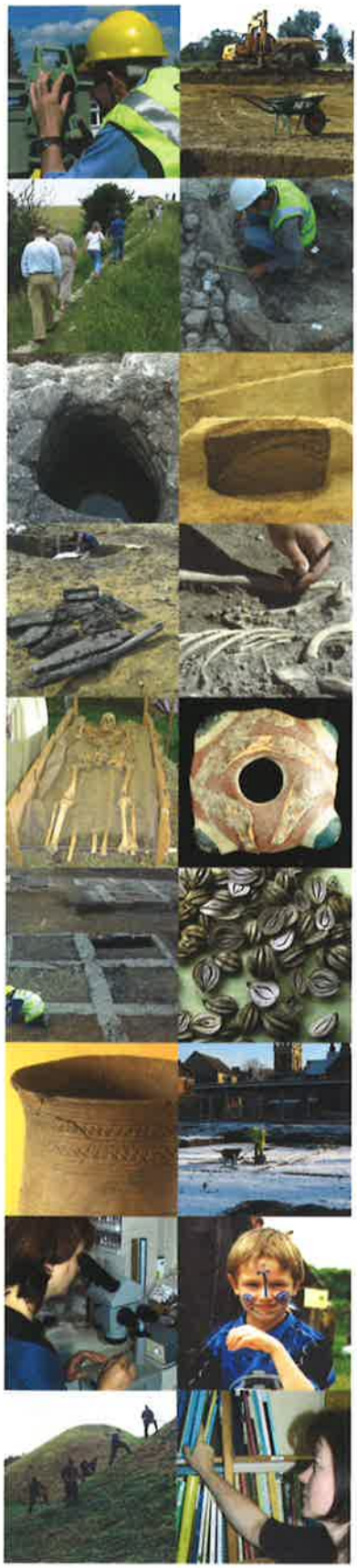
cambridgeshirearchaeology
archaeological field unit



CAM ARC Report Number 891

Hinxton Genome Campus Extension Excavations and Wetlands Area Assessment and Monitoring 2002–2003

Post-Excavation Assessment and Updated Project Design

Scott Kenney

May 2007

Cambridgeshire County Council
Environment & Community Services

Commissioned by The Wellcome Trust

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, Huntington 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

CAM ARC Report Number 891

Hinxton Genome Campus Extension Excavations and Wetlands Area Assessment and Monitoring 2002–2003

Post-Excavation Assessment and Updated Project Design

Scott Kenney

With contributions by Sue Anderson, Ian Baxter, Barry Bishop, Carole Fletcher, Val Fryer, Steve Kemp, Chris Montague, Paul Sealey and Maisie Taylor

Site Codes: HIN RIV 98/HIN RS 02, HIN GC 02 and ICK GC 02/03
CHER Event Number: ECB 1011
Date of works: Oct 2002 to July 2003
Grid Ref: TL 4998 4430, 4976 4414
OASIS record number: cambridg1 - 27295

Editor: Elizabeth Shepherd Popescu
Illustrator: Scott Kenney

Summary

This major development undertaken by CAM ARC on behalf of the Wellcome Trust south of Hinxton in Cambridgeshire has afforded an opportunity to excavate significant areas of this landscape, which lies just to the north of the Roman town of Great Chesterford and adjacent to the ancient course of the Icknield Way.

Several phases of evaluation trenching in 1993 were followed by the initial phase of excavation in 1993–4, just to the south of Hinxton Hall. That excavation revealed Saxon and medieval settlement dating from the 6th to 12th centuries, as well as evidence of prehistoric and Roman activity. Between 1996 and 2002, evaluations were carried out on land to the south of the 1993–4 excavations, in advance of further development and the creation of the Genome Campus. These evaluations produced evidence of extensive Iron Age and Roman remains, as well as further evidence of prehistoric and Anglo-Saxon activity. Excavations in 2002–3 on both sides of the River Cam confirmed the complexity of the settlement.

The project has successfully achieved the majority of the original research aims and objectives set out in the Brief and Specification.

Five periods of occupation have provisionally been identified at the Genome Campus site, spanning the prehistoric to the 19th century. Prehistoric activity indicates that this was a 'preferred' location and includes a contracted (or 'crouched') Bronze Age burial and scattered pits, as well as deposition of lithics within a series of natural channels and ponds; these remains supplement a 'ritual shaft' that had previously been found at the Hinxton Hall site.

The most intensive activity occurred during the Iron Age and Roman periods when a range of features indicative of rural settlement were present including trackways, field boundaries, pit clusters and postholes. While no dwellings have so far been identified from these periods there were continued signs of ritual activity in the form of a large square Iron Age enclosure which may have served a ceremonial function and a possible Romano-British shrine. A small but highly significant group of burials dating to the Late Iron Age or Early Roman period may relate to a single cemetery.

In the Early Saxon period several *grubenhäuser* were created and presumably related to the contemporary settlement just to the north. Further west, on the opposite side of the River Cam, was an area that may be associated with woodworking or wetland management, providing rare and important evidence for this activity during the Middle to Late Saxon period. This may have been linked to a river crossing by a metalled path.

The site has produced several significant finds assemblages that are of sufficient size to enable comparative research with other assemblages both

locally and regionally, in particular the Iron Age pottery and lithics. The pottery forms a regionally significant group of 'Belgic' pottery and indicates that the settlement was of unusual status. Further analysis will concentrate on aspects such as landscape utilisation, ritual, economy, trade, craft and industry.

Contents

List of Figures

List of Appendices

List of Tables

1 Introduction

Excavation was undertaken in Hinxton (TL 4998/4430) and Ickleton (TL 4976/4414), Cambridgeshire between October 2002 and July 2003. The excavation was commissioned by Fuller Peiser on behalf of The Wellcome Trust and was undertaken by CAM ARC, Cambridgeshire County Council (formerly the Archaeological Field Unit).

CAM ARC has been involved in the specific study of the archaeology along the course of the River Cam within the Parish of Hinxton since 1990. The majority of this work has centred on the Genome Campus and the New Lakes that lie to the west and southwest of Hinxton Hall (Fig.1).

The work took place in advance of the construction of an extension to the Genome Campus, and its associated services. This was designated as Phase 1 of the scheme, with Phase 2 being a further expansion at a future date. The creation of the wetlands area on the Ickleton side of the river was considered to be part of the Phase 1 landscaping. On the Hinxton side, approximately 3ha was stripped and excavated in five contiguous areas designated 1a to 1e. Across the River Cam in Ickleton parish, the wetlands area (also known as Hinxton Riverside) was monitored and excavated as several discrete areas that were not assigned individual names.

This work used the site codes HIN GC 02 for the Hinxton part and ICK GC 02/03 for the Ickleton area, but is considered as a single site for the purposes of this report, except where otherwise noted. The evaluation stages used the site codes HIN RIV 98 and HIN RS 02.

2 Topography and Geology

The Genome Campus excavation lay on the east side of the River Cam, on ground that slopes from the A1301 in the east, down to the river, from 40m OD to about 30m. The Ickleton site was basically flat, lying at about 30m OD. The topography of the area reflects the underlying geology. The higher ground is on the Middle Chalk, while the lower ground lies on the first and second terrace gravels of the River Cam, overlain in places by alluvium.

3 Archaeological and Historical Background

3.1 Early Prehistoric

Until recent years, the only evidence of prehistoric activity along the Cam near Hinxton Riverside was a few stray finds around Ickleton

village. These include a Neolithic arrowhead found to the north of the village, a Neolithic hand-axe 500m to the south of the village, and a 'working site' 1km to the south. This paucity of finds belies the importance of the River Cam gravel terraces to prehistoric activity in the region.

Recent large-scale excavations at Hinxton Quarry and Hinxton Hall, as well as an archaeological evaluation at Duxford Mill, have provided evidence of intensive prehistoric activity along the Cam valley within the vicinity of the subject site. The evaluation at Duxford Mill revealed a Late Mesolithic/Early Neolithic group of worked flint within peat deposits on the edge of a palaeochannel (Schlee and Robinson 1995).

High-density scatters of later Neolithic worked flint were found during excavations at Hinxton Quarry. A Bronze Age barrow, ploughed out in recent centuries, became a focus for later Bronze Age tool production. This barrow must have been preserved as an upstanding monument during the Roman period as a ditch of the Romano-British field system terminates at the barrow ditch (Evans 1993).

The previous work at Hinxton Hall is summarised below in Section 3.11.1.

3.2 The Icknield Way

The development area is bounded to the south by a road that is generally considered to be part of the Icknield Way. This was one of the oldest roads in Britain, dating from the prehistoric period and was made up of a series of parallel tracks forming a routeway that provided an important link between the northern East Anglian coast and the Thames Valley (Margary 1963, 200).

The part of the route in Hinxton probably represents a 'Romanised' length of one such Icknield Way track, and ultimately became the medieval route between Stumps Cross and Ickleton. The point where the Icknield Way crosses the River Cam lies roughly within the development area. It would have been an important, strategic crossing place from the prehistoric period through to the post-medieval period.

3.3 Iron Age

Evidence of Iron Age activity has only recently come to light within the vicinity of the study area. A Late Iron Age cremation cemetery has recently been revealed at Hinxton Quarry (M Alexander, pers comm). A metal detector rally held in 1995 at Abbey Farm, Ickleton, revealed five Iron Age finds in fields to the north of the village. These included two coins, a brooch, and two fragments of horse harness fittings. The character of these finds may be indicative of settlement (Robinson 1995).

Limited excavations within the Roman town of Great Chesterford, to the south of the subject site, have indicated that the town had Iron Age origins. Settlement remains of Late Iron Age date, including a house gully and associated features and finds, were found during investigations in 1948 and 1980 (Burnham and Wacher 1990, 138).

3.4 Roman

The subject site lies within a landscape that was extensively exploited during the Roman period. The Roman town and fort at Great Chesterford would have been a major influence on the surrounding area. The fort was founded in the 1st century AD, at a strategic position controlling both the Cam valley and the Icknield Way (Going 1989, 2).

The civilian settlement adjacent to the fort gradually expanded northwards, and by the early to mid 4th century AD was surrounded by defensive walls. The occupation of the town is suggested to continue throughout the 4th century, and survival into the 5th century has been postulated. A Roman cemetery on the north side of the town was reused as an Anglo-Saxon cemetery from the mid/late 5th century to the early 7th century (Burnham and Wacher 1990, 142).

A grand Roman villa located to the south of Ickleton was partly excavated in the 19th century. It was an elaborate building of winged corridor type, with baths at the rear and a basilica building nearby (CHER 04153).

The development area lies within the hinterland of Great Chesterford, and as such would have been extensively exploited by agriculture to provide for the town. Evidence of Romano-British field systems has been investigated at both Hinxton Quarry and at the New Lake site at Hinxton Hall (Leith 1995a and 1995b). Numerous cropmarks of enclosures in the area may also indicate Romano-British field systems and farmsteads. Cropmarks of two rectilinear enclosures are located within the development area itself, and their morphology suggests a Roman date (see Aerial Photographic Evidence below).

Numerous stray finds of Roman date have been made in the village of Ickleton, including a Roman coin (CHER 04117) and 19 finds in the fields to the north of the village during the 1995 metal detector rally. These were mostly coins, but also included three brooches. This concentration of finds corresponds to the location of a cropmark of a rectilinear enclosure, and may indicate a settlement.

3.5 Anglo-Saxon

The Early Saxon cemetery to the north of Great Chesterford has been mentioned above. The full extent of the cemetery is not known, but 161 inhumation graves, 33 cremations, two horse graves and two dog

burials were excavated in advance of gravel extraction in 1952. It is likely that much of the cemetery had already been destroyed by gravel digging before the rescue excavations took place (Evison 1994).

Stray finds of Anglo-Saxon date were found during the metal detector rally in Ickleton in 1995. This included two Early Saxon brooches, a Middle Saxon pinhead, and two Late Saxon strap-ends.

Excavations in the Hinxton Hall park in 1993–4 revealed a previously unknown Anglo-Saxon settlement (Spoerry and Leith, forthcoming) which spanned the 6th to 12th centuries (see Section 3.11.1). The remains probably suggest a small hamlet or farmstead. By the late 12th to 13th century, the settlement at Hinxton Hall had been abandoned and settlement may have shifted to the site of the present village. This coincides with a general trend of the formalisation of villages around parish churches in the Late Saxon to medieval period.

3.6 Medieval

The first documentary reference to the village of Ickleton occurs in the 10th century. However, the name is of earlier, Anglo-Saxon origin and probably means Icel's farm (Reaney 1943, 95). By the time of the Domesday survey, it was a large village, with 30 villagers, 10 smallholders and two mills (Robinson 1994, 5).

The small Benedictine nunnery of St Mary Magdalene was founded *c.*1163 on the western edge of the village (CHER 04229). The present Abbey Farm occupies its site, and two of the farm buildings contain medieval fabric. Earthwork remains of fishponds and enclosures are still visible (Robinson 1994).

The village of Hinxton was well established by the time of the Domesday survey. Its name also had Anglo-Saxon origins, meaning Hengest's farm (Reaney 1943, 94). The church existed by 1092, and the present building, built largely in the 14th century, incorporates earlier parts dated to the late 12th century (Reynolds and Leith 1993).

There is no evidence for any buildings of medieval date within the development area.

3.7 Post-medieval and Modern

The parishes of Ickleton and Hinxton were subject of Enclosure Awards, in 1810 and 1833 respectively. Parts of the development area had already been enclosed before this time.

The main railway line from London to Cambridge, which forms the western boundary of the development area, was opened in 1845. A branch line from Great Chesterford to Newmarket was opened in 1848, but the section from Great Chesterford to Six Mile Bottom was closed

only three years later in 1851 (Elrington 1978, 221). The embankment for this short-lived railway line is visible as an earthwork running across the south-east corner of the Genome Campus site.

The north-east corner of the site was used from 1994 as a builders' compound during the construction works. This has recently been dismantled and the area has been ploughed.

3.8 Cartographic Evidence

The earliest map available for the vicinity of the study area is the 1799 Ordnance Survey draft first edition 1" map (sheet 146). This map shows Hinxton High Street continuing south from the village, through the development area, and continuing south to Great Chesterford. The line of this road is marked as a field boundary on the 1833 Enclosure Map of Hinxton. The road was investigated within the grounds of Hinxton Hall during the archaeological evaluation, although no dating evidence was retrieved. It is possible that the road is of Roman origin, as many of the roads radiating out of Great Chesterford date to the Roman period. The Late Saxon settlement investigated within the Hinxton Hall park was aligned neatly on a coaxial pattern, parallel to the line of this road.

The 1799 map shows the western part of the Genome Campus site as enclosed fields. A relict track is shown extending in a straight line from the road at the south end of the development area where it curves towards the present river crossing. This may indicate that another crossing was located slightly further to the south. Part of this relict track runs through the Ickleton excavation area.

The early 19th century Enclosure maps for Ickleton and Hinxton show the land divided into small fields within the development area. Those in the western part of the Genome Campus site are indicated as already enclosed at the time of the Award. Part of the Ickleton site is labelled as Meadows. This may indicate that this area was liable to floods and was therefore unsuitable for arable farming.

3.9 Aerial Photographic Evidence

An assessment of aerial photographic evidence was undertaken as part of this study by Air Photo Services and is briefly summarised below.

3.9.1 HIN GC 02

The higher ground in the eastern part of this area shows only natural periglacial deposits on the chalky drift. The cropmarks of archaeological deposits are located in the western half, closer to the river.

Two rectangular enclosures surrounded by ditches are of particular interest. The larger, northern enclosure is associated with a linear ditch, running roughly east / west across the field. Within the smaller enclosure to the south is a group of small rectangular cuts. These may be graves, or they could indicate small hand-cut quarries.

Cropmarks of two tracks running north to south across the field correspond to roads indicated on historic maps (see Cartographic Evidence). Their appearance suggests that they may have originally been headlands of medieval fields.

Several ditches are located to the south of the enclosures. One of these parallels the river and may indicate a boundary or water controlling structure.

Areas of dark soil within the alluvium in the north-western part of the area may have an archaeological origin.

3.9.2 *ICK GC 02/ 03*

Much of the northern field is covered with alluvium, which would mask any archaeological features. An 'island' of higher ground in the centre of the field shows cropmarks of former field boundaries.

An area of higher ground in the southern field shows cropmarks of ditches, suggesting a possible enclosure with internal features cut by the railway.

3.10 Geophysical Survey

A geophysical survey to map sub-surface anomalies was undertaken by Geophysical Surveys of Bradford as part of this study. However, only the Ickleton site could be surveyed at the time of this study because of the height of the crop on the Hinxton side of the river.

The preliminary results of the survey showed a general lack of anomalies of archaeological interest. Some variations in the data were thought to reflect pockets of natural sand and gravel. No anomalies were identified that correspond to the cropmarks visible on aerial photographs. This may, however, be due to a lack of any magnetically enhanced fills within these features.

3.11 Previous Archaeological Work

3.11.1 Excavations at Hinxton Hall and environs 1993–1995

The evaluations and excavations of the mid 1990s revealed Neolithic and Early Bronze Age activity within the Hall grounds, which included farming and quarrying, interpreted from the presence of field boundaries and pits. Scatters of Late Mesolithic/Early Neolithic worked

flints that the site may have been used to manufacture hunting equipment such as projectile points. A repeated use of the landscape for hunting and retooling is suggested (Reynolds in Spoerry and Leith forthcoming). In addition a Late Neolithic 'shaft' 1.80m deep was cut into the chalk, the upper fills of which contained sherds of decorated Beaker pottery which may have been deliberately placed (Last in Spoerry and Leith forthcoming).

Late Neolithic/Early Bronze Age flooding is indicated by the presence of waterborne silts covering many of the Early Neolithic features (Spoerry 1995). Cut features of Late Neolithic/Early Bronze Age date were found clustered around two or more infilled ponds or hollows. Evidence of tree clearance during the later Neolithic was also found.

No Iron Age remains were encountered at the Hinxton Hall site or during excavations associated with the construction of the New Lakes (Leith 1995).

Roman remains proved to be sparse during excavations at Hinxton Hall although the occasional traces of activities representing quarrying and possibly rubbish disposal were found. No evidence of field systems was encountered even though the site lies only 2km from the Roman town of Great Chesterford (Spoerry 1995). To the west, however, complex Romano-British remains of 3rd to 4th century date were found during archaeological excavations at the New Lakes site (Fig. 2). Two enclosures associated with field systems were identified and in addition the ground plan of a timber building, probably of Early-Middle Saxon date, was recorded. The Roman artefacts associated with this site indicated an agricultural- rather than settlement-related use (Leith 1995).

The earthfast-post timber building mentioned above lies close to Early-Middle Saxon sunken-featured buildings (*grubenhäuser*) excavated in 1994. A group of at least four *grubenhäuser* and a number of post-built 'halls' indicate that a small, dispersed settlement existed on the site at this date. Domestic refuse disposal in pits appears to have occurred close by (Spoerry 1995).

The Late Saxon occupation of the site evidently took place between the 9th and early 12th centuries. During this period the occupation area was enclosed, although the ditch system appears to have been complex, forming part of a series of rectilinear closes or fields adjacent to the settlement. Successive generations of beam slot and post-built buildings are represented in the enclosure and indicate at least one phase of settlement reorganisation and re-alignment. Ovens, wells and rubbish pits have been identified.

Outside the main Late Saxon enclosure at least one large building of sill beam construction with corner posts has been identified and interpreted as a barn. The relative absence of rubbish pits and

artefactual material compared to the main enclosure is thought to indicate an area of agricultural processing, as opposed to occupation (Spoerry 1995).

The final phase of settlement activity at Hinxton Hall occurred in the late 11th to early 12th centuries, by which time the enclosure was completely infilled and an oven placed within the ditch. The demise of this settlement probably coincided with a move towards formalisation of the village around the parish church during the post-conquest period (Spoerry 1995).

The presence of rectilinear enclosures, platforms and hollow ways adjacent to the river and on the western side of the Genome Campus combined with historical references to the family of Bard have been used to indicate that, in the 17th century and possibly earlier, houses lay adjacent to the river (Leith and Spoerry 1995).

From the 18th century the area known as Hinxton Hall expanded with at least one phase of formal landscaping, which included the creation of an ornamental pond next to the house and the diversion of part of the Ickleton Road. In the mid 19th century Hinxton High Street was diverted around the park (Leith and Spoerry 1995).

3.11.2 Other excavations in the surrounding area

Excavations by the Cambridge Archaeological Unit indicate that Roman field systems continue along the river gravel terraces of the Cam and that an extensive agricultural network developed adjacent to Great Chesterford. This work also identified the presence of a 1st century BC cremation cemetery (Alexander and Hill 1996).

3.11.3 Evaluations on the Genome Campus site 1998 and 2002

The results of the evaluation phases at the Genome Campus site are not included in detail in this assessment unless directly specified, but will be fully incorporated into the publication.

Evaluation trenching was carried out in January and February 1998 on the site of the proposed Wellcome Trust Genome Campus Extension (HIN RIV 98). Field evaluation confirmed the survival of archaeological features, many of which had previously been identified from cropmarks and geophysical survey data. The evaluation showed that these remains largely date from the Late Iron Age through to the Late Saxon periods.

The earliest surviving remains consisted of a general background scatter of Neolithic, Bronze Age and Iron Age lithics which lay within the topsoil or later features. The earliest identified cut features were of Late Iron Age date, representing a small farmstead comprising post-built structures, pits, boundaries, midden deposits infilling ditches, and

enclosures. Early Romano-British activity continued the Iron Age land use pattern, although at a later date in this period pitting and quarrying for the extraction of sands and gravels occurred along the riverside. Land to the east appears to have continued as a area of agricultural activity. During the Late Saxon period, and possibly earlier, a discrete zone of pitting occurred along the riverside within the smaller of the Iron Age enclosures. Trackways from the Saxon settlement at Hinxton Hall linked the two activity areas.

During 2002 further evaluation occurred within areas where the development had been adjusted following the Environmental Assessment (HIN RS 02). Evaluation trenching occurred on the eastern side of the development area where buildings would impact on previously un-evaluated areas and also on the western side of the Cam (in Ickleton parish) where earlier evaluations had identified a series of palaeochannels.

The 2002 evaluation to the west of the Cam showed a sequence of riverside sedimentation which includes palaeochannels and areas of degraded peat which conformed to the spatial sequence shown on the aerial photographs. The best preserved sequence lay immediately adjacent to the Cam and shows that other than by overbank flooding, the river had, during prehistoric and historic times, been largely restricted to its current course.

