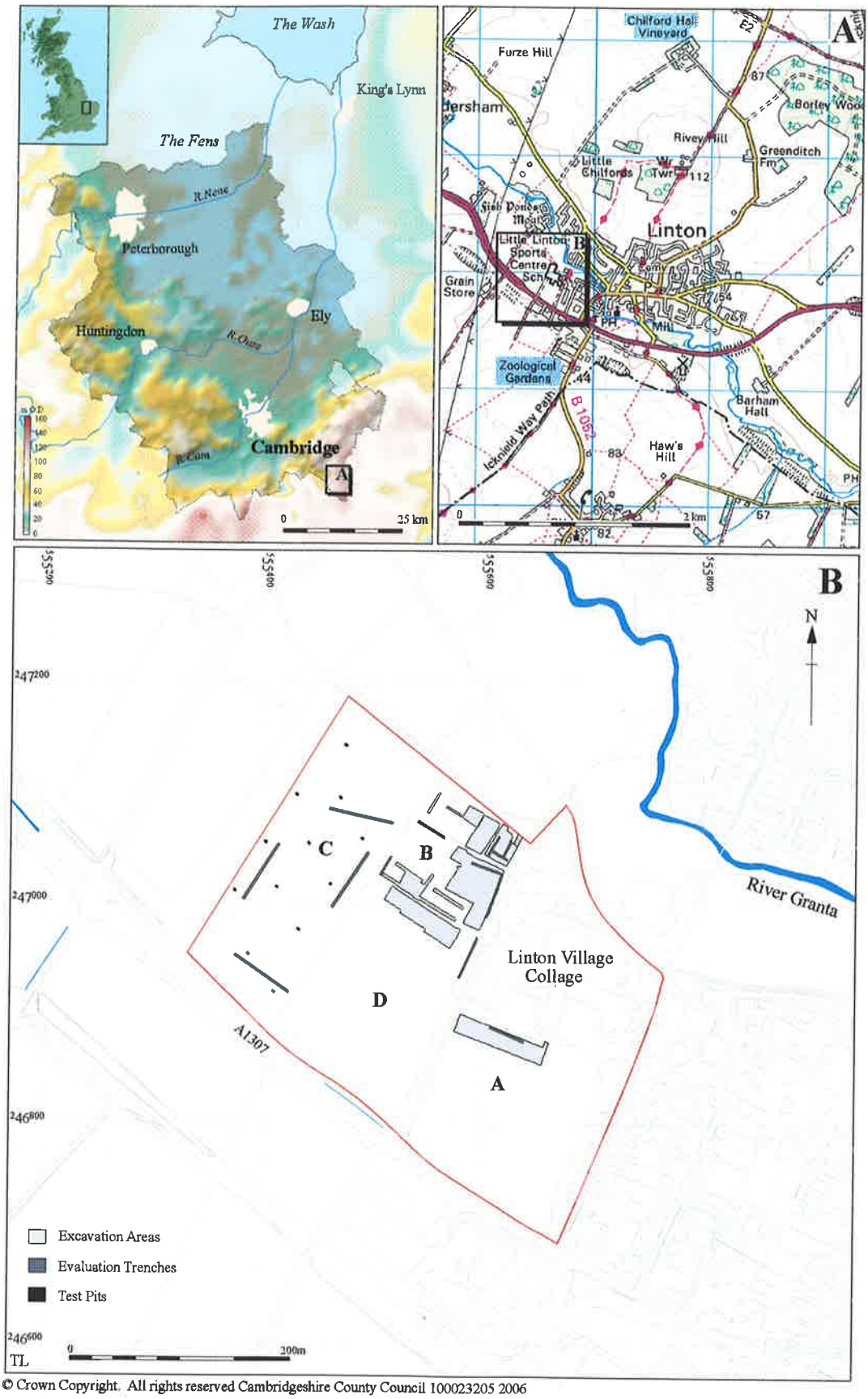

Figure 1 Location plan with excavation areas, trenches, test pits and the development area (red)