Only one of the evaluation trenches contained any archaeological remains consisting of evidence for hurdles and related woodworking (see Section 5.3.4). The date of this activity is interesting since it suggests an association with the Saxon settlement at Hinxton (excavated in 1994) as well as indicating that a major phase of alluviation occurred in this part of the Cam Valley more recently than was previously anticipated.

4 Aims and Objectives of the Excavation

4.1 Introduction

The original research framework for the excavation analysis and reporting of archaeological remains at the site was defined by Cambridgeshire County Council Archaeology Office in their brief (Thomas 2002). The following extracts include the original paragraph numbering. Firstly, the context within which the investigations were taking place was defined:

'1.2 The site has a mixed geology of chalk on the higher ground, and First and Second Terrace River Gravels and Alluvium along the course of the River Cam. A considerable amount of archaeological fieldwork has taken place in the immediate environs, and this is summarised in the latest field evaluation

report (Kenney, 2002, Multiperiod Remains on the Site of the Proposed Genome Campus Extension, Hinxton: An Archaeological Evaluation, CAM ARC Report no. A206). The site has been subjected to two field evaluations (Kemp and Spoerry, 1998, Evaluation of Iron Age, Roman and Saxon Archaeology at the Proposed Wellcome Trust Genome Campus Extension, Hinxton, CAM ARC Report no. 149, and Kenney 2002) and the results revealed finds from the Neolithic to the Roman periods, together with Bronze Age, Saxon, medieval and undated features.'

Next, the aims and objectives were defined:

'4.1.1 The primary objective is to preserve the archaeological evidence contained within the site by record and to attempt a reconstruction of the history and use of the site. The following research priorities are important considerations, although the project manager is welcome to propose others. Attention is drawn to the issues raised in Glazebrook, J. (ed.) 1997, Research and Archaeology: A Framework for the Eastern Counties 1. Resource Assessment. East Anglian Archaeology, Occasional Paper 3 and Brown, N. and Glazebrook, J. (eds.) 2000, Research and Archaeology: A Framework for the Eastern Counties: 2 Research Agenda and Strategy. East Anglian Archaeology Occasional Paper 8.'

Furthermore, the research priorities were defined as follows:

'4.2.1.1 To investigate prehistoric activity within the area of the development proposal and contribute to an understanding of prehistoric settlement, activity and economy in South Cambridgeshire.'

'4.2.2.1 To investigate Iron Age and Roman activity within the area of the development proposal and contribute to an understanding of activity and economy in South Cambridgeshire with specific reference to the agricultural features identified in the 1995 New Lake excavation site and the cropmark features to be preserved on the present site'

'4.2.3.1 To investigate further the nature, morphology and development of the dispersed settlement identified in the 1994 Hinxton Hall excavation.'

'4.2.4.1 To investigate further the nature, morphology and development of the early post-conquest settlement identified in the 1994 Hinxton Hall excavation, with reference to the present site of Hinxton village.'

'4.2.4.2 To contribute to an understanding of early post-conquest settlement, activity and economy in South Cambridgeshire.'

The aims and objectives of the excavation were outlined in the Excavation Project Design of October 2002 (Kemp and Spoerry 2002). These are listed below in Section 4.2 and are updated on the basis of the excavation results later in this document (see Section 6).

4.2 Prehistoric and Roman

The early prehistoric remains identified during evaluation consisted of unstratified and residual flint artefacts of Neolithic and Bronze Age date. Few features were been positively identified within this period and as a result, no specific research objectives - other than to investigate the contribution of any such remains to the understanding

of prehistoric settlement in South Cambridgeshire - had been defined prior to excavation.

The evaluation report suggested that the Iron Age and Roman archaeology has local importance providing a good, but truncated, example of settlement and landscape that is enhanced by its likely continuity with the Roman town at Great Chesterford (Kemp and Spoerry 1998).

4.2.1 Site specific and local research

The local and site specific research objectives were defined as study of:

- local settlement patterns and their evolution through Middle Iron Age to Late Iron Age/Early Roman;
- local economy and landuse through faunal and environmental analysis;
- economy and local settlement inter-relationships of a low to middle status Late Iron Age settlement;
- the importance of the riverine system to the local Late Iron Age/Early Roman communication and economy;
- farmstead development and settlement patterning in the Late Iron Age/Early Roman period and its apparent lack of continuity with Early Saxon activity in the development area;
- links with the Roman town of Great Chesterford.

4.2.2 Regional research

A relevant regional research topic was identified as:

- the decline of the Late Iron Age agricultural system as observed at some sites in South Cambridgeshire and its relationships to increasing agricultural specialisation, intensification/extensification of production etc..

4.3 Anglo-Saxon

4.3.1 Site specific and local research

Preliminary examination of the settlement remains suggested occupation from the Early to Middle Saxon transition, followed by the development of 'defended' settlement within extensive enclosure systems in the Late Saxon period, perhaps ceasing in the 12th century.

The evidence found during the evaluations had suggested a Late Saxon crossing point and/or activity area, adjacent to and associated with the River Cam. This possible non-settlement activity zone, and its relationship with field systems and the areas of known settlement provides another local research theme.

In summary, the pre-excavation research objectives were:

- to examine servicing of the Hinxton Hall settlement, including investigation of non-occupation centres as components of the settlement's economy;
- to study landscape division and utilisation adjacent to the settlement;
- to explore wider aspects of landscape patterning, development and resource utilisation.

4.3.2 *Regional research*

At the regional level there is a need to study the burgeoning and diverse settlement of rural Middle Saxon East Anglia (Brown and Glazebrook 2000, 23), an aim to which the excavation was expected to contribute.

The site also provides the opportunity to investigate the Late Saxon and medieval agrarian economy, through field systems and animal and plant remains.

4.4 Medieval

No medieval features were found within the development area at the evaluation stage and the artefacts found are consistent with an agricultural use. In light of the evaluation results, no specific research objectives were set other than where possible to investigate the nature, morphology and development of early post-conquest settlements and landscapes.

5 Methodology and Summary of Results

5.1 Methodology

The format for excavation was set out by Cambridgeshire County Council (Development Control) in accordance with established PPG 16 mitigation practice. The programme of work included the excavation of a single open area 2.71ha in extent, to be excavated in numbered Areas 1a to 1e (Fig. 2). Area 1a comprised the southern area where the contractors intended to place their offices and facilities for staff. Area 1b consisted of the route of the haul road that was to be the access for plant once construction was under way. Area 1c covered the footprint of the new buildings and their associated landscaping. Area 1d was defined to encompass a square enclosure seen on aerial photographs and thought from evaluation to be Iron Age; this feature was not entirely within the development area, but immediately adjacent to it. The topsoil cover was relatively shallow and therefore might offer little protection from machinery rolling across this area during construction. Area 1e consisted of the two narrow arms to the

northeast and southwest that represented the impact of major service runs. The wetlands area to the west of the Cam in Ickleton parish was stripped, excavated and recorded in a series of areas representing the impact zones of the proposed landscaping work.

Two 360° tracked excavators were employed for the removal of overburden and to stockpile the spoil. The topsoil and any subsoil were removed by lorry to another part of the site outside the excavation area. Total overburden (topsoil and subsoil) depth varied between 0.20m and 0.40m over the excavated areas. There was some evidence of both colluvial buildup and alluvial deposition in the areas closest to the river.

After machine stripping, the site was hand-cleaned where appropriate. Archaeological features were outlined using spray paint in order to assist visibility in poor weather and then planned by hand at a scale of 1:50. A metal detector survey was conducted across the site in order to pinpoint metal finds within features, and certain objects were excavated at this stage to ensure their safe recovery. A grid located with respect to the Ordnance Survey was set up during stripping of the first area. Grid pegs were located in each area at 20m intervals east to west and at 10m intervals north to south. These were used to plan excavated features by hand at a scale of 1:50, 1:20 or 1:10. Sections and profiles across excavated features were drawn at a scale of 1:10 or 1:20. All excavated deposits and cuts were described on CAM ARC single context recording sheets. Monochrome and colour photographs were taken to supplement the drawn and written record. Digital photography was also employed.

5.2 Excavation Areas

5.2.1 Introduction

Although the five areas of the Phase 1 excavation (Areas 1a–1e) were spatially contiguous and opened up contemporaneously, they were excavated in alphabetical order and were considered during excavation as separate entities.

5.2.2 Area 1a

Area 1a accounted for approximately 20% of the total excavation area forming a rough U-shape at the southeastern extremity, measuring 114m by 78m. Evaluation in this area had demonstrated the presence of several small ditches.

5.2.3 Area 1b

Area 1b accounted for approximately 10% of the total excavation area, and ran northwest from Area 1a to join Area 1d. This was the line of the haul road for the development, a corridor 164m long and 18m wide.

5.2.4 *Area 1c*

Area 1c accounted for approximately 50% of the total excavation area, and consisted of a roughly rectangular region at the northern extreme of the site, measuring 160m by 100m at its maximum extent.

5.2.5 *Area 1d*

Area 1d accounted for approximately 10% of the total excavation area, and consisted of a roughly rectangular region to the south of Area 1c, measuring 55m by 55m. This area was defined to examine the square enclosure seen in aerial photographs and geophysical survey. It was evaluated in 1998, producing pottery of Late Iron Age date.

5.2.6 *Area 1e*

Area 1e accounted for approximately 5% of the total excavation area. It consisted of two wide trenches either side of Area 1b, the northern one straight, 150m by 4.5m, running from northeast to southwest and the southern one kinked, 114m by 4.5m, running south, then turning to the southwest. The major northwest to southeast aligned ditches seen in nearby evaluation trenches were also seen in the northern arm of this area.

5.2.7 *Wetlands Area (ICK GC 02/03)*

This investigation consisted of three non-contiguous zones of excavation that were not numbered separately.

5.3 Period Summary

The provisional site periods and phases are as follows:

Period 1: **Prehistoric** (*c.* 700000BC – AD43)

- Phase 1: Palaeolithic (*c.* 700000 – 1000BC)
- Phase 2: Mesolithic (*c.* 10000 – 4500BC)
- Phase 3: Neolithic (*c.* 4500 – 2300BC)
- Phase 4: Bronze Age (*c.* 2300 – 700BC)
- Phase 5: Middle Iron Age (*c.* 400 – 100BC)
- Phase 6: Late Iron Age (*c.* 100BC – AD43)

Period 2: **Romano-British** (*c.* AD43 – 450)

- Phase 7: Romano-British (*c.* AD43 – 120)
- Phase 8: Roman (*c.* AD120 – 250)
- Phase 9: Later Roman (*c.* AD250 – 450)

Period 3: Anglo-Saxon (*c.* AD450 – 1066)

- Phase 10: Early Saxon (*c.* AD450 – 650)
- Phase 11: Middle Saxon (*c.* AD650 – 800)
- Phase 12: Late Saxon (*c.* AD800 – 1066)

Period 4: **Medieval** (*c.* AD1066 – 1485)

• Phase 13: Early Medieval (*c.* AD1066 –1200)
• Phase 14: Medieval (*c.* AD1200 –1485)

Period 5: **Post-Medieval to Modern** (*c.* AD1485 – present)

• Phase 15: (*c.* AD1485 – 1950)
• Phase 16: (*c.* AD1950 – present)

Unphased
All features that cannot currently be placed in one of the phases are listed as unphased.

The periods detailed above account for the following percentages of the excavation context record:

Period 1: 42.7%
Period 2: 42.7%
Period 3: 7%
Period 4: 4.6%
Period 5: 0.03%
Unphased: 3%

NB: A single phasing system will be agreed at the analytical stage, encompassing all areas and phases of the Hinxton and Ickleton sites (including Hinxton Hall) to ensure consistency of reporting.

5.3.1 Period 1: Palaeolithic to Bronze Age (Phases 1–4)

(Fig. 3)

As had been observed during the 1993–4 Hinxton Hall excavations to the north, the earliest use of the site was preserved in the fills of numerous large amorphous areas that were once wet, probably on a seasonal basis. In Area 1a and the southern end of Area 1b, six large channel-like features of geological origin were observed that date from 11000–6000 BP (see Appendix 13). The reddish brown silty fills of these channels differed from adjacent pond-like features simply in terms of colour. The smallest of these pond-like features or hollows measured 9m by 7.8m, while the largest was 54m long and up to 24m wide. Their black silty upper fills contained worked flint from the Mesolithic and Neolithic and in some cases Iron Age pottery lay on their surfaces. The only other probable Neolithic feature was a small shallow pit containing antler found in Area 1c.

A scattering of flint was found throughout many features in Areas 1a and 1c, but a much greater concentration was located in Area 1b, and carefully excavated in 1m squares (located on Fig.3). The scatter was identified in the top of one of the silt-filled channels and proved to be a long-lived assemblage, including some evidence of axe manufacture.

Apart from the worked flint found apparently *in situ*, the distribution of residual flints may indicate other areas that were once activity foci. Absolute residuality for the flint found in Iron Age contexts has yet to be established and will form part of the full report on the worked flint. Currently, what can be understood from the data is that much of the worked flint assemblage is derived from contexts in phases when flint-knapping was still taking place, even when part of that assemblage is residual. Few contexts dating to Roman or later phases contained many residual flints. The long time span of some of the discrete scatters seems to indicate that the area was repeatedly returned to by a succession of flint knappers. Coupled with the lack of later material, this indicates that these areas were abandoned and not revisited.

Two burials had subsequently been placed within the largest of the 'ponds'. The earliest was the contracted (or 'crouched') burial of a young to middle aged female (sk.318; see Appendix 10 and Appendix 13, 2.4), which has been radiocarbon dated to the Bronze Age (the other was of Late Iron Age to Early Roman date). Several Bronze Age pits were found in Area 1a, the majority of which contained burnt fills.

Feature Types (Number)		***Main finds groups***			
		Pottery (kg)	**Worked Flint** (number)	**Animal bone** (kg)	**HSR** (number)
Pits	36	0.427	10	0.066	-
'Ponds'	10	0.175	90	0.061	1
'Erosion channels'	6	-	326	-	-
Postholes	14	-	-	-	-
Ditches	4	-	-	-	-
Totals	***70***	***0.602kg***	***426***	***0.127kg***	***1***

Table 1: Quantification of data – Period 1: Palaeolithic to Bronze Age

5.3.2 *Period 1: Iron Age (Phases 5–6)*

(Fig.4)

The first settled use of the area seems to date from the Middle Iron Age, when an east to west trackway was created. Numerous small pits and postholes also date to this period, although their widespread distribution gives little indication as to where the local population might have actually lived.

To the south of the trackway lay a large square enclosure with its entrance to the east – this may have formed a ceremonial enclosure.

Its ditch had been recut at least once around its full length. The recut contained significant quantities of pottery, and was burnt for several metres at one point along the southern side. Two burials were found within its boundaries, one of which lay in the north-east corner, on the base of the original ditch cut. A third burial lay outside the enclosure, just to the east. A fourth burial was found within the largest of the natural ponds (sk.1231) and was a middle-aged to old male, the radiocarbon date of which is Late Iron Age to Early Roman. These burials may have formed part of a single Late Iron Age to Early Roman cemetery (see Appendix 10).

Several pits were found both within and outside the enclosure that probably also date to this period and several ditches were recorded to the south.

Feature Types (Number)		***Main finds groups***			
		Pottery (kg)	**Worked Flint** (number)	**Animal bone** (kg)	**HSR** (number)
Pits	65	0.450	405	2.081	
Graves	3	0.214	14	0.064	4
Postholes	7	0.014	7	0.013	
Ditches	44	6.966	20	3.495	1
Totals	***119***	***7.644kg***	***446***	***5.653kg***	***5***

Table 2: Quantification of data – Period 1: Iron Age

5.3.3 Period 2: Romano-British (Phases 7–9)

(Fig.5)

There was a slight but significant shift in the alignment of features, particularly ditches, during the Roman period and the features of this date can be identified in plan by their more east-northeast/west-southwest orientation. Numerous field boundaries were seen on both sides of the River Cam, clearly showing the widespread impact that Roman occupation had upon the landscape.

Of particular interest are the several trackways bounded by ditches, two of which formed a right angle in Area 1c. One of these trackways ran east-northeast to west-southwest close to an earlier Iron Age one, just to the north of the Iron Age square enclosure. At the east end of this trackway lay a boundary ditch that was repeatedly recut and redefined until the post-medieval period.

Also at this end lay a small post-built structure surrounded by narrow ditches that may have been a funerary space or shrine. To the south of the square Iron Age enclosure there were further Roman features, including postholes that may indicate a substantial structure.

In the northeastern corner of Area 1c, several small and slightly irregular ditches bounded a region containing over a hundred

postholes. Due to their sheer number and close proximity to each other, it has thus far proven difficult to extract the pattern of any structures. If they are not the remnants of buildings, they may indicate stock enclosures and pens used on a seasonal basis and continually rebuilt and resited, and would have included at least one substantial fenceline running northwest to southeast.

At the northern end of Area 1b was a line of pits running NW-SE superimposed over the line of a previous Late Iron Age ditch. A dog burial was found cut into one of a pair of larger pits further to the southeast in Area 1b that did not form part of this line and a partial dog burial (of a dwarf hound) was also found in Romano-British deposits (Appendix 11).

A number of significant Roman boundary ditches lay on the western edge of the main excavation area. In the south end of the southern arm of Area 1e, several pits were observed.

At the Ickleton site, many of the field boundaries and other ditches were Roman, although finds evidence was rare. Some of these exhibited patterns indicating small enclosures, while others may have been trackway boundaries.

Feature Types (Number)		***Main finds groups***		
		Pottery (kg)	**Worked Flint** (number)	**Animal bone** (kg)
Pits	72	0.202	10	3.240
Beam slots	3	0.010	-	-
Postholes	273	0.006	6	0.041
Ditches	65	0.454	21	1.583
Totals	***404***	***0.672kg***	***39***	***4.864kg***

Table 3: Quantification of data – Period 2: Roman

5.3.4 *Period 3: Anglo-Saxon (Phases 10–12)*

(Fig.6)

Evidence dating to this period was relatively scattered. The only definite earlier Saxon features to the east of the Cam were five sunken featured buildings. Three contained a bone awl, small amounts of pottery, and two of these contained loom weights. The two that did not contain bone artefacts produced spindle whorls. Two of the buildings lay towards the northern edge of the site, relatively close to the 1994 excavation area. Another building cut into the upper ditch fills on the north side of the square Iron Age enclosure in Area 1d and was relatively isolated. The final two were excavated approximately

halfway along Area 1b, within 14m of each other. Although this widespread distribution might appear arbitrary, all of these sunken featured buildings may have formed parts of a single community.

Although no features are currently assigned to Phase 11 (Middle Saxon), this may change during the analytical stage.

Several other small ditches across the site appeared to belong to the later Saxon period, although their function remains uncertain. Ditches recorded in Areas 1a-c exhibited similar alignments and morphologies, despite their scattered locations.

On the other side of the Cam in the Middle to Late Saxon period, some type of fishing or other wetland activity was taking place that required the construction of a raised gravel platform (or 'pavement') and woven wooden hurdles, with the remains of pollarded trees and bundles of reeds surviving in the wetter parts of the feature. This area was extensively pollen sampled (Appendix 13). Woodworking debris may indicate that the hurdle was constructed *in situ* or that it was subsequently modified or repaired, although the presence of wood chips permits the possible interpretation of this area as a 'workshop' or working area for other wooden items (Appendix 9).

Radiocarbon dating indicates a date of between 770 and 1000 AD for the hurdles. A raised gravel path was found leading northwards towards the river and a crossing point may have lain nearby to the northeast. Activity on either side of the River Cam could relate to the Hinxton Hall settlement, although since Ickleton would probably also have been extant at this time, the hurdle could have been placed by the inhabitants of either village.

Feature Types (Number)		***Main finds groups***		
		Pottery (kg)	**Worked Flint** (number)	**Animal bone** (kg)
Pits	4	0.001	-	-
SFBs	5	1.033	27	1.007
Postholes	27	-	-	0.001
Ditches	4	0.209	4	0.513
Totals	***72***	***1.243kg***	***31***	***1.521kg***

Table 4: Quantification of data – Period 3: Saxon

5.3.5 *Period 4: Medieval (Phases 13-14)*

(Fig.7)

Recutting of several ditches across the site occurred during the medieval period, most notably the large north-south ditch system seen in Area 1c on the eastern side of the site and in several evaluation trenches. Little that was completely new seems to have been created during this period. There is no archaeological or aerial photographic

evidence for a system of ridge and furrow cultivation having been imposed upon this landscape.

Feature Types (Number)		*Main finds groups*		
		Pottery (kg)	**Worked Flint** (number)	**Animal bone** (kg)
Pits	7	1.121	10	0.287
Posthole	1	-	-	-
Ditches	8	0.864	12	1.834
Totals	***70***	***1.985kg***	***22***	***2.021kg***

Table 5: Quantification of data – Period 4: Medieval

5.3.6 *Period 5: Post-Medieval to Modern (Phases 15-16)*

(Fig.7)

Some post-medieval finds were recovered from the large boundary ditch sequence seen in the southern part of Area 1a. Numerous post-medieval finds were made from the topsoil during machine stripping, but they do not appear to relate to any observed archaeological features. The metalwork found during metal detecting surveys across the site is summarised in Appendix 1.

Feature Types (Number)		*Main finds groups*
		Brick/Tile (kg)
Pit	1	0.038
Layers	10	1.395
Totals	***11***	***1.433kg***

Table 6: Quantification of data – Period 5: Post-medieval to modern

6 Assessment of Archaeological Potential

This section comprises quantification of stratigraphic, artefactual and environmental remains followed by summary results and statements outlining the research potential of the archaeological data recovered during the course of the excavations. In addition, basic quantification of the evaluation data that will require integration at the full analysis stage is also presented. The main artefactual and environmental assessment reports are included in the appendices.

6.1 Stratigraphic and Structural Data

6.1.1 *The Excavation Record*

The number of records relating to the HIN GC 02 and ICK GC 02/03 excavations is as follows:

Context numbers	3372
Plans	189
Sections	612
Samples	384
Record types	1151 cut descriptions 1642 fill descriptions 17 finds unit descriptions 110 layer descriptions 50 master number descriptions 6 spit/cleaning etc descriptions 105 not used
Context records	3267
Digital context records	3372

Table 7: Quantification of context records

Plans at 1:10	14
Plans at 1:20	3
Plans at 1:50	172
Total station survey	✓
Sections at 1:10	350
Sections at 1:20	258
Sections at 1:50	4
Black and White prints	1224
Colour prints	180
Colour slides	1296
Digital photographs	1700

Table 8: Quantification of drawn, survey and photographic records

6.1.2 *Finds Quantification*

Any discrepancies between the totals in this table and the tables in the previous subsections are due to the slightly different selection criteria in the Access database queries designed for these analyses. The table below is more inclusive than the previous tables.

Period	Contexts	Pottery (kg)	Bone (kg)	CBM and fired clay (kg)	Flint (number)

1: Prehistoric	1399	11.425	5.881	6.060	888
2: Romano-British	1401	0.687	4.794	6.983	45
3: Anglo-Saxon	235	1.271	1.521	1.060	31
4: Medieval	150	2.011	3.121	2.918	34
5: Post-medieval and Modern	11	-	-	1.395	-
Not phased	71	0.058	0.044	0.057	-
Not used	105	-	-	-	-
Total	**3372**	**15.452**	**15.361**	**18.473**	**998**

Table 9: The principal finds assemblages by period

6.1.3 *Range and Variety*

Feature types were almost entirely confined to cut features containing one or more deposits; many of the deposits in the Ickleton part of the site were waterlogged.

The archaeological deposits were horizontally truncated across the site, and there was no evidence for buried soils or surviving surfaces associated with the buildings. Topsoil and other overburden was between 0.2 and 0.4m in depth. Intrusions from post-medieval or modern features were rare.

Features were a mixture of intercutting and discrete, and these stratigraphic relationships permit phasing of the site, alongside the pottery spot dating, morphology and other evidence.

The majority of datable deposits can be attributed to the Late Iron Age or Romano-British periods based on pottery spot dates, stratigraphic and spatial associations and alignment of features. A minority of datable deposits can be assigned to the earlier prehistoric or the Early Saxon periods. A large number of excavated deposits contained no datable finds and their dating therefore relies on other evidence.

The site was characterised by ditches, both deep boundary ditches of Iron Age and Roman date and smaller ditches that apparently formed an agricultural system. A small number of pits were excavated which can be attributed to the Neolithic or Bronze Age and several were dug that may belong to the Roman period. Five sunken featured buildings all date from the Anglo-Saxon period. Numerous postholes appear to date from the Late Iron Age and Roman periods, although the form of any structures that they may represent is yet to be determined.

Although several burials were found, it was often difficult to define related grave cuts.

Several large pits or pit complexes were found that probably represent Iron Age and Roman quarrying for gravels. Other pits have an

uncertain function, and few finds were recovered from them that might aid interpretation.

Deposits comprised feature infills, slumps, and layers. Most pits contained multiple fills.

Feature type	Number of contexts
Pit	549
Ditch	1310
Post-hole	655
SFB	60
Hearth	12
Layer	110
Ponds	75

Table 10: Quantification of feature types

6.1.4 *Primary Excavation Sources and Documents*

The records for excavated deposits are complete and have been checked for internal consistency. Written records have been completed on archival quality paper using light-fast, waterproof ink, and are fully indexed. Drawn records are in pencil on film, and are clear, annotated, and fully indexed. Area matrices have been drawn up and checked with the pottery spot dates for those areas of the site that had greater stratigraphic complexity than simply below topsoil and above natural.

All plans have been digitised and provisionally phased; a selection of informative sections will also be digitised. The context record has been entered into a site Access database, which also incorporates all basic finds data and quantifications.

The primary paper records have been checked in conjunction with the site matrices and the assessments of artefactual and ecofactual materials to amass the information for this assessment. General finds information for individual contexts has been collated using the database.

Primary records for both the evaluation and the excavation are all retained at CAM ARC offices, Bar Hill, Cambridge.

6.1.5 *Statement of Potential*

The contextual data will provide a solid foundation on which to build the site narrative. A wide range of the available context types were fully excavated and recorded. In addition, the archaeological features present on the development area were all recorded in plan. The presence of buildings, enclosures and boundary features will provide a good base for the analysis and interpretation of spatial and typological distributions.

Establishing a dating sequence will be essential in determining phasing sequences and will contribute to a tighter chronology for similar sites elsewhere in the region.

By setting the site within its local and regional context, it is possible to assign a scale of significance to the remains from different periods. Reference to, and comparison with other sites of a similar period and type will be made wherever possible.

All contexts dating to the main period of occupation should be grouped and phased based on information from pottery, scientific dating techniques, and based on feature types and their spatial distribution. This information should then be distributed to specialists so that they are able to analyse the different material categories on the basis of the contextual data.

6.2 Surveys

The site and excavation grid were located onto the Ordnance Survey with the aid of a Zeiss RecElta 15 Total Station Theodolite. All data is currently stored in digital format within the site archive.

6.3 Artefact Summaries

NB: The overall quantities for some assemblages do not match that entered in the database; these discrepancies will be addressed at the final analysis stage.

6.3.1 *Metalwork (see Appendix 1)*

Almost 300 metal artefacts were recovered during the excavation, almost exclusively from the topsoil on both sides of the Cam, and were generally found by metal detector sweeps during machining.

Apart from *c.*53 Roman coins, the majority of datable finds were medieval or post-medieval, although a single Iron Age coin was also recovered, as well as a small number of other Roman and Anglo-Saxon objects.

Despite being largely residual in the topsoil, these finds may contribute towards resolution of some of the original project objectives, particularly the spatial patterning of the site. These finds also offer some potential for understanding the status of site and its occupants.

6.3.2 *Slag (see Appendix 2)*

During the excavations 1.639kg of iron slag deriving from metallurgical processes was recovered. The slag itself is characteristic of the smithing process and no evidence was indicating that iron smelting had occurred. It is a small assemblage and does not indicate the presence of a smithy in the local vicinity.

No further work is required.

6.3.3 *Worked Flint and Other Lithics (see Appendices 3 and 4)*

An assemblage of 993 pieces of struck flint was recovered from the site, covering a date range from the Mesolithic to potentially the Iron Age. The group is important to the site narrative, since it covers 3–4000 years not otherwise represented by the structural data. It can also contribute to a new objective — the identification of Iron Age flint assemblages.

The other lithics from the site consist of hammer stones, hearthstones, possible building material, and erratics potentially curated by the local inhabitants.

The lithological collection provides evidence for activities and curation and can help to create a picture of economy, trade, manufacture and building traditions.

6.3.4 *Pottery (see Appendices 5 and 6)*

The excavated pottery assemblage along with the stratigraphic sequence will be important to understanding the temporal development of this area. Pottery is the main source of dating on this site. The main limiting factor is that only 23% of the excavated contexts (fills and layers) were found to contain pottery. The assemblage potentially covers a date range from the Neolithic to post-medieval, with Iron Age being the most common by weight and sherd count.

The site produced a large assemblage of freshly broken Late Iron Age pottery of Aylesford-Swarling 'Belgic' type, uncontaminated by earlier wares. Imported Roman pottery is present in pre-conquest contexts at Hinxton, including amphoras from Spain and Gallo-Belgic table crockery from Gaul. These are clear indicators that this was a community of some status, wealth and pretensions.

Elsewhere in Cambridgeshire, settlements and cemeteries with 'Belgic' pottery are relatively scarce, and Middle Iron Age pottery remained in use until the Roman invasion and later. With the possible exception of Castle Hill in Cambridge, no other Cambridgeshire site has produced so much 'Belgic' pottery from pre-conquest levels.

The piecemeal adoption of Aylesford-Swarling pottery in Cambridgeshire and East Anglia is a major research topic in contemporary Iron Age studies. Hinxton raises important questions about processes of change in later prehistory and offers the data needed to help resolve them. It provides an assemblage of regional importance, of direct relevance to the prehistory of the whole of eastern England between the lower Thames and the Wash.

Full analysis of the pottery will allow an understanding of the general morphology of the site and any temporal variations. In addition the pottery could aid in the understanding of the site's place in communication, marketing and trade systems of the Hinxton/Great Chesterford area and the East Anglian region as a whole.

6.3.5 *Ceramic Building Material (see Appendix 7)*

Some 15kg of ceramic building material was recovered from 59 contexts. Most of the material was Roman, with a very small amount potentially representing an unusual Saxon form.

The ceramic building material will be fully described and quantified for the final report.

6.3.6 *Worked Bone (see Appendix 8)*

Six worked bone artefacts were recovered from the site, including three needles or awls, each coming from a separate Saxon sunken featured building. The other artefacts were a piece of drilled bone that may have been intended to form another awl, a spindle whorl and a post-medieval knife handle.

The artefacts will be examined and reported on in full in the final report.

6.3.7 *Worked Wood (see Appendix 9)*

Worked pieces of wood recovered exclusively from the Ickleton side of the Cam have been shown to fall into several categories, namely artefacts, roundwood, woodchips and timber. Some of the roundwood was extracted as samples from the hurdle recorded in this area.

Finds of this kind and period indicating *in situ* manufacturing or modification are rare, but a coherent assemblage from a rural context is virtually unknown. The total collection of material is particularly important and must all be considered together. Having the range of material, including the debris and detritus, should advance understanding of the craft of hurdle making. The artefacts may help to explain the use and particular purpose behind the building of this structure.

Further analysis may develop current understanding of the manufacture of such structures, and the toolkit required to carry out such work. Full cataloguing and reporting are required.

6.4 Environmental Remains

6.4.1 *Human Skeletal Remains (see Appendix 10)*

Six human skeletons and fragments of two others were excavated. Given the small scale of the group, the remains have been subjected to full analysis. They consisted of one sub-adult, three adult males,

three adult females and an unsexed adult. One of the females was dated to the Bronze Age, and the rest were probably broadly contemporary and belonged to the Late Iron Age to Early Roman period. Similar groups are known from the region in the Iron Age and Roman periods and those found at Hinxton may have formed a dispersed cemetery, although no familial connection between the individuals could be confirmed.

Physically, the skeletons were within the normal range for the period in which they lived, in terms of height and skull shape. Three individuals, all in the older age groups, suffered from dental disease. Moderate to heavy deposits of tartar on the teeth indicated a general lack of dental hygiene, but is also likely to be related to eating softer foods that required less chewing. Diseases associated with physical stress and degeneration of the spine were relatively common, but none of the changes were particularly severe. Fractures had occurred in three individuals, and two of them may have been associated with direct violence. The third, a fracture of the lower leg, was more likely to be accidental and may have been caused by a bad fall in which the leg was twisted. Generally, however, pathological changes in this group were minor and the bones provided little evidence for malnutrition or stress.

No further work is required, other than to integrate the results into the final publication.

6.4.2 *Faunal Remains (see Appendix 11)*

The assessment of animal bone has shown a hand-recovered assemblage dominated by domesticated mammals with cattle, sheep/goat, horse, pig and dog represented. Domestic and wild birds are present but infrequent. Other species include red deer, represented by antler fragments, water vole and numerous frogs/toads.

This is a medium sized assemblage, which should provide useful information regarding the economy and husbandry practices at the site during the Iron Age, which may usefully be compared with the growing database for Cambridgeshire during this period. The Romano-British and Anglo-Saxon components are rather smaller, but may still yield useful information.

6.4.3 *Macrobotanical Remains and Pollen (see Appendices 12 and 13)*

The flotation procedures and subsequent analysis have been successful in identifying the survival of cereal and seed grains. Wheat, barley, rye and cultivated oats have been recorded. Mineralised weed seeds include many common species, while wetland plants were extremely rare, except on the Ickleton side of the Cam, where they were common. Also on that side of the river, flax was found in quantities that may indicate that processing was taking place there.

Despite extensive and thorough sampling of a wide variety of feature types, the low densities of recovered material means that, with a few exceptions, further work is not warranted.

Over 100 pollen samples were taken for future analysis, and these will be of particular use in answering questions concerning the sequence of Saxon events relating to the hurdle and possible flax processing mentioned above. They will also assist in creating a model of the local environment.

7 Updated Research Aims and Objectives

The assessment of the stratigraphic, structural, artefactual and environmental data from the excavation indicates that there is good potential to address most of the original research aims and objectives identified in the Specification. This section revises these in light of the assessment process.

The following objectives are organised on a national, regional, local and more site-specific level – they are designed to provide a framework for any additional phases of excavation and subsequent assessment and analysis.

English Heritage's updated survey of archaeological endeavour and agenda for future work (English Heritage 1997) set out the need for regional frameworks for archaeology. The regional *Research Agenda and Strategy* document (Brown and Glazebrook 2000) focuses on the lack of well-analysed and published pottery assemblages from the Late Iron Age as a 'Gap in Knowledge'. Local pottery production centres are also mentioned, particularly in relation to examining marketing patterns. The Hinxton Genome Campus site has the potential to fulfil these criteria and to contribute to the growing understanding of both rural settlement patterns and pottery production and distribution in the Late Iron Age and Early Roman periods. Although the site contained limited evidence for buildings of this date, the indirect evidence strongly suggests that an occupation site must have existed nearby.

Another key theme is the ritual aspect of the site, which is evident from the prehistoric to Romano-British periods. Of particular significance is the possible Iron Age ceremonial enclosure and related burials which are potentially of national importance (Stewart Bryant, pers. comm.).

Coupled to the standard research aims of understanding the diet, economy and settlement development of this period, this site provides the opportunity to clarify further the nature of the introduction of new pottery types during the early Roman period, and also to explore the character of 'native' Briton versus 'foreign' Roman, in the context of finds assemblages.

Preliminary findings indicate that although the two Hinxton sites (Genome Campus and Hinxton Hall) were spatially very closely related, the focus of activity shifted over time. Further work will be needed to determine whether there is any chronological overlap in their use, or any functional connection between them. At the present time, the finds assemblages from the two sites seem quite dissimilar, although detailed analysis of the pottery in particular may suggest the two sites' interrelationships.

The material assemblages recovered, particularly pottery, animal bone, environmental and metal objects/small finds, are of significance as they derive from a wide variety of well-excavated stratified deposits from across the excavation area. Further, targeted, analysis of these assemblages in conjunction with detailed stratigraphic phasing has considerable potential to contribute to the identified research objectives at all levels. This data will be of sufficient quality and quantity to allow useful comparisons with similar groups from sites within the Hinxton area as well as more regionally, and in some cases nationally.

7.1 National (English Heritage 1997; Haselgrove *et al* 2001)

The following research areas identified by English Heritage and/or in the national research agenda for the Iron Age have been identified as those that might be deemed appropriate to the Hinxton site:

7.1.1 The Meaning of Change (Transitions)

- PC4 Briton into Roman (c.300BC – AD200) – The national research agenda has indicated that the transition between the Late Iron Age and Romano-British periods demonstrates a high degree of continuity and complexity with the potential for study of complex data-sets (English Heritage 1997, 43-44). The Hinxton site spans the Late Iron Age and Early Roman periods, with at least one key finds assemblage (pottery) that indicates trading contact with the continent before AD 43. The geographical location of the site (in relation to key river/road routes and the Roman town of Great Chesterford) provides the potential to examine evidence for the initial impact of the Roman occupation on the area;

- PC5 Empire to Kingdom (c.AD200-700) – the presence of Roman and Early Saxon settlement will permit examination of the changes to the landscape and settlement patterns at this period;

- PC6 The Late Saxon to medieval period (*c.* AD 700-1300) – preliminary study of the settlement remains at both the Genome Campus and Hinxton Hall sites suggests occupation during the Early to Middle Saxon transition, followed by the development of a 'defended' settlement within extensive enclosure systems in the Late Saxon period, perhaps ceasing in the 12th century. Its demise probably coincides with a move towards the formalisation of the village around the parish church in the medieval period. This process – which saw both the decline of independent family-farms and hamlets being brought together in a village, often under one Lord's jurisdiction – is a key change that ushers in medieval rural life;

- T3 Rural settlement – the evidence from Hinxton offers the potential to examine the components of this rural settlement, as well as its economy, function and interactions with surrounding settlement and landscape development.

7.1.2 *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, 51, T1). The scale of the site and the range of different activities recorded at Hinxton and in its vicinity suggests that the potential exists to contribute towards this research aim.

7.1.3 *Chronological Periods and Regional Chronologies*

English Heritage (1997, 55) states the need to refine regional chronologies in order to better aid in the understanding of temporal landscapes. The refinement of a regional chronology is also a major research aim towards which this site can make a potentially valuable contribution (see Section 6.2).

- P7 Late Bronze and Iron Age landscapes – although there is no clear settlement evidence from either of these periods, the scattered Bronze Age remains and structured Iron Age phase both indicate the importance of this particular area in ritual activity over thousands of years.

7.1.4 *Burials and Ritual*

The national research agenda for the Iron Age notes the requirement to examine cemetery and 'ritual' sites. In particular 'there is evident need for research into the location of Iron Age burials and how these relate to other components of the settlement pattern.' (Haselgrove *et al* 2001, C2.3).

The discovery at Hinxton of placed deposits, a range of burials of varying character/date and the putative Iron Age ceremonial enclosure and Romano-British shrine, suggests that the site has the potential to contribute to research into various aspects of ritual and related patterns of behaviour. The Iron Age enclosure and associated burials are potentially of national significance and make an important contribution to the existing corpus. It has been noted that 'such sites are of key importance in terms of understanding the social and economic developments in the Late Iron Age' (Bryant in Brown and Glazebrook 2000, 17).

7.1.5 *Lithics*

The lithic assemblage has the potential to contribute to national debates concerning the continuation of flintworking into the Iron Age, a subject of much contention (eg Young and Humphrey 1999; contra Saville 1981) which has recently identified as a research priority (Haselgrove *et al.* 2001, 21).

6.2 Regional (Brown & Glazebrook 2000)

6.2.1 Regional Chronologies

The regional research agenda has cited chronology as a gap in knowledge for the region during the Iron Age and has recommended that several techniques should be applied in order to establish a chronology (Bryant in Brown and Glazebrook 2000, 14). These include scientific dating techniques, establishing regional pottery sequences and investigation of datable pottery assemblages. Relevant research objectives are:

- to produce stratified pottery assemblages of Iron Age material to assist in the development of local type series;
- to contribute to the development of a reliable local chronological framework for the Iron Age.

The Hinxton site demonstrates a long-lived Early to Late Iron Age/Early Roman pottery assemblage with the potential for study alongside other South Cambridgeshire, North Hertfordshire and North Essex assemblages, enabling assessment of existing chronologies and local variations in an area which lies on the edge of the Belgic core with East Midland style pottery. There is also the issue of the adoption of the Aylesford/Swarling and Roman culture in South Cambridgeshire (Bryant in Brown and Glazebrook 2000, 16).

7.2.2 Other Regional Objectives

The regional research objectives are:

- to examine the decline of the Late Iron Age agricultural system seen at various sites in South Cambridgeshire and its relationship to increasing agricultural specialisation, intensification of production etc;
- to contribute towards an understanding of the development of the agrarian economy in the Iron Age;
- to examine the impact of the development of towns on the surrounding countryside;
- to investigate the Late Saxon and medieval agrarian economy, through field systems and animal and plant remains.

Despite the expectation prior to excavation (and their presence at Hinxton Hall), no Middle Saxon features have yet been identified.

7.3 Local

At the local level no published general framework exists, although the evaluation brief from the CAO (Thomas 2002) laid the basis for a site-specific research design. Utilising this document, additional points regarding local research priorities were outlined in the excavation

project designs (Kemp and Spoerry 2002) and key foci for further study are suggested below.

Local and site specific research objectives are:

- to study local settlement patterns and their evolution through the Early Iron Age to the Late Iron Age/Early Roman periods;
- to investigate the economy and local settlement inter-relationships of a Late Iron Age settlement which can, on the basis of the pottery, be revised to higher status than that suggested at the assessment stage;
- to consider the importance of the riverine system to the Late Iron Age/Early Roman communication and economy of this site;
- to examine the local landscape relationships at all periods (including relationships to routeways such as the Icknield Way);
- to explore farmstead development and settlement patterning in the Iron Age and its apparent lack of continuity with Early Iron Age activity in the development area;
- to examine the site's Romano-British economy and its relationship to the Roman town of Great Chesterford;
- to examine the development of the Anglo-Saxon settlement and associated landscape, including evidence for craft and economy;
- to examine servicing of the Hinxton Hall settlement during the Anglo-Saxon period;
- to study landscape division and utilisation adjacent to the Anglo-Saxon settlement;
- to explore wider aspects of Anglo-Saxon landscape patterning, development and resource utilisation. This will include examination of the possible river crossing, as well as evidence for wetland and woodland management and utilisation of local resources, in the wider context of the local environment and river system (including evidence for episodic flooding);
- to examine the demise of the settlement in the 12th century and its wider implications and context.

7.4 Specific Research Aims and Objectives

In the light of the potential established by the assessment, revised aims and objectives have been defined to meet the specific potential of the data.

7.4.1 Aim 1. Identification of the physical character and morphology of the site and its development

A refined and well-dated stratigraphic sequence across the whole site will be critical to understanding the detailed evolution of the settlement, its origins, development and decline.

- Objective 1.1. Identification of site function and characterisation

- Objective 1.2. Identification of activity zones
- Objective 1.3. Examination of the site in relation to the previous investigations in the vicinity

7.4.2 *Aim 2. Characterisation of the environment and economy of the settlement*

Artefactual, environmental and stratigraphic research will be required to understand the environmental and economic basis of settlement and how this changed during the development of the phases represented.

- Objective 2.1. Characterisation of the local farming economy and the relationship to surrounding sites, trade routes and markets

7.4.3 *Aim 3. Examination of the place of the settlement in local and regional economic and settlement systems*

Study of archaeological reports relating to the local area and region, alongside site data regarding the importance of outside resources and producers, will enable a picture of the site within its local context to be formulated. Regional syntheses and site data from other regions will provide comparison from a wider context.

- Objective 3.1. Study of site location and consideration of its role as a 'preferred' location during prehistory
- Objective 3.2. Consideration of links with local production centres
- Objective 3.3. Comparison of the economy and morphology of the site with other excavated contemporary sites

7.4.4 *Aim 4. Examination of the extent to which landscape continuity influenced the transitions from Iron Age to Roman to Saxon*

In this respect, similarities and differences between this site and others in the region and further afield will be examined.

- Objective 4.1. Characterisation and duration of the possible ceremonial Iron Age enclosure, and its relationship to those remains that were present previously, as well as its influence on later use of the site.
- Objective 4.2. Characterisation and date of the possible Romano-British shrine, and comparison with other examples such as that recently excavated at Stansted airport (Havis and Brooks 2004, 532–533).
- Objective 4.3. Examination of the character, date and duration of the major northwest to southeast boundary system on the eastern edge of Area 1c.

The table below summarises the potential of each of the suggested analysis areas to meet the research aims and objectives.