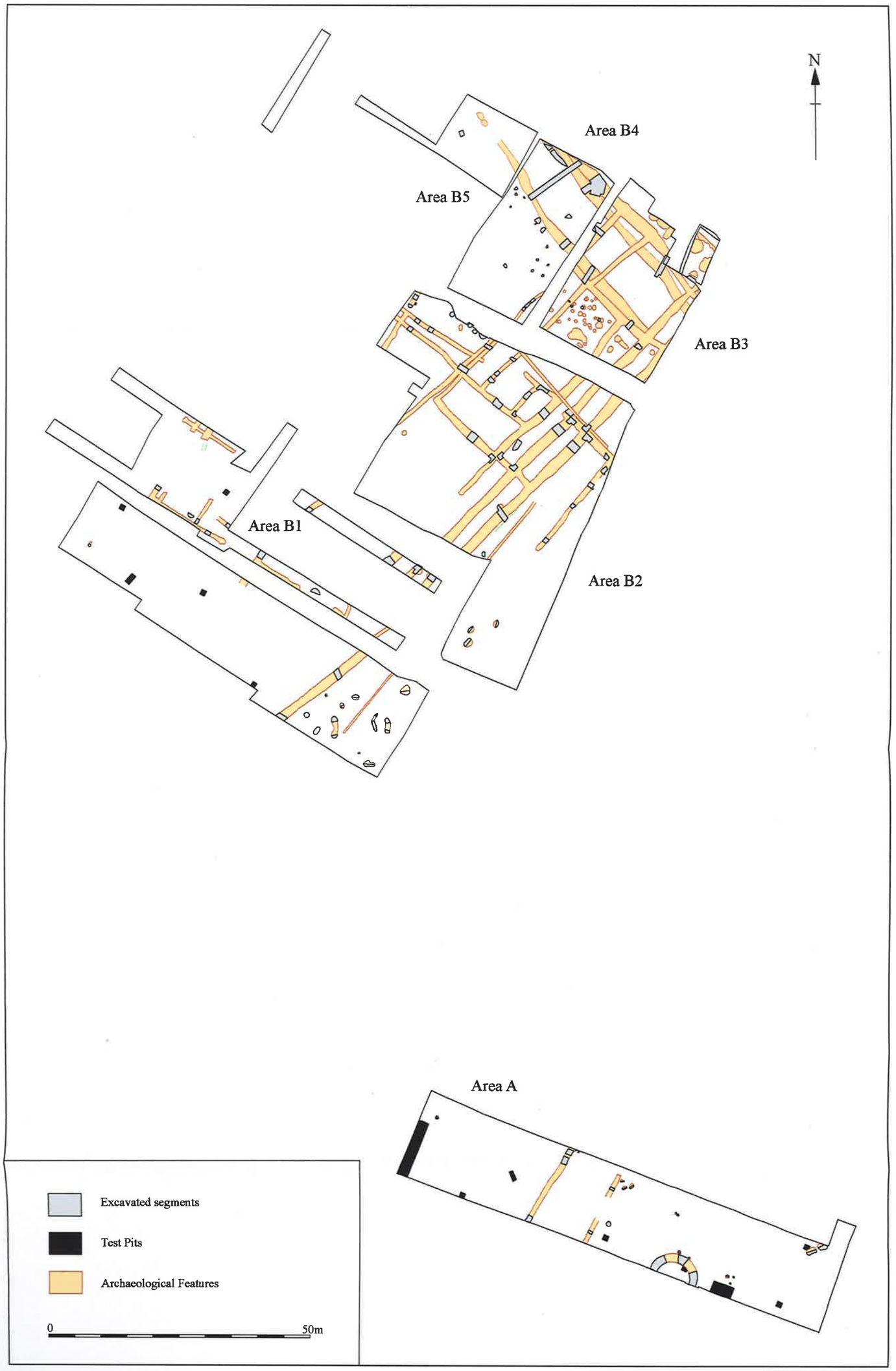

Figure 2: Plan of excavation areas A and B showing principal features

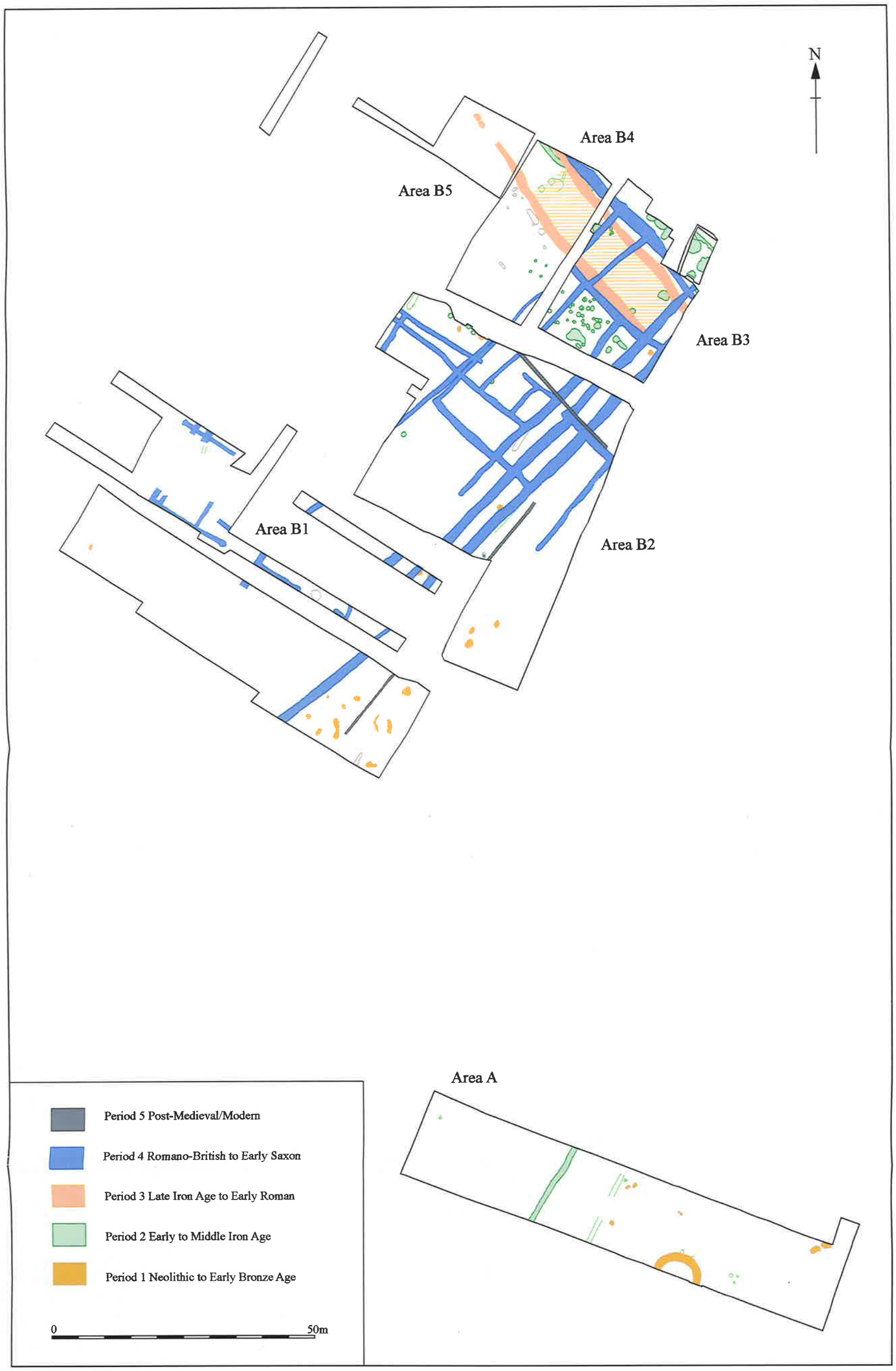

Figure 3: Overall phase plan

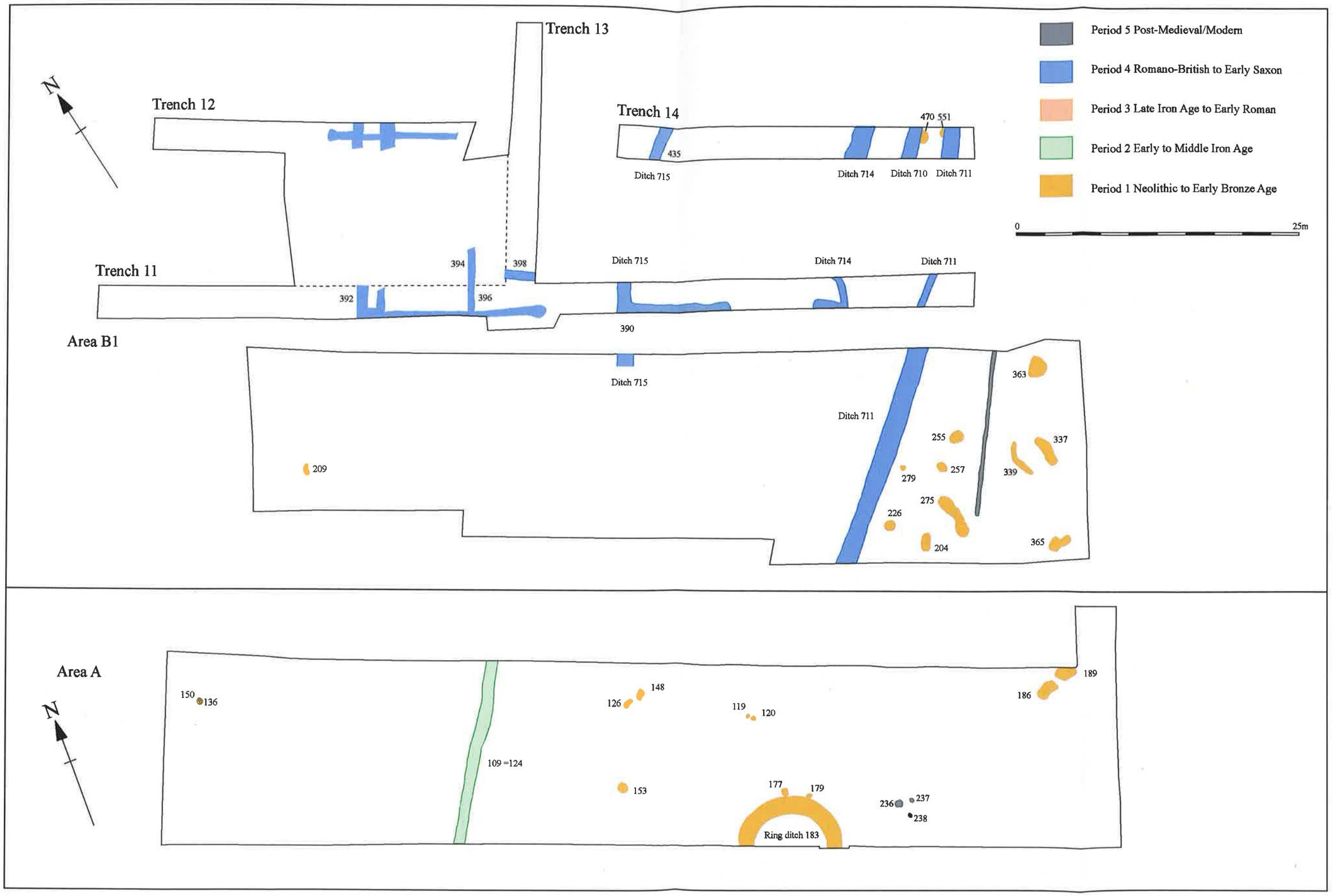

Figure 4: Area A and Area B1 phase plans

Figure 5: Area B2 phase plan

Figure 6: Areas B3 - B5 phase plans

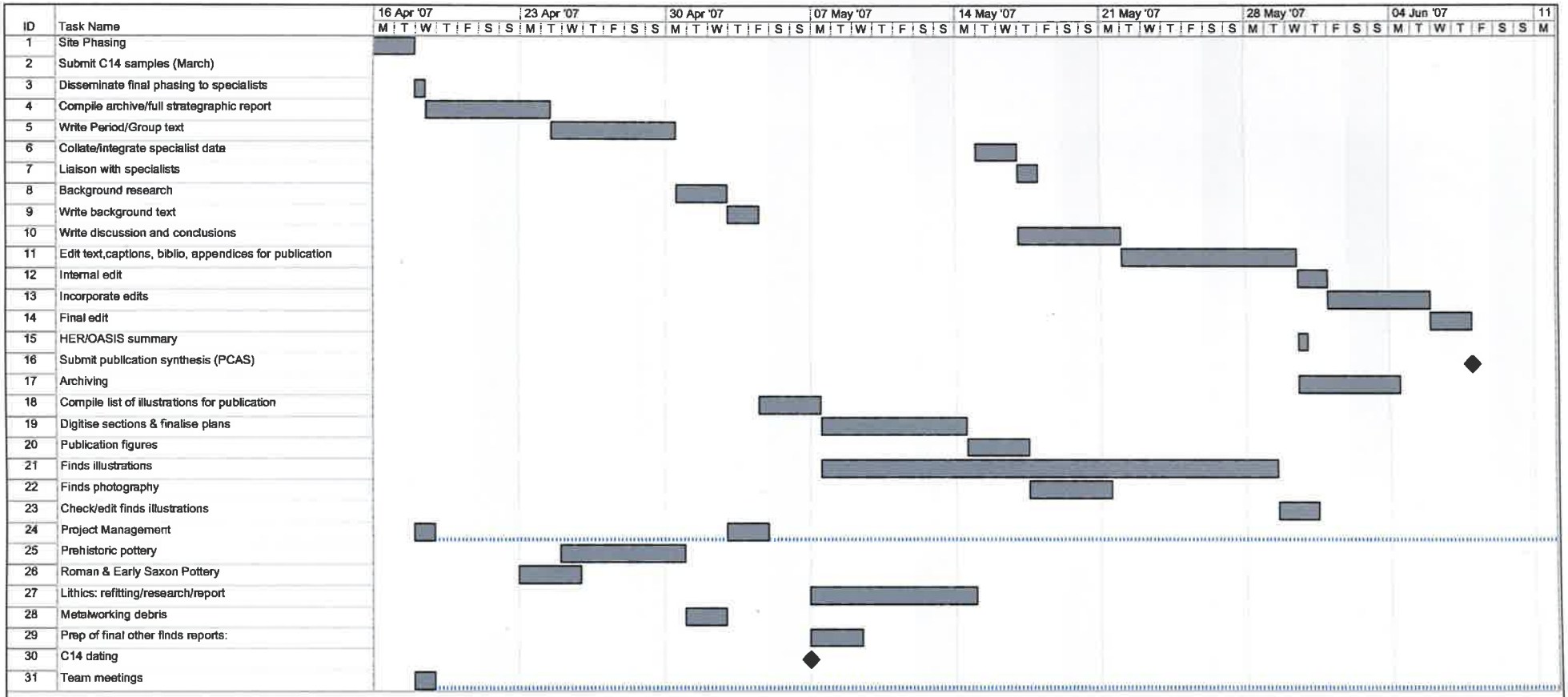

Figure 7: Gantt Chart NB The order of some tasks may be subject to change

Plate 1: Excavating Neolithic Pit **153** (Area A)