Research Aims:	1	2	3	4
Main analysis area				

Stratigraphic/date	X	X	X	X
Ceramics	X	X	X	X
Lithics	X	X	X	
Faunal remains	X	X	X	X
HSR	X	X	X	X
Plant macrofossils	X		X	

Table 11 Research aims and objectives

Each of these research areas will be examined in relation both to the site itself and at a local, regional and (where appropriate) national level. Assessment has indicated that there may be potential for looking at the spatial distribution of a variety of data types. It is, for example, immediately apparent that certain areas of the site were richer in all types of finds than others, and that certain individual features contained disproportionately large assemblages. Further analysis should show whether these differences are spatial or temporal, and thus whether there was zonation in settlement activity or change in settlement character over time.

8 Methods Statements

The assessment and the updated research objectives have identified the key areas for analysis, reporting and wider dissemination through publication. This further work will aim to present a synthesis of the project results, integrated appropriately with the results from Hinxton Hall and related evaluations etc. In order to meet the full potential of this data, targeted stratigraphic analysis and site phasing incorporating ceramic and other dating tools is crucial. Analysis and integration of the finds data is also paramount, and will focus on the stratified pottery assemblage, the significant group of animal bone, the worked flint, selected environmental remains and, to a lesser extent, the metalwork and other objects, ceramic building materials and worked stone.

The following section summarises which elements have been identified for further analysis, and the methods required to meet the research aims of the project. The initials in the following sections are those of team members detailed in Table 12 below.

8.1 Stratigraphic Analysis

It is essential to finalise and fully cross-reference the archive, create final groups and integrate all relevant artefact studies and disseminate this information to the project team. The following tasks will form the solid foundation for further analysis that will enable the research objectives to be met as fully as possible.

8.1.1 Agreement on final phasing and terminology to ensure consistency with pottery phases across all areas of the Hinxton sites (SK, PSS, WP).

8.1.2 Completion, verification and cross-referencing of matrices for the most complex sequences, especially those identified in the northeastern side of Area 1c. Creation of groups. The archive from the evaluations will also need to be assimilated and cross-referenced with that from the excavation (SK).

8.1.3 Integration of the stratigraphic analysis with the artefact studies, in particular the ceramic dating to provide final phasing for all the features. This will enable decisions about residuality/intrusion to be made so that this information can be distributed to all specialists to aid their analysis and interpretation (SK, PS, CF).

8.1.4 Updating of the database and editing of the AutoCAD digital plans to reflect the finalised phasing so that this information can be distributed to all specialists to aid their analysis, interpretation and contribution to the research objectives (SK).

8.1.5 Assimilation and discussion with relevant specialists of all relevant data (SK, CF, IB, NC, PS). Distribute to all specialists.

8.2 Stratigraphic and structural text

8.2.1 Compilation of text sections for all features, structures and deposits by group and phase (SK).

8.2.2 Compilation of overall stratigraphic/group text and site narratives to form the basis of the full report (SK).

8.2.3 Review and collate results of all final specialist reports and integrate with stratigraphic text and project results (SK).

8.3 Illustration

8.3.1 Prepare updated phase plans in AutoCAD; edits (SK/ILL).

8.3.2 Digitise selection of sections (SK/ILL).

8.3.3 Preparation of draft phase plans, sections and other figures in Illustrator (ILL).

8.3.4 Selection of photographs for inclusion in the report (SK).

8.4 Documentary Research

Documentary research has been undertaken for the 1993–4 Hinxton Hall excavations and further work is likely to focus on specific topics of relevance to the final analysis.

8.5 Artefact Studies

All of the artefact categories have been assessed and recommendations made as to the level of further analysis and report writing necessary in order to fulfil the full potential to meet the research aims and objectives. Many of the artefacts and environmental remains have considerable potential to help establish a dated chronological sequence and contribute to a wide range of themes based around economy, trade, function and status over the many centuries of occupation on the site.

8.5.1 Metalwork and other objects

Some further analytical work is required to identify fully the coins, which although unstratified, may contribute to the understanding of the local economy in Roman times. Study of the remaining metalwork will be targeted towards the project's research objectives.

- Updating coin catalogue where necessary (AP)
- Detailed catalogue and discussion of the non-modern objects to form part of the published report (NC, AP)
- References to comparable items from within the region or elsewhere in Britain (NC, AP)
- Illustration of a maximum of 10 objects (ILL)

8.5.2 Lithics

Further analytical work is required, as this material has potential to contribute to understanding the nature of prehistoric activity on the site and along the Cam valley (BB).

- Full analysis (including flints from the evaluation) (BB)
- Integration of any flint recovered from the samples (BB/SK)
- Production of publication report, including research into comparative assemblages/sites in Huntingdon and more regionally (CF)
- Illustration of a selection of the flints (ILL)

8.5.3 Prehistoric Pottery

Further analytical work is required, since this material forms one of the most significant components of the archive and has great potential to contribute to understanding the nature and date of prehistoric activity on the site.

- Full analysis (including pottery from the evaluation) (PS)
- Macroscopic inspection (based on x20 magnification) of all major fabric types (PS).
- Tabular statistics of fabric and vessel data (PS).

- Illustrations of new forms and traits, especially relating to local fabric types, which are otherwise, unpublished to date (PS/ILL).

- Illustration of a maximum of twenty-two vessels or fragments of vessels (ILL)
- Recommendation of those fabric types warranting scientific analysis as part of a regional study (PS).

- Production of publication report, including research into comparative assemblages/sites regionally (PS)

8.5.4 *Roman Pottery*

The smaller quantity of Roman pottery has some potential to contribute to the project's research objectives. The assemblage requires identification and reporting on by a specialist, as this will add to the current level of knowledge of Roman Hinxton (PS).

8.5.5 *Post-Roman Pottery*

The small post-Roman pottery assemblage will contribute to the relevant research objectives. The following tasks have been identified:

- Full analysis (including pottery from the evaluation) (CF/PSS)
- Macroscopic inspection (based on x20 magnification) of all major fabric types (CF).

- Tabular statistics of fabric and vessel data (CF).

- Illustration of a maximum of three vessels (ILL)

- Production of publication report, including research into comparative assemblages/sites in Huntingdon and more regionally (CF)

8.5.7 *Ceramic Building Material*

This assemblage is moderate and has some potential contribute to a small number of the research aims associated with function, date, trade and economy. Of particular interest are the potentially Saxon fragments.

- Catalogue including dimensions, fabric description, possible source and date (TBC)

- Textual description based on the above (TBC)

- Preparation of an archive report from which a publication summary can be extracted (TBC)

- Identification of pieces for discard, updating of database (TBC/HF)

8.5.8 *Miscellaneous*

The following are very small assemblages, with limited potential to contribute to the project's research aims:

a) Slag and hearth lining

- No further analysis required.

b) Fired clay and daub

- Identification and cataloguing of different fabric types and possible structural pieces (CF)
- Preparation of an archive report from which a publication summary can be extracted (CF)

8.6 Environmental Remains

8.6.1 Wood

Further analytical work is required on this rare and significant material, which has good potential to address relevant research objectives.

- Full catalogue and final report (MT)

8.6.2 Human skeletal remains

The human skeletal remains have been analysed and reported on in full and these results will be integrated into the final report.

8.6.3 Animal bone

The animal bone assemblage is of sufficient size to contribute usefully to a number of research objectives. The following tasks have been identified, although these will only be undertaken once final site phasing is complete.

- Full recording and analysis of the assemblage (IB)
- Extraction of any small mammal and fish bone (recovered from the samples) to allow recording and analysis by a specialist (IB/SH-D)
- Preparation of a report, including research into comparative assemblages in Huntingdon and the wider region if appropriate (IB)

8.6.4 Plant Macrofossils

The environmental remains provide some potential to investigate function, land-use, economy, agricultural regimes and environment, especially in the Saxon period. In addition, 42 samples taken for phosphate analysis will also be examined. The following tasks have been identified:

- Full analysis of 12 samples from a range of features and deposits from a number of phases of occupation (VF).
- Preparation of report, including research into comparative assemblages in the wider region if appropriate (VF).

- Full analysis of 42 phosphate samples and report on spatial variations (PM).

9 Report Writing, Archiving and Publication

9.1 Report Writing

Tasks associated with report writing are identified in Table 19 (Tasks 37 – 49).

The stratigraphic text, group and phase sections need to be completed to provide a stratigraphic archive report. The work entailed in each of these tasks is itemised separately in Section 7.2 above.

All specialist contributions will result in the production of an archive report, elements of which will be integrated into the publication. The degree to which specialist reports are published will depend on the value of the conclusions in relation to the wider interpretation of the site and the ability to contribute to the research aims.

Scott Kenney (SK) will undertake the main archive and reporting tasks; Paul Spoerry (PSS) and Elizabeth Popescu (EP) will undertake the editing.

9.2 Archiving

Excavated material and records will be deposited with, and curated by, Cambridgeshire County Council in appropriate county stores under the Site Codes HIN RIV 98/HIN RS 02 (evaluation) and HIN GC 02/ICK GC 02/03 (excavation) and the county HER code ECB 1011. 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 national guidelines.

9.3 Publication

It is proposed that the results of all phases of work the Hinxton Genome Campus site should be published as a two-part monograph in the East Anglian Archaeology (EAA) report series, in conjunction with the Hinxton Hall excavations. The intention is to produce two chronologically themed volumes, the first including all periods up to the end of the Roman and the second covering the Anglo-Saxon period onwards. Since the settlement focus changed dramatically over time, there is an obvious spatial distinction, with Part I largely including the Genome Campus and Part II mostly the Hinxton Hall site. Preliminary

synopses for these volumes have recently been approved by the EAA committee.

9.3.1 Report Structure

The final format and scope of the publication report is currently under discussion, although the draft proposals for Parts I and II are given below. The archaeological evidence (along with the related finds and environmental remains) from both Hinxton Hall and the Genome Campus will be reported in the appropriate period volume.

Hinxton, Cambridgeshire: Part I - Prehistoric to Roman Settlement (working title)

by Scott Kenney

With contributions by Sue Anderson, Ian Baxter, Barry Bishop, Steve Boreham, Phil Copleston, Tom Eley, Carole Fletcher, Val Fryer, Steve Kemp, Jonathan Last, Tim Reynolds and Paul Sealey

Front matter (listings, acknowledgements, list of contributors *etc.)*
(*c.* 10 pages)

Chapter 1 Introduction
(*c.* 5 text pages, *c.* 5 figures, *c.* 3 plates)

I. Introduction
II. Geology and Topography
III. Archaeological and Historical Background
IV. Methodologies

Chapter 2 The Prehistoric Period (Period 1)
(*c.* 15 text pages, *c.*25 figures, *c.* 10 plates)

I. Palaeolithic (*c.* 700000 - 1000BC)
II. Mesolithic (*c.* 10000 - 4500BC)
III. Neolithic (*c.* 4500 - 2300BC)
IV. Bronze Age (*c.* 2300 - 700BC)
V. Middle Iron Age (*c.* 400 - 100BC)
VI. Late Iron Age (*c.* 100BC - AD43)

Chapter 3 Romano-British Settlement (Period 2)
(*c.* 10 text pages, *c.*15 figures, *c.* 5 plates)

I. Early Romano-British (*c.* AD43 - 120)
II. Romano-British (*c.* AD120 - 250)
III. Later Roman (*c.* AD250 - 450)

Chapter 4 The Finds
(*c.* 20 text pages, *c.* 30 tables, *c.*25 figures, *c.* 15 plates)

I. Metalwork
II. Slag, by Tom Eley
III. Lithics, by Barry Bishop

IV. Lithics from Hinxton Hall, by Tim Reynolds
V. Other Lithics, by Steve Kemp
VI. Prehistoric Pottery (Hinxton Hall shaft), by Jonathan Last
VII. Pre-Saxon Pottery, by Paul Sealey
VIII. Ceramic Building Material, by Carole Fletcher
IX. Roman Brick and Tile from Hinxton Hall, by Phil Copleston
X. Worked Bone

Chapter 5 The Zooarchaeological and Botanical Evidence
(*c.* 15 text pages, *c.* 15 tables, *c.* 10 figures, *c.* 5 plates)

I. Human Skeletal Remains, by Sue Anderson
II. Faunal Remains, by Ian Baxter
III. Macrobotanical Remains, by Val Fryer
IV. Geoarchaeology and Palynology, by Steve Boreham

Chapter 6 Discussion and Conclusions
(*c.* 10 text pages, *c.* 5 figures)

Back Matter (bibliography, index, *etc.*)
(*c.* 10 pages)

Hinxton, Cambridgeshire: Part II - Anglo-Saxon to Medieval Settlement

by Paul Spoerry and Stephanie Leith

With contributions by Craig Cessford, Corinne Duhig, Holly Duncan, Carole Fletcher, Val Fryer, Louisa Gidney, Brian Gilmour, Graeme Lawson, Steve Membery, Peter Murphy, Ian Riddler, Maisie Taylor and Patricia Wiltshire

Front matter (listings, acknowledgements, list of contributors *etc.)*
(*c.* 10 pages)

Chapter 1 Introduction
(*c.* 5 text pages, *c.* 5 figures, *c.* 3 plates)

I. Introduction
II. Geology and Topography
III. Documentary, Archaeological and Historical Background
IV. Methodologies

Chapter 2 Anglo-Saxon Settlement
(*c.* 25 text pages, *c.* 20 figures, *c.* 10 plates)

I. Early Saxon
II. Middle Saxon
III. Late Saxon

Chapter 3 Saxo-Norman to Medieval Settlement
(*c.* 15 text pages, *c.* 10 figures, *c.* 5 plates)

I. Saxo-Norman
II. Medieval

Chapter 4 The Finds
(*c.* 25 text pages, *c.* 25 tables, *c.*20 figures, *c.* 10 plates)

I. Metalwork, by Holly Duncan
II. Sword Pommel, by Brian Gilmour
III. Post-Roman Pottery (Hinxton Hall), by Paul Spoerry
IV. Post-Roman Pottery (Genome Campus), by Carole Fletcher
V. Lava Querns, by Steve Membery
VI. Fired Clay and Burnt Daub, by Craig Cessford and Steve Membery
VII. Loomweights
VIII. Bone, Antler and Ivory Objects, by Ian Riddler
IX. Bone Reed Pipe, by Graeme Lawson

Chapter 5 The Zooarchaeological and Botanical Evidence
(*c.* 15 text pages, *c.* 15 tables, *c.*10 figures, *c.* 5 plates)

I. Human Remains, by Corinne Duhig
II. Animal Bone, by Louisa Gidney
III. Plant Macrofossils, by Val Fryer and Peter Murphy
IV. Palynological Analysis, by Patricia Wiltshire
V. Worked Wood, by Maisie Taylor

Chapter 6 Discussion and Conclusions

(*c.* 10 text pages, *c.* 5 figures)
Back Matter (bibliography, index, *etc.*)
(*c.* 10 pages)

10 Resources and Programming

10.1 Staffing and Equipment

10.1.1 Project Team

Name	Initials	Project Role	Establishment
Scott Kenney	SK	Project Officer and Main Author	CAM ARC
Paul Spoerry	PSS	Project Manager	CAM ARC
Elizabeth Popescu	EP	Editor/publications management	CAM ARC
Crane Begg	CB	Senior illustration	CAM ARC
Illustrator	ILL	Small finds, flint and pottery	CAM ARC
Paul Sealey	PS	Iron Age and Roman pottery	Freelance
Carole Fletcher	CF	Post-Roman pottery	CAM ARC
Barry Bishop	BB	Flint	Freelance
TBC		CBM	Freelance
Ian Baxter	IB	Animal bone	Freelance
Val Fryer	VF	Environmental	Freelance
Paul Middleton	PM	Environmental/phosphate	Peterborough Reg. College
Nina Crummy	NC	Metalwork	Freelance
Steve Boreham	SB	Pollen; quaternary geology	University of Cambridge
Adrian Popescu	AP	Coins	Fitzwilliam Museum
Maisie Taylor	MT	Wood	Freelance
Sheila Hamilton-Dyer	SH-D	Small animal/fish bone	Freelance
Tom Eley	TE	Slag/metalworking debris	CAM ARC
University of Waikato	UW	Carbon-14 dating	University of Waikato
Project Assistant	ASST	Archiving	CAM ARC

Table 12: Project team

10.2 Task Identification

Task No.	Task	Staff	No of Days
Project Management			
1	Project management and meetings	PSS/EP	3
2	Meetings and project management implication	SK	3
3	Liaise with staff and Specialists, send and receive all finds and environmental materials, check packaging, discard as appropriate.	HF/SK	2
Stratigraphic analysis			
4	Discussion and agreement of final phasing system for Hinxton sites	SK/PS/PS S/WP	1
5	Finalise site phasing/matrix of key groups, integrate evaluation data	SK	8
6	Integrate ceramic/artefact dating with site matrix	SK/PS	4
7	Update database and digital plans/sections to reflect any changes	ASST/ILL	4
8	Distribution (and discussion) of finalised phasing to all relevant specialists	ASST	1
Stratigraphic and structural text			
9	Compilation of text sections for all features, structures and deposits by phase and group	SK	20
10	Compilation of overall stratigraphic text and site narrative to form the basis of the full/archive report	SK	10
11	Review, collate and standardise results of all final specialist reports and integrate with stratigraphic text and project results	SK	3
Illustration			
12	Prepare updated phase plans in AutoCAD	SK	5
13	Digitise selection of sections	ILL	3
14	Preparation of draft phase plans, sections and other report figures in Illustrator	ILL	10
15	Selection of photographs for inclusion in the report	SK/ILL	0.5

Task No.	Task	Staff	No of Days
Artefact studies			
	Metalwork and other objects		
16	Detailed catalogue	AP/NC	1
17	Reference to comparable items; preparation of report	AP/NC	1
18	Illustration of maximum of 5 items	ILL	1
	Lithics		
18	Full analysis	BB	5
19	Illustration of up to 10 flints	ILL	2
	Prehistoric and Roman pottery		
20	Full analysis (including pottery from the evaluation) and production of report	PS	38
21	Illustration of a maximum of ? vessels	ILL	4
	Post-Roman pottery		
22	Full analysis (including pottery from the evaluation)	CF	2
23	Production of textual/archive report if required	CF	1
24	Macroscopic inspection (based on x20 magnification) of all major fabric types	CF	1
25	Tabular statistics of fabric and vessel data.	CF	0.5
26	Illustration of a maximum of three vessels	ILL	1
27	Production of publication report, including research into comparative assemblages/sites regionally	CF	3
	Ceramic Building Material		
28	Catalogue including dimensions, fabric description, possible source and date on well-dated or large groups	TBC	2
29	Preparation of an archive report from which a publication summary can be extracted	TBC	3
30	Identification of pieces for discard, updating of database	TBC/HF	1.5
	Fired clay and daub		
31	Identification and cataloguing of different fabric types and possible structural pieces	CF/SK	2
32	Preparation of report	CF/SK	1
Environmental Remains			
	Wood		
33	Full report and catalogue	MT	5
	Animal bone		
34	Full bone recording	IB	12
	Environmental remains		
35	Full analysis of 12 samples	VF	2
36	Preparation of report, research into comparative assemblages	VF	3
Report Writing			
37	Integrate documentary research with stratigraphic report	SK	0.5
38	Write historical and archaeological background text	SK	2
39	Write phase and group text	SK	10
40	Integrate results of specialist reports	SK	2
41	Compile list of illustrations/liaison with illustrators	SK/ILL	2
42	Write discussion and conclusions	SK	5
43	Preparation of report figures plans/sections/location/maps/photos	ILL	4
44	Collate/edit captions, bibliography, appendices etc	SK	2
45	Produce draft report	SK/ILL	1
46	Internal edit	EP/PSS	2
47	Incorporate internal edits	SK	4
48	Final edit	EP/PSS	1
49	Produce HER summary	SK	0.5
Archiving			
50	Compile paper archive	SK/ASST	3
51	Archive/delete digital photographs	ASST	1
52	Compile/check material archive, liaise with Landbeach	CF	1.5
Report production			
53	Format final report and illustrations (Illustrator)	ILL	3
54	Distribute report	ASST	1

Table 13: Task list

10.3 Project Timetable

It is anticipated that further excavation work may take place as part of the Hinxton Genome Campus project. Any such excavation should be

considered in conjunction with the 2002 excavation. The project Gantt chart shows an outline proposed timetable based on an estimated start date of May 2007, a copy of which can be provided on request.

Acknowledgements

The author would like to thank The Wellcome Trust who funded the archaeological work and Fuller Peiser who commissioned the project on their behalf. The project was managed by Stephen Kemp. Thanks are also due to the site staff, illustrators, specialists and the editor, Elizabeth Popescu.

Bibliography

Alexander, M., and Hill, J. D	1996	*The Excavation of a Late Iron Age Cemetery at Hinxton, Cambridgeshire 1994*. CAU Report 159
Brown, N., and Glazebrook, J. (ed.)	2000	*Research and Archaeology: A Framework for the Eastern Counties 1. research agenda and strategy*. EAA Occasional Papers 8
Burnham, B. C. and Wacher, J.	1990	*The 'Small Towns' of Roman Britain*, London
		Cambridgeshire Historic Environment Record
Elrington, C. R.	1978	*A History of Cambridgeshire and the Isle of Ely*, **VI**, The Victoria History of the Counties of England, The University of London Institute of Historical Research, London
English Heritage	1991	*Management of Archaeological Projects*
English Heritage	1997	*English Heritage Archaeology Division Draft Research Agenda*
Evans, C.	1993	*Archaeological Investigations at Hinxton Quarry, Cambridgeshire*, Cambridge Archaeological Unit
Evison, V.	1994	*An Anglo-Saxon Cemetery at Great Chesterford, Essex*, CBA Research Report no. 91
Glazebrook, J. (ed.)	1997	*Research and Archaeology: A Framework for the Eastern Counties 1. resource assessment.* EAA Occasional Papers 3
Going, C	1989	*A Trinovantian town in the Roman period and after: The defences of Great Chesterford reconsidered*, unpublished report
Haselgrove, C., Armit, I., Champion, T., Creighton, J., Gwilt, A., Hill, J.D., Hunter, F., and Woodward, A.,	2001	*Understanding the British Iron Age: An Agenda for Action*, Wessex Archaeology, Cromwell Press Ltd.
Havis, R. and Brooks, H.,	2004	*Excavations at Stansted Airport, 1988-91 Volume* 2, E. Anglian Archaeol. 107
Heawood, R. and Robinson, B.	1993	*A11 Stump Cross - Four Wentways*, Cambridgeshire County Council Archaeological Report No. 114
Kemp, S., and Spoerry, P.S.	2002	*Specification for Archaeological Excavation at the Genome Campus, Hinxton, Cambridgeshire*, CAM ARC
Leith, S	1993a	*An Archaeological Assessment at Hinxton Hall*, Cambridgeshire County Council Archaeological Report No. **A18**

Leith, S	1993b	*Phase II Archaeological Assessment at Hinxton Hall*, Cambridgeshire County Council Archaeological Report No. **A25**
Leith, S	1995a	*Archaeological Recording at Hinxton Hall: The New Lake Site*, Cambridgeshire County Council Archaeological Report No. A45
Leith, S	1995b	*Archaeological Recording at Hinxton Hall: The New Lake Site, Phase II*, Cambridgeshire County Council Archaeological Report No. A69
Leith, S.	1997	*Hinxton Riverside: An Archaeological Desk-top Study* Cambridgeshire County Council Archaeological Report No. A69
Leith, S and Reynolds, T	1993	*Hinxton Hall: An Archaeological Desktop Study*, Cambridgeshire County Council Archaeological Report No. A10
Leith, S and Spoerry, P	1995	*An Archaeological Earthwork Survey at Hinxton Hall,* Cambridgeshire County Council Archaeological Report No. A55
Margary, I D	1973	*Roman Roads in Britain,* Trowbridge
Reaney, P H	1943	*The Place-names of Cambridgeshire and the Isle of Ely*, EPNS 19, Cambridge
Roberts, J	1996	*Archaeology and Alluvium along the Hinxton Hall to Great Chesterford New Main*, Cambridgeshire County Council Archaeological Report No. A81
Robinson, B	1994	*Abbey Farm, Ickleton, Cambridgeshire: An Archaeological Desktop Study*, Cambridgeshire County Council Archaeological Report No. A34
Robinson, B	1995	*Metal Detector Rally at Abbey Farm, Ickleton, Cambridgeshire*, unpublished report
Spoerry, P. and Leith, S.	(2008)	*An Anglo-Saxon Settlement at Hinxton Hall*
Schlee, D and Robinson, B	1995	*An Archaeological Evaluation of Land Adjacent to Duxford Mill, Duxford. Late Mesolithic / Early Neolithic Activity on the Floodplain of the River Cam*, Cambridgeshire County Council Archaeological Report No. **113**
Thomas, A.	2002	*Brief for Archaeological Investigation*, CCC Archaeology Section

Historic Maps

1799 Ordnance Survey draft first edition 1" map (sheet 146)
1810 Ickleton Enclosure Map (CRO Q/RDc20)
1833 Hinxton Enclosure Map (CRO Q/RDc47)

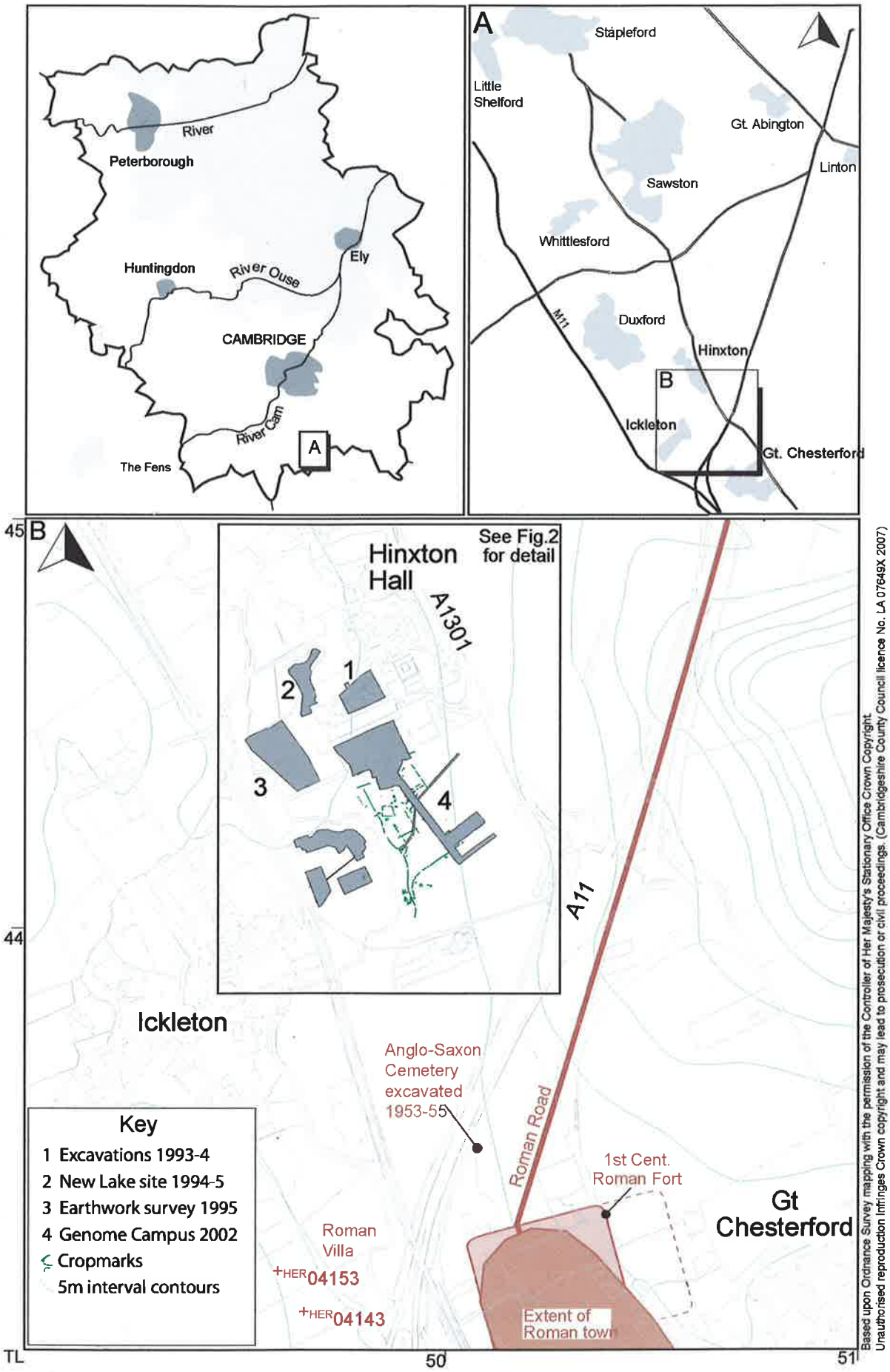
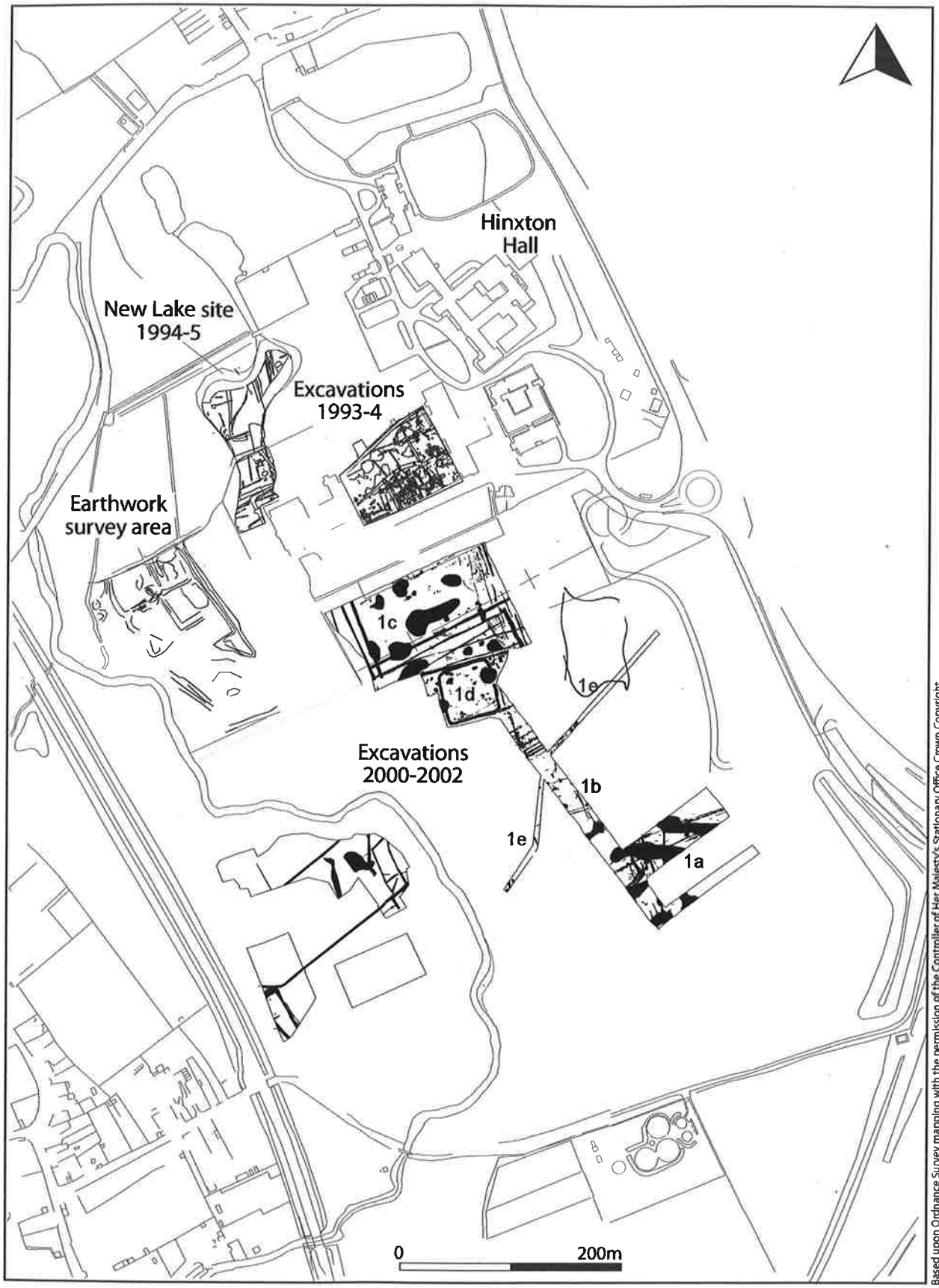
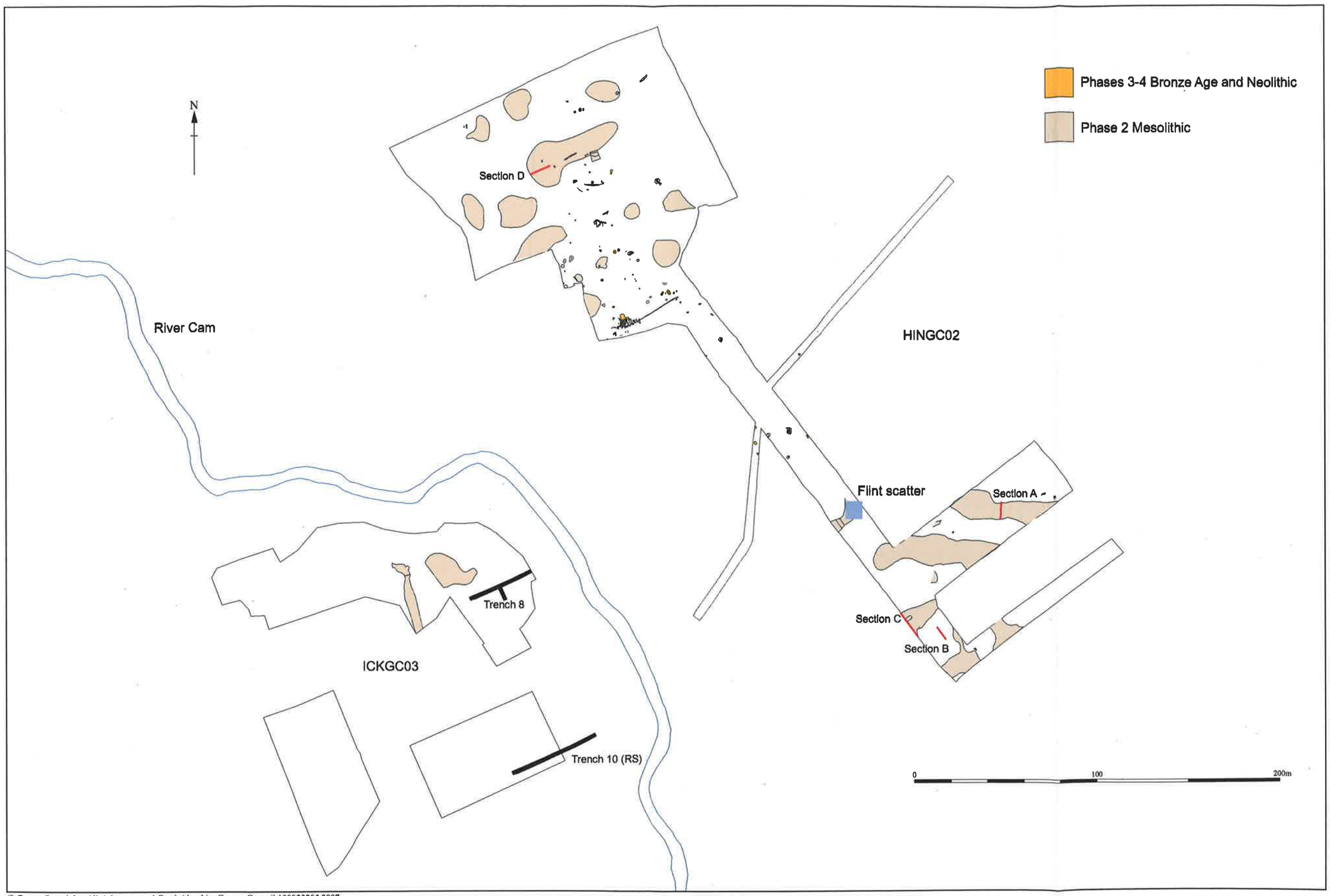


Figure 1 *Location of site and recent archaeological work in the immediate area*



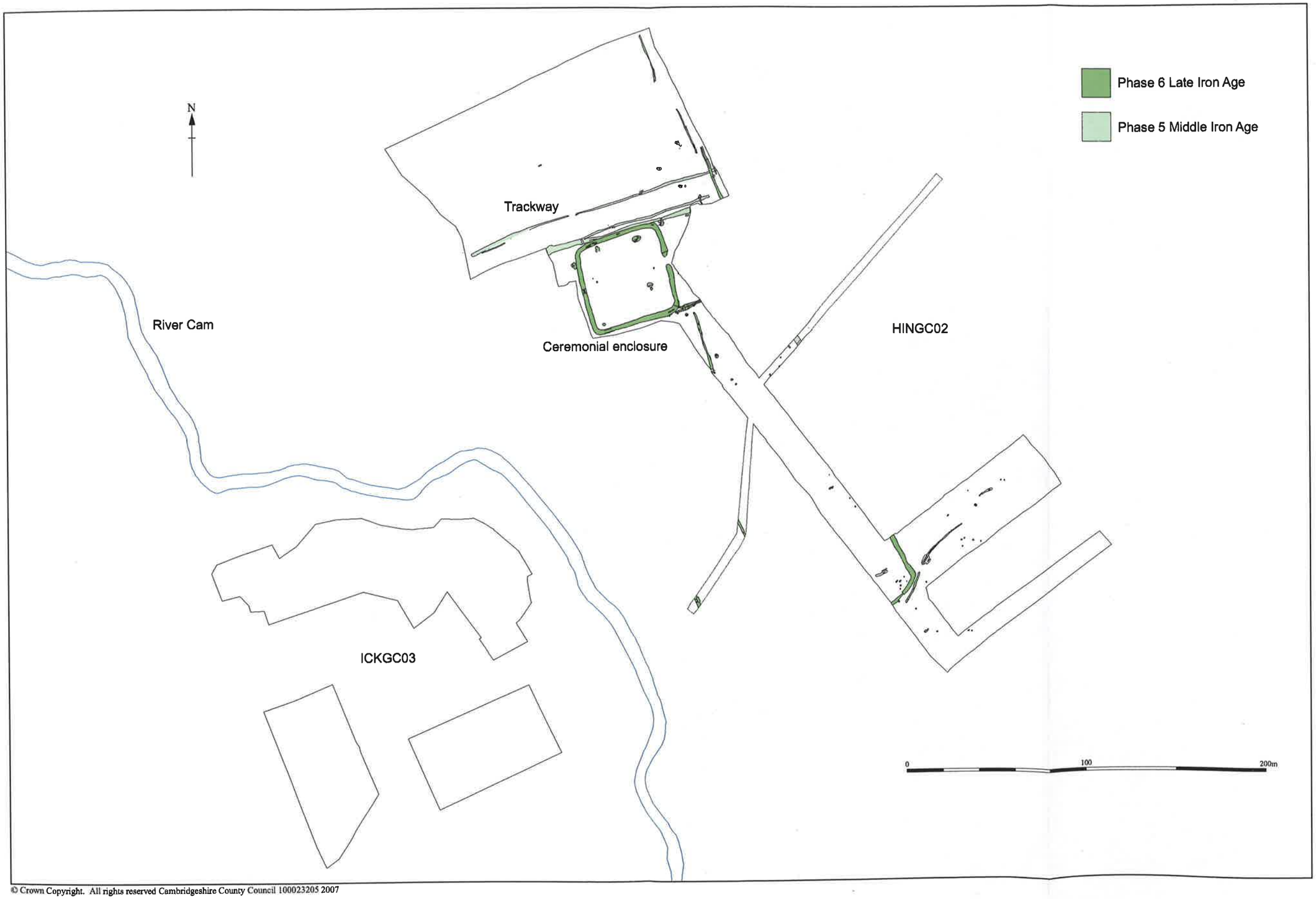
Based upon Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationary Office Crown Copyright.
Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. (Cambridgeshire County Council licence No. LA 07649X 2007)

Figure 2 *Location of excavated areas, showing all archaeological features*



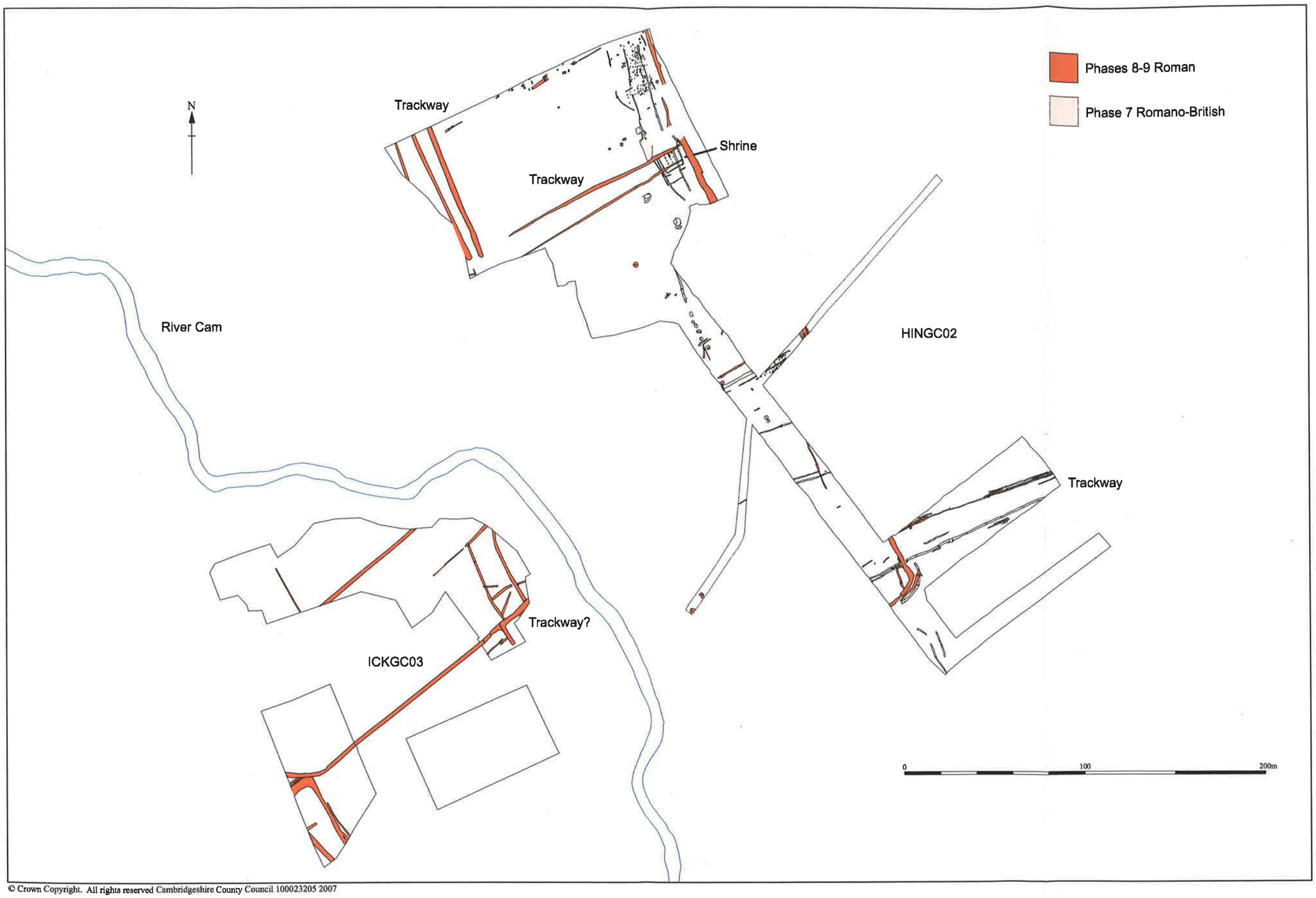
© Crown Copyright. All rights reserved Cambridgeshire County Council 100023205 2007

Figure 3: Period 1: Mesolithic to Bronze Age (Phase 2-4)