Plate 2: Ring-ditch **183** looking south-east (Area A)

Plate 3: Detail of section through Ring-Ditch **183** (Area A)

Plate 4: Students viewing the skeleton (Area B)

Plate 5: Detail of ?Bronze Age crouched burial 270 (Area B)

Plate 6: Recording the Middle Iron Age post-hole group **642** (Area B), with the college in the background

Plate 7: Middle Iron Age metal-working pit **383** (Area B)

Plates 1-7

Plate 8: Period 1 Pit **551**. Aurochs metacarpal (left) and distal tibia (right).

Plate 9: Period 2 Pit **351**. Sawn cattle horn core

Plate 10: Period 2 Pit **424**. Sawn red deer antler

Plate 11: Period 2 Pit **424**. Bone gouge made from a sheep/goat tibia. Total length 149.1mm

Plates 8-13

Cambridgeshire County Council's **Archaeological Field Unit** undertakes a wide range of work throughout the county and across the eastern region.

Our key purpose is to increase understanding of the rich heritage of the region.

We are keenly competitive, working to the highest professional standards in a broad range of service areas. We work in partnership with contractors and local communities.

We undertake or provide:

- surveys, assessments, evaluations and excavations
- popular and academic publications
- illustration and design services
- heritage and conservation management
- education and outreach services
- volunteer, training and work experience opportunities
- partnership projects with community groups and research bodies

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