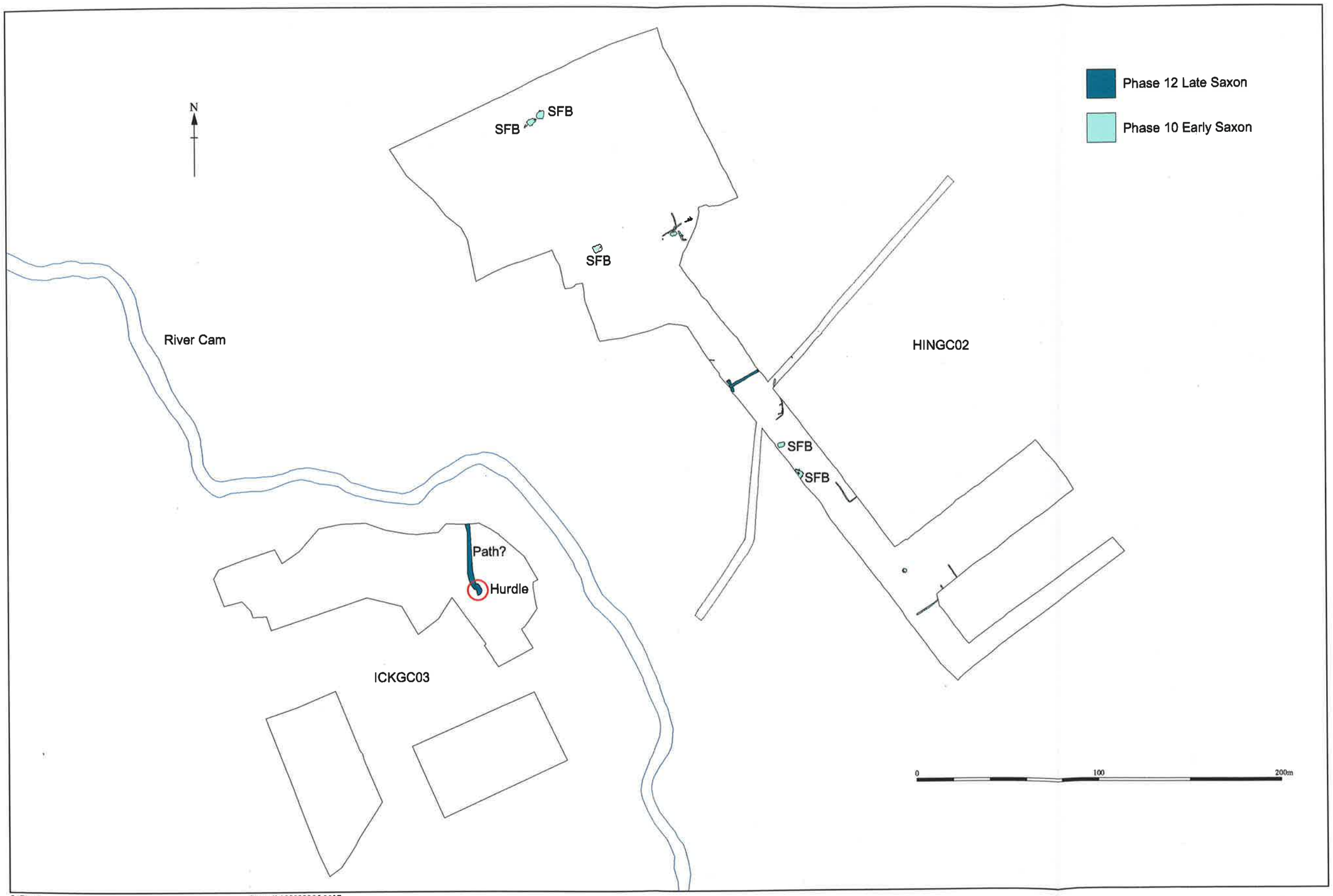
© Crown Copyright. All rights reserved Cambridgeshire County Council 100023205 2007

Figure 4: Period 1: Iron Age (Phase 5-6)



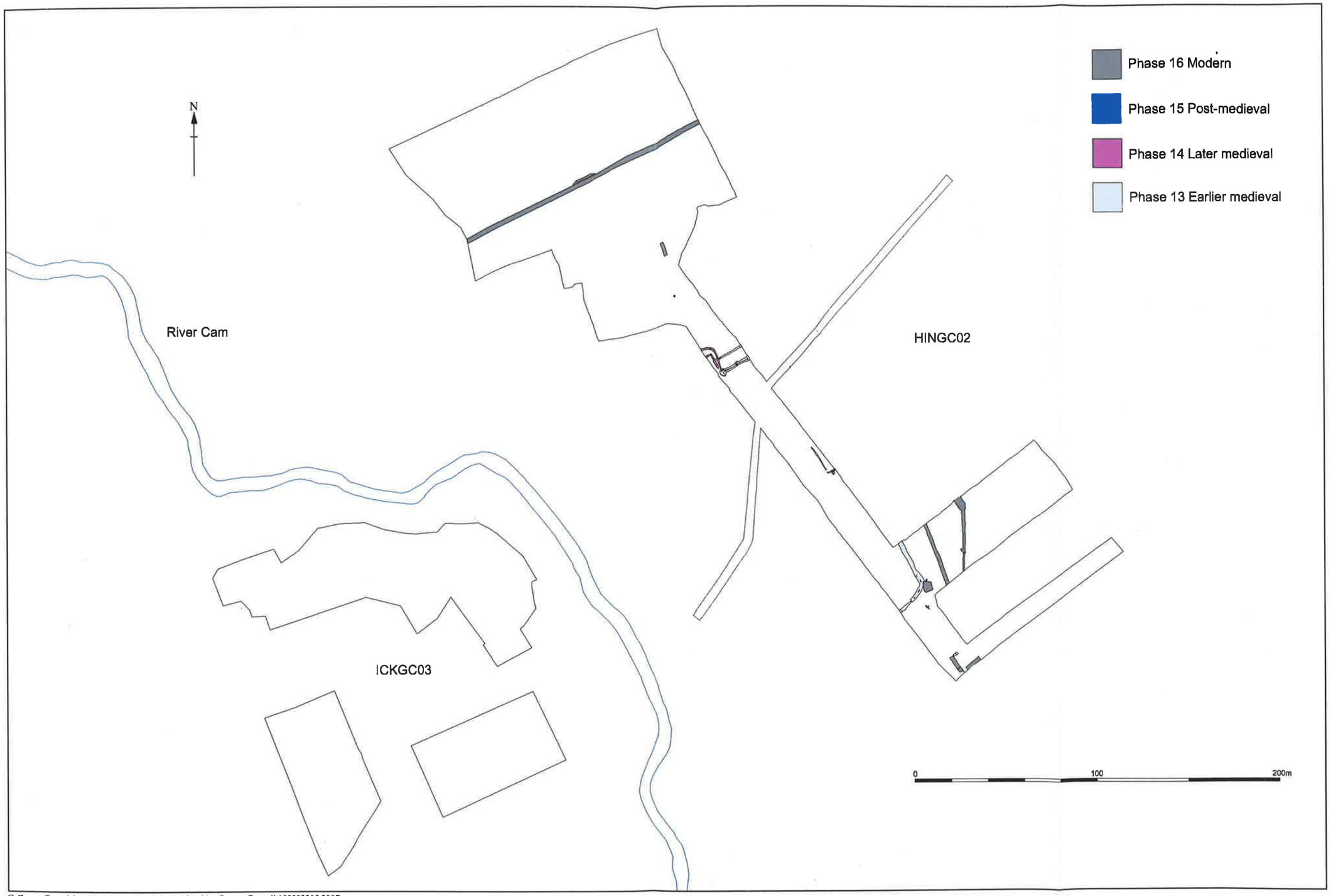
© Crown Copyright. All rights reserved Cambridgeshire County Council 100023205 2007

Figure 5: Period 2: Romano-British (Phase 7-9)



© Crown Copyright. All rights reserved Cambridgeshire County Council 100023205 2007

Figure 6: Period 3



© Crown Copyright. All rights reserved Cambridgeshire County Council 100023205 2007

Figure 7: Periods 4 and 5

Appendix 1: Metalwork

by Chris Montague and Scott Kenney

1 Introduction

During the excavations at the Hinxton Genome Campus, 295 metal artefacts were recovered, almost exclusively as a result of continuous metal detecting survey. The objective of this assessment is to summarise the material types and evaluate the potential for further work.

2 Methodology

The principal method used was a visual assessment of the morphological characteristics to assign the objects to a category. This scan was undertaken by Chris Montague and the results entered into the site database.

3 Results

Site Code	Material	SF No	Context	Description
HIN GC 02	Cu Alloy	1	99999	coin
HIN GC 02	Cu Alloy	3	1	15–16C. chape?
HIN GC 02	Cu Alloy	4	99999	buckle plate. 14–15C?
HIN GC 02	Pb	5	99999	object, poss. spindle whorl?
HIN GC 02	Cu Alloy	6	62	waste
HIN GC 02	Pewter	7	99999	spoon handle 17–18C.
HIN GC 02	Cu Alloy	8	1	button
HIN GC 02	Pb	9	99999	17–18C. Musket ball
HIN GC 02	Cu Alloy	10	1	object
HIN GC 02	Cu Alloy	11	99999	stud
HIN GC 02	Cu Alloy	12	99999	decorated object (part of)
HIN GC 02	Cu Alloy	13	99999	shoe buckle 1720s – 1790s
HIN GC 02	Cu Alloy	14	99999	coin 4C. Roman
HIN GC 02	Cu Alloy	15	99999	object (heavy) - leg of cauldron - 14–15C.
HIN GC 02	Pb	16	99999	object - waste?
HIN GC 02	Cu Alloy	17	99999	coin Roman
HIN GC 02	Cu Alloy	18	1	coin Post mediaeval ha'penny George III 1805/1806
HIN GC 02	Cu Alloy	19	1	coin Roman
HIN GC 02	Cu Alloy	20	1	18C. Handle
HIN GC 02	Pb	21	1	object - Mediaeval?
HIN GC 02	Cu Alloy	22	1	spoon handle - late mediaeval/early post mediaeval
HIN GC 02	Cu Alloy	23	99999	coin - post mediaeval token?
HIN GC 02	Cu Alloy	24	99999	vessel/bell fragment
HIN GC 02	Pb	25	99999	small bucket shaped object
HIN GC 02	Cu Alloy	26	99999	object
HIN GC 02	Cu Alloy	27	99999	coin (part of) - Roman radiate 3C.
HIN GC 02	Cu Alloy	28	99999	coin post mediaeval rose farthing 17C.
HIN GC 02	Cu Alloy	30	99999	Roman coin
HIN GC 02	Cu Alloy	31	99999	Roman coin

Site Code	Material	SF No	Context	Description
HIN GC 02	Cu Alloy	32	99999	Roman coin
HIN GC 02	Cu Alloy	33	99999	Roman coin
HIN GC 02	Cu Alloy	34	99999	coin - Roman
HIN GC 02	Pb	35	99999	musket ball
HIN GC 02	Cu Alloy	36	99999	pierced plate
HIN GC 02	Cu Alloy	37	99999	decorated belt fitting/stiffener?
HIN GC 02	Cu Alloy	38	99999	object
HIN GC 02	Cu Alloy	39	99999	button/bell?
HIN GC 02	Cu Alloy	40	99999	object
HIN GC 02	Pb	41	99999	object/scrap
HIN GC 02	Cu Alloy	42	99999	1915 George V penny
HIN GC 02	Cu Alloy	43	99999	pierced Georgian coin
HIN GC 02	Pb	44	99999	object - cone shaped
HIN GC 02	Cu Alloy	45	99999	washer?
HIN GC 02	Cu Alloy	46	99999	object
HIN GC 02	Cu Alloy/gilt/Fe	47	99999	looped strap-end fitting from a strap distributor 13 – 14 C.
HIN GC 02	Cu Alloy	48	99999	small buckle
HIN GC 02	Cu Alloy	49	99999	Roman coin
HIN GC 02	Cu Alloy	50	99999	Roman coin (bent at some point, poss. attempt to break or cut?)
HIN GC 02	Cu Alloy	51	99999	Roman coin - bent
HIN GC 02	Cu Alloy	53	99999	coin
HIN GC 02	Cu Alloy	54	99999	coin
HIN GC 02	Cu Alloy	55	99999	brooch - Late Iron Age/early Roman
HIN GC 02	Cu Alloy	56	99999	fragment
HIN GC 02	Cu Alloy	57	99999	small buckle (poss. Fe pin?)
HIN GC 02	Cu Alloy	58	99999	fragment
HIN GC 02	Cu Alloy	59	99999	washer?
HIN GC 02	Cu Alloy	60	99999	decorative object
HIN GC 02	Pb	61	99999	object
HIN GC 02	Pb	62	99999	decorated object
HIN GC 02	Cu Alloy	63	99999	pierced strip (same as small find 64)
HIN GC 02	Cu Alloy	64	99999	pierced strip (same as small find 63)
HIN GC 02	Cu Alloy	65	99999	stud
HIN GC 02	Cu Alloy	66	99999	coin?
HIN GC 02	Cu Alloy	67	99999	object
HIN GC 02	Cu Alloy	68	2	farthing
HIN GC 02	Cu Alloy	69	2	object (pierced)
HIN GC 02	Cu Alloy	70	2	Roman coin
HIN GC 02	Cu Alloy	71	2	Roman coin
HIN GC 02	Pb	72	2	object
HIN GC 02	Pb	73	2	object - sphere with protruding bent rod
HIN GC 02	Cu Alloy	74	2	buckle
HIN GC 02	Cu Alloy	75	153	Buckle?
HIN GC 02	Cu Alloy	76	153	Scissors?
HIN GC 02	Cu Alloy	77	186	tiny rivet
HIN GC 02	Cu Alloy	78	188	strap end?
HIN GC 02	Fe	79	188	fiddle key for mediaeval horseshoe
HIN GC 02	Fe	80	193	blade?
HIN GC 02	Fe	81	182	object
HIN GC 02	Fe	82	212	ox shoe
HIN GC 02	Cu Alloy	83	2	19 C. button with traces of gilt
HIN GC 02	Pb	84	2	waste
HIN GC 02	Cu Alloy	85	2	coin - Roman 4 C.

Site Code	Material	SF No	Context	Description
HIN GC 02	Cu Alloy	86	99999	coin - Roman Barbarous Radiate 3–4 C. copy?
HIN GC 02	Cu Alloy	87	99999	stud
HIN GC 02	Pb	88	99999	object
HIN GC 02	Cu Alloy	89	99999	mould waste
HIN GC 02	Cu Alloy	90	99999	pin?
HIN GC 02	Cu Alloy	91	99999	coin - Roman 3 C. (bent)
HIN GC 02	Fe	92	232	nail
HIN GC 02	Cu Alloy	93	99999	strip
HIN GC 02	Fe	94	121	object
HIN GC 02	Cu Alloy	95	99999	waste
HIN GC 02	Cu Alloy	96	216	button
HIN GC 02	Fe	97	266	nail
HIN GC 02	Cu Alloy	98	99999	coin - Roman 4 C.
HIN GC 02	Cu Alloy	99	99999	coin - Roman 4 C.
HIN GC 02	Cu Alloy	100	99999	coin - Roman 4 C.
HIN GC 02	Cu Alloy	101	99999	object - poss. a brooch pin, or earring?
HIN GC 02	Pb	102	99999	bag containing 12 pieces of Pb waste
HIN GC 02	Cu Alloy	103	99999	bag containing 2 objects
HIN GC 02	Fe	104	99999	nail
HIN GC 02	Cu Alloy	105	99999	part of a button 17/18 C.
HIN GC 02	Cu Alloy	106	99999	button 17/18 C.
HIN GC 02	Cu Alloy	107	99999	scrap
HIN GC 02	Cu Alloy	108	99999	scrap
HIN GC 02	Cu Alloy/Fe	109	99999	strap end
HIN GC 02	Cu Alloy	110	99999	object
HIN GC 02	Fe	112	325	object
HIN GC 02	Fe	113	329	bag containing 2 objects
HIN GC 02	Fe	114	335	object
HIN GC 02	Fe	117	353	object
HIN GC 02	Pb	119	99999	musket ball
HIN GC 02	Cu Alloy	120	99999	two studs
HIN GC 02	Pb	121	99999	object
HIN GC 02	Cu Alloy	122	99999	coin - Roman 3 C. Barbarous Radiate
HIN GC 02	Cu Alloy	123	99999	coin - Roman 4 C.
HIN GC 02	Cu Alloy	124	99999	coin - Roman 4 C.
HIN GC 02	Cu Alloy	125	99999	coin - Roman 4 C.
HIN GC 02	Cu Alloy	126	99999	coin - Roman 4 C.
HIN GC 02	Cu Alloy	127	99999	half a coin - Roman 2 C. Ass.
HIN GC 02	Cu Alloy	128	99999	stamped and pierced sheet
HIN GC 02	Cu Alloy	129	99999	small 18 C. buckle
HIN GC 02	Cu Alloy	130	99999	strap end - Roman?
HIN GC 02	Cu Alloy	131	99999	buckle 15 – 16 C.
HIN GC 02	Cu Alloy	132	99999	coin - Roman 3 C. Barbarous Radiate
HIN GC 02	Cu Alloy	133	99999	2 modern objects
HIN GC 02	Fe	137	393	blade
HIN GC 02	Fe	139	480	object
HIN GC 02	Cu Alloy	140	331	with gild. Furniture or leather mount - mediaeval?
HIN GC 02	Cu Alloy	141	195	leather/belt mount 15 – 17 C.
HIN GC 02	Cu Alloy	142	529	fragment
HIN GC 02	Cu Alloy	143	99999	fragment of a bracelet
HIN GC 02	Cu Alloy	144	99999	lower part of a figurine?
HIN GC 02	Cu Alloy	145	99999	coin - Roman 4 C.
HIN GC 02	Cu Alloy	146	99999	coin - Roman 4 C.
HIN GC 02	Cu Alloy	147	99999	coin - Roman Barbarous radiate 3–4 C.

Site Code	Material	SF No	Context	Description
HIN GC 02	Cu Alloy	148	99999	coin - Roman 4 C.
HIN GC 02	Cu Alloy	149	99999	coin - Roman 3–4 C.
HIN GC 02	Cu Alloy	150	99999	book clasp? 16 – 17 C.
HIN GC 02	Cu Alloy	151	99999	button
HIN GC 02	Cu Alloy	152	99999	coin - Roman
HIN GC 02	Fe	153	99999	buckle
HIN GC 02	Fe	154	99999	object
HIN GC 02	Fe	155	503	nail
HIN GC 02	Fe	157	451	bag containing 2 nails
HIN GC 02	Fe	158	378	object
HIN GC 02	Fe	159	716	nail
HIN GC 02	Fe	160	649	nail
HIN GC 02	Fe	161	486	bag containing 5 objects
HIN GC 02	Fe	163	929	pin
HIN GC 02	Cu Alloy	164	99999	box stud? Roman?
HIN GC 02	Cu Alloy	165	99999	coin fragment - 4 C.?
HIN GC 02	Cu Alloy	166	99999	coin - 3 C. Barbarous radiate
HIN GC 02	Cu Alloy	167	99999	coin - 4 C. minim
HIN GC 02	Cu Alloy	168	99999	coin - Roman 4 C.
HIN GC 02	Cu Alloy	169	99999	coin - Roman 4 C.
HIN GC 02	Cu Alloy	170	99999	decorative stud - Roman?
HIN GC 02	Cu Alloy	171	99999	coin - Roman 4 C.
HIN GC 02	Cu Alloy	172	99999	coin - Electus 3 C.
HIN GC 02	Fe	178	99999	blade
HIN GC 02	Pewter	179	99999	small buckle-ring
HIN GC 02	Pb	180	99999	Roman pot mend
HIN GC 02	Fe	181	1126	bag containing 4 objects
HIN GC 02	Fe	182	1171	bag containing 2 nails
HIN GC 02	Fe	183	1325	blade - Iron Age
HIN GC 02	Fe	184	1261	nail
HIN GC 02	Fe	185	393	object stuck to unfired loom weight 138
HIN GC 02	Cu Alloy	187	1751	object
HIN GC 02	Cu Alloy	191	1538	fragment - buckle plate?
HIN GC 02	Fe	192	1538	brooch pin
HIN GC 02	Fe	194	1538	nail
HIN GC 02	Fe	197	1965	object - 1/2 circle
HIN GC 02	Fe	198	1969	object - part of a spade?
HIN GC 02	Fe	202	2463	plate
HIN GC 02	Fe	205	796	blade
HIN GC 02	Fe	208	2556	nail
HIN GC 02	Fe	209	2556	object
HIN GC 02	Fe	210	2765	object
HIN GC 02	Ag	212	99999	Anglo Saxon clothing tag hook
HIN GC 02	Fe	218	486	Nail from sample <32>
ICK GC 03	Pewter	4027	4001	19c Button
ICK GC 03	Cu Alloy	4028	4001	18c Rectangular Shoe Buckle
ICK GC 03	Cu Alloy	4029	4001	18–19c Horse Decoration
ICK GC 03	Fe	4030	4001	Anglo Saxon -Horse Shoe Fragment
ICK GC 03	Fe	4031	4001	Anglo Saxon-Horse Shoe Fragment
ICK GC 03	Fe	4032	4001	Horse Harness Ring 600mm
ICK GC 03	Fe	4033	4001	Horse Shoe 15c –16c
ICK GC 03	Fe	4034	4001	Horse Shoe 15c– 16c
ICK GC 03	Fe	4035	4001	Horse Shoe 14c– 15c
ICK GC 03	Fe	4036	4001	Horse Shoe 14c –15c

Site Code	Material	SF No	Context	Description
ICK GC 03	Fe	4037	4001	Horse Shoe 14c– 15c
ICK GC 03	Fe	4038	4001	Horse Shoe 13c– 14c
ICK GC 03	Fe	4039	4001	Horse Harness, Linkage. 15c –17c
ICK GC 03	Fe	4040	4001	Horse Shoe fragment, ?
ICK GC 03	Fe	4041	4001	Horse Shoe 15c –16c
ICK GC 03	Fe	4042	4001	Horse Shoe 15c –16c
ICK GC 03	Fe	4043	4001	Horse Shoe 15c –16c
ICK GC 03	Fe	4044	4001	Horse Shoe 17c –18c
ICK GC 03	Fe	4045	4001	Horse Shoe 15c –16c
ICK GC 03	Fe	4046	4001	Fragment of Horse shoe
ICK GC 03	Fe	4047	4001	Fragment of Horse Shoe 17c –18c
ICK GC 03	Fe	4048	4001	Fragment of Horse Shoe 17c –18c
ICK GC 03	Fe	4049	4001	Fragment of Horse Shoe 17c –18c
ICK GC 03	Fe	4050	4001	Fragment of Horse Shoe 17c –18c
ICK GC 03	Fe	4051	4001	Fragment of Horse Shoe 16c –17c
ICK GC 03	Fe	4052	4001	Horse Harness Bridle Linkage ? 15c –17c
ICK GC 03	Fe	4053	4001	Horse Shoe 17c –18c
ICK GC 03	Fe	4054	4001	Small Fe rod object ?
ICK GC 03	Fe	4055	4001	Building Nail
ICK GC 03	Fe	4056	4001	Building Nail
ICK GC 03	Fe	4057	4001	Horse shoe Fragments 14c–16c
ICK GC 03	Fe	4058	4001	" " "
ICK GC 03	Fe	4059	4001	" " "
ICK GC 03	Fe	4060	4001	" " "
ICK GC 03	Fe	4061	4001	" " "
ICK GC 03	Fe	4062	4001	Iron Washer -50mm 18c 19c
ICK GC 03	Fe	4063	4001	Horse Bridle - Looped Ring ?
ICK GC 03	Fe	4064	4001	1 Bag 8 x- Horse Shoe Nails
ICK GC 03	Fe	4065	4001	Horse Bridle looped ring
ICK GC 03	Fe	4066	4001	Horse Bridle looped ring
ICK GC 03	Fe	4067	4001	Horse Bridle Linkage 15c –17c
ICK GC 03	Fe	4068	4001	Fragment of Horse shoe 17c –18c
ICK GC 03	Cu Alloy	4069	4001	Copper Alloy - strip ,strap 16c 18c ?
ICK GC 03	Fe	4070	4001	Fe Object ?
ICK GC 03	Fe	4071	4001	Horse Shoe fragments , x -11 .15c–17c
ICK GC 03	Cu Alloy	4073	4001	Fragmented Buckle plate 14c–16c
ICK GC 03	Cu Alloy	4074	4001	3 x- Georgian Coins 18c –19c
ICK GC 03	Pb	4075	4001	Dress -Curtain weight 18c –19c
ICK GC 03	Ag	4077	4001	Edward 1 ,11 Hammered Silver Penny
ICK GC 03	Cu Alloy	4078	4001	Celtic unit stater coin.
ICK GC 03	Pewter	4079	4001	Belt Buckle 18c –19c
ICK GC 03	Pb	4080	4001	1 Bag 6 x- Rifle Musket Shot 17c– 18c
ICK GC 03	Pb	4081	4001	Spindle Whorl
ICK GC 03	Cu/Pewter	4082	4001	1 Bag 6 x- Buttons 18c –19c
ICK GC 03	Pewter	4083	4001	1 Bag 2 x Buttons 16c–17c
ICK GC 03	Pb	4084	4001	1 Bag 2 x Pistol Musket Shot 17c– 18c
ICK GC 03	Cu Alloy	4085	4001	1 Bag 2 x Copper alloy fragments
ICK GC 03	Cu Alloy	4086	4001	17c Token .. local Traders Token
ICK GC 03	Pb	4087	4001	Spindle Whorl
ICK GC 03	Cu Alloy	4088	4001	Harness Ring (Ring Brooch ? Pin missing)
ICK GC 03	Fe	4094	4001	Horse Shoe 15c –17c
ICK GC 03	Fe	4095	4001	Horse Shoe 14c
ICK GC 03	Fe	4096	4001	Horse Bridle Linkage 16c–18c ? Plough ring attachments fittings. ?

Site Code	Material	SF No	Context	Description
ICK GC 03	Fe	4097	4001	Nail fragment
ICK GC 03	Fe	4098	4001	18c–19c Internal Door Hinge
ICK GC 03	Fe	4099	4001	Horse Shoe 19c
ICK GC 03	Cu Alloy	4100	4001	2nd c Dupondius
ICK GC 03	Cu Alloy	4101	4001	3rd c Antoninianus– Claudius Gothicus
ICK GC 03	Cu Alloy	4102	4001	3rd c Barbarous Radiate
ICK GC 03	Pewter	4103	4001	Button 16c –17c
ICK GC 03	Pb	4104	4001	Decorative Mount -15c–17c ?
ICK GC 03	Cu Alloy	4105	4001	Finger Ring 18mm Roman- Medieval ?
ICK GC 03	Cu/Pewter	4106	4001	6 x 18c–19c Buttons
ICK GC 03	Pb	4107	4001	25mm circular lead object Weight ?
ICK GC 03	Cu Alloy	4108	4001	13c -mid 14c fragment of spur rowel 6 pointed
ICK GC 03	Cu Alloy	4109	4001	William III Half Penny 1694 –1702
ICK GC 03	Pb	4110	4001	4 x- Musket shot — Pistol
ICK GC 03	Cu Alloy	4111	4001	Decorated Gilded Chain .Roman– Medieval ?
ICK GC 03	Cu Alloy	4112	4001	Sestertius –138 – 211 AD . Roman Coin
ICK GC 03	Pb	4113	4001	Lead Pot Mend, with fragment of pot attached Roman
ICK GC 03	Pb	4114	4001	17c –18c Lead Token ?
ICK GC 03	Cu Alloy	4115	4001	18c –19c Furniture handle Mount
ICK GC 03	Pb	4116	4001	16c –17c Decorative Mount
ICK GC 03	Pewter	4117	4001	16c – 17c Circular Ring Mount
ICK GC 03	Pewter	4118	4001	16c –17c Button, Hart and Crown motif
ICK GC 03	Cu Alloy	4119	4001	4c Roman coin. House of Constantine Ae. 4 -. 16mm
ICK GC 03	Cu Alloy	4120	4001	3 rd c Roman coin .Barbarous Radiate.?
ICK GC 03	Pb	4121	4001	Gaming Piece .Weight.? Medieval
ICK GC 03	Pewter	4122	4001	17c 18c Buckle Fragment .
ICK GC 03	Cu Alloy	4123	4001	Small Bell .Fragment . 17c –18c
ICK GC 03	Pewter/Pb	4124	4001	14c– 15c .Buckle Fragment.
ICK GC 03	Pb	4125	4001	2 x -Lead fragments/ waste dross.
ICK GC 03	Pb	4126	4001	7 x -Musket Shot
ICK GC 03	Pewter	4127	4001	8 x 18c –19c Pewter Buttons
ICK GC 03	Cu Alloy	4128	4001	15c French Jetton
ICK GC 03	Cu Alloy	4129	4001	4c Roman Coin House of Constantine ? Ae 3 - 14mm
ICK GC 03	Fe	4130	4001	Circular plate iron object hole in centre 62mm ?
ICK GC 03	Pb	4131	4001	Spindle Whorl

Table A1.1: Coins

4 Discussion

Of the 295 objects recovered during the survey, 249 (84%) of were unstratified (shown as context 99999 in the above table) or recovered from the topsoil. In total, 65 coins were found, all unstratified; one is silver and the remainder being copper alloy. The silver coin is medieval, while the copper alloy coins are Iron Age (1), Roman (53), medieval (1) and post-medieval (9).

Of the artefacts recovered from stratified deposits, many of the copper alloy objects are dress accessories, and most of the iron items are nails.

5 Recommendations for further work

The Roman coins and other artefacts of this period will need to be fully catalogued and potentially some of them will require illustration, as will the Iron Age and Saxon items. The copper alloy and iron objects from stratified contexts will also need to be fully catalogued and some of the iron objects will require x-raying.

Appendix 2: Slag

by Tom Eley

1 Introduction

During the excavations at Genome Campus, Hinxton 1.639kg of iron slag deriving from metallurgical processes was recovered. The objective of this assessment was to identify the slag types and evaluate the potential for further work.

2 Methodology

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. The slag was weighed and the presence of plano-convex bottoms (PCB's), hearth lining and coal/shale fuel was also recorded.

Slag with a metallic smooth, ropey, flowed surface form during the bloomery smelting process whereby iron ore is converted directly into wrought iron trapped within a 'spongy' mass of slag called a bloom. To obtain usable iron the bloom needs to be heated and hammered to remove the slag termed 'primary smithing'.

The secondary smithing process converts bar iron into tools, equipment, utensils and repairs damaged items. Slags with no characteristic shape and a rough, coarse, rusty 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 or concavo-convex shape created by the smithing hearth's base and the air blast from bellows. Smithing slag is formed from a heated agglomeration of iron, slag, hearth lining, flux and fuel (usually charcoal).

3 Results

Context	Type	Weight (kg)	Magnetic?	Comment
181	smithing slag	0.138	Yes	
228	undiagnostic	0.015	No	smooth surface
453	undiagnostic	0.025	No	10+ fragments
453	Coke	0.001	No	black, fragile is it coke?
636	undiagnostic	0.001	No	Less than 1g, is it coke?
649	slag and lining	0.005	No	lining reddened
927	undiagnostic	0.007	No	
927	smithing slag	0.032	No	
955	undiagnostic	0.003	No	
955	smithing slag	0.066	Yes	1 fragment magnetic out of 11. Smooth
1073	slag and lining	0.007	Yes	
1248	undiagnostic	0.01	No	
1318	undiagnostic	0.03	No	10+ fragments

Context	Type	Weight (kg)	Magnetic?	Comment
1324	slag and lining	0.01	No	lining blackened, in association with s.f.130
1369	slag and lining	0.149	Yes	5 frags
1926	Fuel Ash Slag	0.012	No	
1971	undiagnostic	0.001	No	
2275	Undiagnostic	0.008	No	
2462	smithing slag	0.043	No	
2507	Undiagnostic	0.024	No	
2549	Fuel Ash Slag	0.055	No	white vesicular, low in Fe
2641	fired clay	0.092	No	no slag, does not appear to be lining
2653	S.H.B	0.881	Yes	contains Fe 11cmx11cmx4cm
2666	undiagnostic	0.009	No	
2711	Undiagnostic	0.015	No	10+ fragments
Total		**1.639**		

Table A2.1: Slag

4 Discussion

The slag itself is characteristic of the smithing process and no evidence was indicating that iron smelting had occurred. This is a small assemblage and does not indicate the presence of a smithy in the local vicinity. Low levels of slag are often found during excavations and have probably been brought to the site from elsewhere. Fuel ash slag can form in a variety of pyrological processes, including hearths, and is not necessarily related to iron working.

5 Recommendations for further work

The small quantity of slag found does not justify further analytical work.

Appendix 3: Worked Flint

by Barry John Bishop

1 Introduction

Excavations at the site recovered 993 struck flints. This report quantifies and describes the material, concentrating on the assemblage's basic technological and typological characteristics in order to suggest a chronological framework, includes some general, preliminary impressions and interpretations of the material, and recommends any further work required. As the material was only cursorily examined and no statistically based technological, typological or metrical analyses attempted, a more detailed examination may alter or amend any of the interpretations offered here. The material was recovered from a variety of contexts, most of which probably post-date their contained lithics, and the material can therefore be regarded as largely residual.

2 Quantification and Description

Altogether 993 pieces of struck flint were recovered (see Table A3.1). The raw materials predominantly consisted of a fine-grained translucent black flint with varying quantities of speckled or swirled light grey inclusions. Where present, the cortex consisted of a rough, slightly weathered chalky kind, varying to smooth rolled, with frequent heavily recorticated thermal scars present. Such material is typical of derived deposits, although it was evident that it had generally not been displaced from far, most likely from the Upper Chalk that outcrops a few miles to south of the site. It was all probably procured from the alluvial terraces as present on and around the site; at Hinxton the river Cam is meandering eastwards, eroding and exposing Pleistocene terrace deposits, which were probably the source for most of the raw material. The raw material was of good knapping quality but limited both by the general size of the nodules and the frequent thermal faults present.

In general, the material had not experienced any recortication. However, a notable group of c.150 moderately to heavily recorticated flints were recovered from the vicinity of a later pitting cluster (in and around Middle Iron Age pit **691**, Period 1, Phase 5), although it was not certain whether this recortication was indicative of a different type of raw material, material brought in from elsewhere or was a factor of localized soil conditions. Probably due to the initial size of the raw materials, flakes and blades were generally small, rarely exceeding 50mm maximum dimension, and blade-like flakes were common. The few larger pieces present, some exceeding 100mm length, suggested larger nodules were occasionally available for use.

The condition of the material, although locally variable, was predominantly sharp or only slightly edge affected, indicating that the assemblage had experienced only limited post-depositional movement. However, the fragmentary condition of many pieces suggests that they had experienced a degree 'trampling' or localized redeposition, consistent with it recovery from predominantly later features.

The assemblage as a whole was technologically and typologically variable and evidently manufactured over a considerable period of time. Chronologically diagnostic implements and reduction strategies indicated activity occurring during the Mesolithic, Early Neolithic, Later Neolithic/Early Bronze Age and Middle Bronze Age-Iron Age. There were some indications that limited flintworking may have been occurring during the Late Iron Age, contemporary with the earliest significant structural evidence identified.

The flintwork identified as belonging to the earlier periods (Mesolithic to Bronze Age) was dominated by knapping waste representing most of the earlier stages of the reduction sequence, with only low proportions of useable flakes, cores or retouched items present. This would suggest that the primary activities occurring consisted of the acquisition and initial preparation of lithic raw material, with the useful products largely being removed from the site for use elsewhere. Present within the material were a number of thin flakes with a high curvature exhibiting numerous shallow dorsal scars, sometimes with facetted striking platforms at acute angles. Such flakes are very suggestive of axe thinning, and although no axes were found it is possible that they were being manufactured at the site for use elsewhere. There was little evidence for actual 'domestic' type activities involving tool use occurring during these periods, with the exception of the recorticated material. This was technologically characteristic of Early–Middle Neolithic industries and, at a notable variance with the bulk of the assemblage, included a high percentage (c.8%) of retouched pieces. These consisted mostly of scrapers (including long-end varieties) and serrated blades/narrow flakes. The very localized distribution of this material suggested that it represented a restricted area where specific tasks were being undertaken, possibly including animal and silica-rich plant processing, perhaps including cereals or, given the riverine location, rushes.

Although the predominant discard pattern appears to reflect basic resource acquisition throughout the Mesolithic to Bronze Age periods, there were indications that some of the later flintwork was more scattered, albeit with occasional and discrete knapping foci present, as evidence by small groups of refittable pieces. This pattern is more suggestive of general background waste and the execution of occasional tasks requiring sharp edges within the landscape. This may not be surprising as flintworking during this period is usually considered to have been opportunistic, and flint was probably only knapped when needed and used for the specific purpose in mind. As such, and given

its very crude technological traits, this material could potentially relate to the Late Iron Age settlement and agricultural activity identified in the structural record.

3 Discussion

The struck flint clearly indicated that the site was visited throughout the prehistoric Holocene, commencing by at least the Later Mesolithic and continuing, probably sporadically, throughout the Neolithic and Bronze Age.

With the exception of the recorticated group of material, there was little evidence of 'domestic' or any more permanent style of occupation, instead, the site appears to have been regarded as a long-term 'quarry' where resources were procured for use elsewhere. The site appears to represent a 'preferred' location, witnessing repeated visitation over a long period of time (cf Pollard's (1998) "landscape of memory and knowledge"). The recorticated material may suggest a brief period of 'domestic' occupation during the fourth millennia BC (possibly comparable to that recorded at Hinxton Quarry (Pollard 1998; Evans *et al.1999*)), and it is commonly noted that similar deposits of material frequently have ceremonial or ritual associations (eg Thomas 1999).

Although the spatial data has not been analysed in any detail, it clear that prehistoric activity, as represented by flintwork, was present across much of the excavated areas. Although mostly residually deposited, differences in aspects such as raw materials and technological traits across the area suggest that chronologically/functionally distinct clustering may be present. This is most easily demonstrated by the recorticated material, although other specific activity-locations, such as indicated by refittable pieces, might be identifiable. This would be comparable to the clustered distribution patterns observed at Hinxton Quarry, to the north of the site, where a close relationship between the flintwork 'scatter' and occupational foci as indicated by sub-surface features was achieved, and invaluable glimpses into the changing nature of discard patterns, functional zoning, attitudes to 'place' and landscape and other aspects of prehistoric behaviour were recovered from detailed contextual and spatial analysis of the struck flint (Pollard 1998).

4 Significance and Recommendations

The assemblage may be regarded as of medium size in regional terms. It is of importance in that it represents activity spanning a period of 3–4000 years that is otherwise absent from the structural record.

Although little may have been recovered from original contexts, and despite the absence of controlled surface collection, it is anticipated that spatial analysis, achieved through the plotting of occurrences of struck flint within the fills of later features, could result in the

identification of chronologically discrete scatters, with implications for understanding specific settlement organization.

The assemblage appears to represent primarily the waste from resource acquisition, and thus represents an activity-specific site visited over a long period of time, with implications for understanding wider landscape settlement and organisation. Along with the wealth of excavated prehistoric sites along the upper Cam valley and its environs, it has the potential to contribute in the long term to synthesised studies concerning broader patterns of occupation during the various prehistoric periods represented.

The assemblage is also of significance in that it has the potential to contribute to debates concerning the continuation of flintworking into the Iron Age, a subject of much contention (eg Young and Humphrey 1999; contra Saville 1981), and recently identified as a research priority (Haselgrove et al. 2001, 21).

The objective of this report was the quantification and assessment of the lithic assemblage. This has highlighted the need to analyse the material with full considerations to context, both within individual features and spatially across the site, and, where appropriate, with regard to the material's relationship with other deposited materials, involving the integration of data from other artefact categories, such as bone, pottery etc.

It is therefore recommended that the assemblage should be examined in more detail and fully described for publication, alongside an account of the other finding from the excavations, accompanied by such illustrations as will be deemed appropriate. The publication should also include some consideration of local geology, raw material sources and previous finds and research in the local area.

Bibliography

Rankine, W.F., Rankine, W.M. and Dimbleby, G.W. 1960 Further Excavations at a Mesolithic Site at Oakhanger, Selborne, Hants. Proceedings of the Prehistoric Society 26, 246-262

Evans, C., Pollard, J. and Knight, M. 1999 *Life in Woods: Tree Throws, 'Settlement' and Forest Cognition*. Oxford Journal of Archaeology 18 (3), 241–254.

Haselgrove, C., Armit, I., Champion, T., Creighton, J., Gwilt, A., Hill, J.D., Hunter, F. and Woodward, A., 2001 *Understanding the Iron Age: An Agenda for Action*. Iron Age Research Seminar/Council of the Prehistoric Society.

Pollard, J. 1998 *Prehistoric Settlement and Non-Settlement in two Southern Cambridgeshire River Valleys: The Lithic Dimension and Interpretative Dilemmas.* Lithics 19, 61–71.

Saville, A. 1981 *Iron Age Flintworking: Fact or Fiction?* Lithics 2, 6–9.

Thomas, J. 1999 *Understanding the Neolithic: A Revised Second Edition of Rethinking the Neolithic.* Routledge. London.

Young, R. and Humphrey, J. 1999 *Flint Use in England after the Bronze Age: Time for a Re-Evaluation?* Proceedings of the Prehistoric Society 65, 231–242.

Context	Primary/preparation Flakes	Maintenance/ modification flakes	Core rejuvenation flakes	Flakes	Specialised flake/blade	Chips (< 15mm max dimension)	Flake Fragments <10mm	Flake Fragments >10mm	Cortical Blades	Blades	Broken Blades	Blade-like flakes	Blade/Narrow Flake Core	Flake Core	Minimally Reduced Core	Chunks/Core shatter	Arrowhead	Core Tool	Edge Trimmed Flake	Knife	Notch	Other retouched	Piercer	Scraper	Serrate	Comments
TS	1							1																1		Long-end scraper
002	1	1		2				2	1			2												1		Virtually circular scraper, non invasive
007							1																			
019											1															Recorticated
021				1							1															Recorticated
032	2					1					1															Blade is large (>64mm long) with incipient recortication and 'battered' edges- early Post-glacial?
051				1																						
062		2				3		1																		
064		1																								
066s						2	1				1															
079																								1		Burnt, nicely worked short-end scraper
079s	1	1		2		2	1	1																		
079	2	1		1								1														
085				1																						
097		1		2				1				2														
099												1														
119	1																									
121																								1		Long-end scraper
135	2		1											1		1										Core-tablet;
137		1	1	1																						Core-Rejuve = transverse across face
158																								1		? Scraper on thermal spall
164		1		3																						
164s	1						1	1		1																
180				1																						
214	1																									
216								1																		
232	2																									
241												1														Utilized for cutting?
258				2																						
266				1																						
329	1																									
338	1	1		5			2			1	1	1														
340				1						1		1														
343						2																				
348	1																									
366								1																		
374									1																	
378		1																								
380		1					1																			
383								1																		
388s								1																		
391										1																
393	1																									
395											1	1		1						1						Knife short invasive ret. Smooth-worn; Centripetal flake core
426				1																						
444s	1			1		1				1																
445s	1																								1	
451											1															
458												1														
480									1																	
487	1																							1		Short-end scraper
495		2		1						1	1		1													Blade core is pseudo-burin type
499																										
525	1			1																						
527				2																						
540		1		2																						

Context	Primary/preparation Flakes	Maintenance/ modification flakes	Core rejuvenation flakes	Flakes	Specialised flake/blade	Chips (< 15mm max dimension)	Flake Fragments <10mm	Flake Fragments >10mm	Cortical Blades	Blades	Broken Blades	Blade-like flakes	Blade/Narrow Flake Core	Flake Core	Minimally Reduced Core	Chunks/Core shatter	Arrowhead	Core Tool	Edge Trimmed Flake	Knife	Notch	Other retouched	Piercer	Scraper	Serrate	Comments
548																		1								Core tool is trimmed thermal spall
549				1						1																
551		1																								
552s								1																		
552				1	1			1		2	1	2					1									Leaf-arrowhead blank: Axe-thinning?
554		1																								
558									1	1																
559	4	1				1	2	1			1															
560				1		2																				
561				1						2		3														Possible burin spall
563		1			1	1				1	2															
566				1				1				1														
567		1		1																						
567s				1		2		1																		Flake core prob. exhausted Blade core
568	1	1		3		2	1			1	1	1		1												2 core tablets
569			2					1			1															
570	1			2				1																		Crested blade variant?
571s					1	2	1			1	1															
571				3		1		1		1		1														
572						2										1										
573								1																		
574										1																
575								1																		Cf axe thinning
576				2						1																
577		2		3		1	1	1		1	1	1														Core tablet and longitudinal core rejuve. from SP
578	2	3	2	4		1		3			1	4														Blade core on small pebble
579	2	1		3		1		1			1		1			1										
580											1															
582	1																									
583				1								1														
585																										
586				2			1					2														Narrow blade micro-burin
587		2		2	1	3		1		2																
588s										1																
588	1			8		7	4	2		2	2															
589	1			1									1													
591				2		1																				
596	4			7		2							1			2										Axe thinning flake
597				1	1	2		3					1													
598				2				1						1												
599								1	1																	
600												1														
606								1					1													
607				1																						
608						3		3					3													
609	1			1		1							1													
617	1			2																						
618									1																	
619												1														2^{nd} transverse core rejuve. removing part of face
620				1																						
625	1											1														Recorticated: Longitud. core rejuve. removing face from opposed platform core
633																										
636			1																							
642						2		1																		
652									1																	Recorticated
682s												1														

Context	Primary/preparation Flakes	Maintenance/ modification flakes	Core rejuvenation flakes	Flakes	Specialised flake/blade	Chips (< 15mm max dimension)	Flake Fragments <10mm	Flake Fragments >10mm	Cortical Blades	Blades	Broken Blades	Blade-like flakes	Blade/Narrow Flake Core	Flake Core	Minimally Reduced Core	Chunks/Core shatter	Arrowhead	Core Tool	Edge Trimmed Flake	Knife	Notch	Other retouched	Piercer	Scraper	Serrate	Comments
682	1			6		3		3		3		6				2								1	1	Short-end scraper; All recorticated
687s											1															
687	8	6		19				18	4	3	2	7							1	2				1	1	Short-end scraper; Edge-Trimmed is steeply blunted fragment; knives unmodified but rounded edges; All Recorticated
688	3					1				1														1		Long-end scraper; All recorticated
689			1									1														All recorticated
689s				1		4							1													Prismatic blade core; all recorticated
690				1				1																		All recorticated
692		1																								
702	1																									
708	1			1																						All recorticated
709	1	1		2					2	1		2														All recorticated
710				3								2												2	2	Short-end scraper on cortical; Blade with concave scraper on distal; all recorticated
716s						1				1																
732		2		1												1					1					Chunk is core fragment; BLF with notch and blunting
747	1	1		5						1															1	All recorticated
748	2	3	1	8				2	1	1		5												2		Long-end scraper; short-end scraper; Longit. core rejuve. removing overhang. All Recorticated
759	2	1		2							1	1														
761s				1																						Recorticated
796		1																								
804	1																									
834	1																									
836									1		1	2							1							Edge trimmed prob. lightly trimmed knife
838				1																						
857	1																									
859				1																						
873				1																						
905	2			1							1															
955								1																		
973										1																
976	1																					1	1			Piercer is small on modified distal; Other retouched= *cf* fabricator
1012											1															
1024				1																						
1035	1			1																						
1060		1																								
1064	1									1																
1066	1			1																						
1073											1															
1077				1																						
1078			1	1																						Plunged flake
1079		1								2	1	1													1	Serrate has poss. hafting notch
1080	1	2		1				1																		
1081	2	1				2		2				1		1												Opposed platform flake core
1082s				1																						
1082	4	1		1				1		1	1	1														
1083	1	2							1			1			1											Min. Core on thermal chunk
1087				1								1														
1088	2																									
1090				1			1	2																		Says 1190 on bag
1093									1				1	1												Both cores opposed
1096											1															
1131s									1			1														
1151										1																Recorticated
1154				1																						
1155		1																								Crushed bulbar end
1156								1																		
1157s								2																		

Context	Primary/preparation Flakes	Maintenance/ modification flakes	Core rejuvenation flakes	Flakes	Specialised flake/blade	Chips (< 15mm max dimension)	Flake Fragments <10mm	Flake Fragments >10mm	Cortical Blades	Blades	Broken Blades	Blade-like flakes	Blade/Narrow Flake Core	Flake Core	Minimally Reduced Core	Chunks/Core shatter	Arrowhead	Core Tool	Edge Trimmed Flake	Knife	Notch	Other retouched	Piercer	Scraper	Serrate	Comments
1158		1						1		1																Blade utilized for cutting
1160	1	1													1											Min. Core poss. Scraper; core tablet
1183	1			1	1			1																		1st crested blade-96mm long!
1193				2																						
1219												1														
1221											1															
1240								1																		
1248	1	3		1				1		1	2					1										Blade poss. utilized for piercing?
1251		1																								
1253		1			1		1							1										1		Tortoise type flake core; end and side scraper; TASF/ arrowhead blank?
1254	2	2		2																						
1255	1					1	1			1			1			2										Knapping waste; Irregular core
1266	2															1										
1267				1																						
1268	1																									
1282				1																						
1318														1												Extensive reduction of one side of cobble
1325								1																		
1369	1							1		1		1														
1504	1			1				1																		
1520		2								1																
1533s								1																		
1538s								1																		
1538	1			1							1															Recorticated
1575													1													
1578															1											Core/scraper
1582									1																	'Bruised' edges
1598		1																							1	Serrated blade
1681		1																								
1683	1																									
1751				1																						
1753		1								1																
1753s																							1			Minimally modified distal
1768	1			2				1				1														
1778										1																
1786	2	1								2						1										
1788								1																		
1799						1						1														
1810																						1				Other retouched is broken flake with heavy 'bruising'
1832														1												Bifacial core
1836																					1					Shallow notch on RD, steep retouch on LD
1854										1																
1910	1	2		1		1		1			1			1												Right angled blade core
1925	1																									
1926	1	1										1							1							Edge Trimmed has fine steep retouch on RD
1928										1																
2003				1									1													Irregular blade core
2022											1															
2155															1											Shattered thermal
2160	1																									
2171								1																		
2226	1																									
2253		2	3	2		2	1					5				1	1		1					2		Chisel type petit tranchet derivative; Edge Trimmed on BLF; Side scraper; short end scraper, broke during manufacture?
2286	2																									
2288				1																						
2301s																						1				Blade with concave retouch on RV? Notch or Natural?

Context	Primary/preparation Flakes	Maintenance/ modification flakes	Core rejuvenation flakes	Flakes	Specialised flake/blade	Chips (< 15mm max dimension)	Flake Fragments <10mm	Flake Fragments >10mm	Cortical Blades	Blades	Broken Blades	Blade-like flakes	Blade/Narrow Flake Core	Flake Core	Minimally Reduced Core	Chunks/Core shatter	Arrowhead	Core Tool	Edge Trimmed Flake	Knife	Notch	Other retouched	Piercer	Scraper	Serrate	Comments
2399				1																						
2432										1																
2442	1							1																		
2462		3																								REFITTING!
2489s						1		1			1															
2489				1																				1		Side scraper?
2503	1			1																						
2504s				1																						
2507								1				1														
2517		1																								
2527										1																
2533s						1	1																			
2533										1																
2540	1																									
2552			1					1																		Plunged blade removing cortex
2555														1												Tortoise type
2556										1								1								Core Tablet: thermal slab turned into ?scraper *cf* Rankine et al. 1960, fig 6.6: Recorticated
2559										1																
2569	1																									
2575																								1		Completely cortical flake with fine, steep retouch around distal and lateral margins
2576																										
2581						1																				
2582				1																						Surface 2582-2586
2583s								1																		
2585								1																		
2594	1																									
2600										1	1															
2612	1														2											
2617	1																									
2621										1																
2625s		1				1					1															
2625												1														Recorticated
2627								1				1														
2639	1																									
2651				1																						
2655s							1	2																		
2655		1		2					1	1																
2661	5		1	1																						CR longit from SP removing hinge and step
2663	3	1																								
2676s				1																						
2678		1		1						1																
2680	1	1	1	3				1		1		1				1										Core tablet
2682s										1																
2682				2																	1					Notch on recorticated flake
2688	1	2		1					1	2	1	1			2	1										Some bits crude; some reuse? Min core thermally shattered
2689					1																					2nd crested
2696									1																	
2697								1		1																
2701	1			2				1	1	1																One blade >94mm
2711	2																				1					Notch on LV of BLF
2715																							1			Minimally retouched distal
2717s				1																						
2721				1																						
2725	2																									
2732s	1							1																		
2732	4					2							2		1	2										Knapping debris

Context	Primary/preparation Flakes	Maintenance/ modification flakes	Core rejuvenation flakes	Flakes	Specialised flake/blade	Chips (< 15mm max dimension)	Flake Fragments <10mm	Flake Fragments >10mm	Cortical Blades	Blades	Broken Blades	Blade-like flakes	Blade/Narrow Flake Core	Flake Core	Minimally Reduced Core	Chunks/Core shatter	Arrowhead	Core Tool	Edge Trimmed Flake	Knife	Notch	Other retouched	Piercer	Scraper	Serrate	Comments
2739				1																						
2746				2																						
2757	1	1						1		1																
2767										1																
2767s						1				1																
2922		1						1																		
3053	1			3									1													Irregular blade core, small or very exhausted
3063	1			3	1			1		1	1				1											Flake struck from polished implement?: Min core irregular
3094				1								1														Utilized for cutting?
4249									1																	
99999	3	4		1		1	1	2	2	4	3	3										1				OR: blunted along both margins piercer?
Total	**138**	**91**	**17**	**204**	**9**	**72**	**23**	**105**	**26**	**75**	**51**	**85**	**11**	**10**	**10**	**18**	**2**	**2**	**4**	**3**	**3**	**6**	**3**	**17**	**8**	

Table A3.1: Quantification of lithic material by context

(NB letter S following context number indicates recovery from sample)

Appendix 4: Other Lithics

by Stephen Kemp

1 Summary

A total of 23 lithic objects were retained from the Hinxton excavation and a further seven came from the Ickleton stage of the project.

2 Local Geology

The higher ground on the Hinxton side of the river is on the Middle Chalk, while the lower ground lies on the first and second terrace gravels of the River Cam, overlain in places by alluvium.

3 Quantification

The following tables list the lithological component collected during the course of the 2002 and 2003 excavations.

3.1 HIN GC 02

Context	SF No	Description lithology	Burnt	Interpretation	Comments	Record and Keep	Record and Discard	Discarded
1928		Sandstone	Yes	hearthstone ?	Unworked	No	Yes	No
1677		Sandstone	No	tile or whetstone		Yes	No	No
1089		Quartzite	No	hammerstone		Yes	No	No
748		Sandstone	No	floor tile ?	2 frags unworked	Yes	No	No
688		Red sandstone	Yes		unworked	No	No	Yes
1240		Sandstone	Yes		2 frags unworked	No	No	Yes
1926		Sandstone	Yes		2 frags unworked	No	No	Yes
1926		Sandstone	Yes	hearthstone ?	Unworked	No	Yes	No
453	156	Quartzite	No	hammerstone ?		Yes	No	No
576		Sandstone/ quartzite ?	No	hammerstone ?		Yes	No	No
650		Sandstone	No		Unworked	No	No	Yes
927		Quartzite	No	pebble ?	Unworked	No	Yes	No
927		Flint	No	pebble	Unworked	No	No	Yes
566		Schist (biotite)	No	curated stone ?	Unworked	No	Yes	No
2231		Sandstone	No		Unworked	No	No	Yes
2267		Limestone	No	rubbing stone	Polished on one side	No	Yes	No
2491		Quartzite	No	cobble	Unworked	No	No	Yes
2463		Conglomerate	No		Unworked	No	Yes	No
2556		Sandstone	Yes	cobble	Unworked	No	No	Yes
3063		Sandstone	Yes	Hearthstone ?	Unworked	No	Yes	No
3063		Sandstone	Yes		Unworked	No	No	Yes
3063		Quartzite	Yes		Unworked	No	No	Yes
3095		Quartzite	Yes	hammerstone ?		Yes	No	No

Table A4.1 Lithic objects from HIN GC 02

3.2 *ICK GC 02/03*

Context	Special Find No	Description lithology	Burnt	Interpretation	Comments	Record and Keep	Record and Discard	Discarded
32	0	Limestone	Yes		Unworked	No	No	Yes
66	0	Flint	Yes	pebble	Unworked	No	No	Yes
33	0	Flint	No	pebble	Unworked	No	No	Yes
77	0	Flint	No	pebble	Unworked	No	No	Yes
4013	4010	Sandstone	No	cobble	Unworked	No	Yes	No
4001	0	Red Sandstone	No	pebble	Unworked	No	No	Yes
4013	0	Vesicular Basalt	No	Quern fragments	2 small fragments, no clear refits	Yes	No	No

Table A4.2 Lithic objects from ICK GC 02/03

4 Interpretation

The majority of the raw materials collected during the course of the excavations, the flints, sandstones and limestone, would have been available in the local environmental and particularly along this river course. The exceptions to this are the biotite schist and the vesicular basalt that would have degraded quickly in an aggressive glacial or riverine environment. These pieces have undoubtedly been imported.

The vesicular basalt is commonly given a Rhineland provenance and was often used for quern stones although the small size of these fragments may suggest that at some stage they were used as smaller rubbing stones. The biotite schist has no appearance of working and is particularly fissile and fragile. There is no obvious traces of use and its function may be simply as a piece of adornment or curated pebble. The geologies of these items need to be clarified in order to understand their provenance and the potential areas the site held trade links with.

Other technological pieces include 4 hammerstones on quartzite or sandstone. Round and elongated forms were recovered and suggest different styles of knapping occurring on the eastern side of the River Cam. No hammerstones were recovered from the western side of the Cam. These hammerstones need to be recorded in greater detail to clarify their geology and the processes that they may have been used for.

A large fragment of limestone has a single flat surface. The surface clearly shows evidence of a fine polish. There is no clear evidence from the surface as to the material that has caused this polish. Although this item and particularly its polish could be studied in detail a long programme of replication would be required. Even if the stone could be securely dated, since only one such stone was recovered, this is not seen as a feasible piece of research that would add greatly to current understanding of economy of the site.

On the eastern side of the river two fragments of sandstone of small tablet shape. One of the surfaces is smooth and the pieces resemble small floor tiles. Further recording is required and the remains should be interpreted along with CBM brick and tile recovered from the site. Lithological detail could provide an indication of probable source for this material and therefore trade. The items are probably more important for their associations with CBM and remains from adjacent excavations in order to build up a portrait of building style and distribution along the Cam Valley.

The final feature of the lithological assemblage is the 3 large fragments of burnt sandstone. These are clearly fragments of one or more hearths. Further recording of the stones is required can be gained from detailed analysis other than a study of their placement. The large sandstone cobbles were probably sourced locally along the River Cam.

4 Conclusion

The lithological collection provides evidence for activities and curation and can help to create a picture of economy, trade, manufacture and building traditions.

Further analysis is suggested which requires further clarification on lithology and the sourcing of these materials. In addition the material needs to be seen as components of other assemblages and analysed appropriately i.e. floor tiles as building materials, hammerstones with the flint assemblage, and querns and rubbing stones with the macrobotanical remains.

Appendix 5: Pre-Saxon Pottery

by Paul R. Sealey

1 Summary and Conclusions

Excavations at Hinxton in south Cambridgeshire produced a large assemblage of freshly broken Late Iron Age pottery of Aylesford-Swarling 'Belgic' type, uncontaminated by earlier wares. Such pottery (for the most part) is grog-tempered and wheel-thrown, and marks a radical new departure in the prehistoric pottery sequence for the county, directly related to developments to the south. The Hinxton pottery has affinities with Hertfordshire, rather than with Essex. Imported Roman pottery is present in pre-conquest contexts at Hinxton. It includes amphoras from Spain and Gallo-Belgic table crockery from Gaul. Evidently this was a community of some status, wealth and pretensions.

At Hinxton it is possible to see Aylesford-Swarling pottery completely displacing Middle Iron Age ceramic traditions by the end of the 1st century BC. It shows that the traditional tripartite division of the Cambridgeshire Iron Age into an Early, Middle and Late Iron Age remains valid. Elsewhere in Cambridgeshire, settlements and cemeteries with 'Belgic' pottery are few and far between, and Middle Iron Age pottery remained in use until the Roman invasion and later.

With the possible exception of Castle Hill in Cambridge, no other Cambridgeshire site has produced so much 'Belgic' pottery from pre-conquest levels. The piecemeal adoption of Aylesford-Swarling pottery in Cambridgeshire and East Anglia is a major research topic in contemporary Iron Age studies. Hinxton raises important questions about processes of change in later prehistory and offers the data needed to help resolve them. It is an assemblage of regional importance, of direct relevance to the prehistory of the whole of eastern England between the lower Thames and the Wash.

2 Earlier Prehistoric Pottery at Hinxton

Very little pottery earlier than Middle Iron Age was present. Coarse flint-tempered sherds occasionally occurred in Middle or Late Iron Age contexts where they appeared to be residual from Late Bronze Age or initial (Early) Iron Age activity in the vicinity. A few friable and poorly-fired sherds are Middle Bronze Age or earlier. The dearth of earlier prehistoric pottery means that the Middle and Late Iron Age groups are not significantly contaminated by earlier pottery, and this enhances their research potential.

3 Middle Iron Age Pottery at Hinxton

The pottery of Middle Iron Age type at Hinxton is a handmade, plain ware tradition made in sand-tempered fabrics. Decoration is rare, and confined to finger-tip impressions on rims and occasional combing or scoring. Forms are dominated by round shouldered s-profiled jars and bowls. Similar pottery is found widely across East Anglia, Essex and Hertfordshire.

4 Late Iron Age Pottery at Hinxton

The Late Iron Age pottery at Hinxton did not develop organically from the Middle Iron Age pottery that preceded it, but represents a radical new departure introduced from elsewhere. The period is dominated by the Aylesford-Swarling or 'Belgic' pottery widely found in north Kent, Essex, south Suffolk, Hertfordshire and parts of neighbouring counties. The typology is distinctive: pedestal urns are present, along with massive storage jars with thickened rims, necked bowls and vessels decorated with cordons. The fabrics found amongst the Aylesford-Swarling pottery at Hinxton are varied. There is much grog-temper, perceptible as angular black, red or light brown inclusions from crushed pottery. This is the standard 'Belgic' fabric in south-eastern Britain (Thompson 1982,4,20). It has already been recognised that Cambridgeshire 'Belgic' pottery more often than not is sand-tempered instead (Thompson 1982,17), and some of the Hinxton material exemplifies this.

The 'Belgic' pottery at Hinxton often has decoration formed by wiping the exterior surface with a wide comb in overlapping, curved lines. This is a Hertfordshire, rather than an Essex feature of Aylesford-Swarling pottery and suggests the Hinxton pottery and potters were ultimately of Hertfordshire origin.

Numismatic evidence confirms the fact of links with the Hertfordshire Catuvellauni: five of the eight Iron Age coins from Castle Hill in Cambridge are Catuvellaunian (including three of Tasciovanus) (Sekulla et al. 1999,109). The only Iron Age coin from Hinxton is an unstratified issue of Cunobelinus, the son of Tasciovanus who united the Catuvellauni and Trinovantes in the first decade AD.

5 Roman Pottery Imports at Late Iron Age Hinxton

Before the Roman invasion, the Hinxton community was already consuming pottery and foodstuffs of Roman and Mediterranean origin. Sherds from the large two-handled pottery jars known as amphoras are present. Two body sherds are present, representing two different vessels from Roman Spain. A sherd of a Catalan wine amphora from the province of Tarraconensis was present in Phase 6 ditch fill 1753. It has the red fabric and large golden mica flakes diagnostic of the region. The thin wall shows it to be a Dressel 2-4 amphora.

Another Spanish amphora sherd was present in Phase 6 ditch fill 2556. It has the powdery light yellow fabric and thick wall typical of a salazon amphora, a vessel used for bottling fish-sauce or salted-fish (Sealey 1985,77). Such vessels came from the province of Baetica, in the south of Roman Spain. Neither type can be closely dated, but Spanish imports of amphora-borne commodities did not reach Britain until the very end of the 1st century BC (Sealey 1985,150).

The other Roman imports consist of the table crockery called Gallo-Belgic ware, made in north-east Gaul from c.15 BC. Two major components of Gallo-Belgic ware are present at Hinxton: terra rubra and terra nigra. The former is a red (oxidised) ware and the latter a jet black or grey (reduced) ware. Forms present include a terra nigra platter and terra rubra beaker from Phase 6 ditch fill 3068. In addition, butt beakers of form Cam.113 are present in Phase 6 ditch fill 3065. These imports inspired copies of butt beakers in local fabrics; examples are present in Phase 6 ditch fill 1538.

The presence of imported Roman amphoras and table crockery is of major importance at Iron Age Hinxton because:

- it allows pre-conquest contexts to be dated with a precision that is otherwise impossible;
- the consumption of Mediterranean foodstuffs and wine — as well as the use of imported table wares — shows that we are dealing with a society that was receptive to foreign influences; and
- Roman imports are indicative of wealth and elite status.

The topic of Roman pottery in Iron Age Britain has usefully been reviewed by Fitzpatrick and Timby (2002).

6 The Chronology of Middle Iron Age Pottery at Hinxton

The sand-tempered plain ware Middle Iron Age pottery present at Hinxton exemplifies a style of pottery current in Essex, Hertfordshire and East Anglia from the end of the 4th century BC (Sealey 1996,46,50). It lasted until it was displaced in the Late Iron Age by Aylesford-Swarling 'Belgic' pottery, but this transition took place at different times in different places.

In East Anglia and north-east Essex, pottery of Middle Iron Age type remained in use on some settlements until the Roman invasion and beyond. This was the case at Wardy Hill (Cambridgeshire) (Hill and Horne 2003,166), Wendens Ambo (Essex) (Hodder 1982,25), West Stow (Suffolk) (West 1990,63,68) and Snettisham (Norfolk) (Flitcroft 2001,66).

Pottery of Middle Iron Age type is present in some Late Iron Age groups at Hinxton, usually only as a minor component. Some might be residual but the impression given is that most is contemporary with the Late Iron Age material because:

- some of the sherds of Middle Iron Age type in Late Iron Age contexts are large, with fresh breaks;
- nearly all of it is sand-tempered, suggesting a date towards the end of the Middle Iron Age - bearing in mind the progression from flint to sand (and other tempers like shell) from the late Bronze Age through the Iron Age (Rigby 1988,103).

Although there are contexts that consist exclusively of pottery of Middle Iron Age type, some of those groups will be contemporary with Late Iron Age pottery of Aylesford-Swarling 'Belgic' type. It is anticipated that further post-excavation analysis will lead to the conclusion that the Middle Iron Age pottery present at Hinxton does not pre-date the appearance of the first 'Belgic' pottery on the site by a significant margin. If so, the Middle Iron Age pottery at Hinxton will give an invaluable snapshot of this pottery at the end of its life.

7 The Chronology of Late Iron Age Pottery at Hinxton

The Aylesford-Swarling pottery at Hinxton can be securely assigned to the pre-conquest period because most of it comes from contexts where sandy kiln-fired Roman period grey ware is absent. In north Kent, Essex and Hertfordshire 'Belgic' pottery does not become significant until *c.*75 BC. Even then it is largely confined to grave goods. With a few rare exceptions, it does not become common on settlement sites until *c.*50–25 BC.

It is known that the adoption of Aylesford-Swarling pottery in south Cambridgeshire was sporadic and late. At Hinxton there are large assemblages of 'Belgic' pottery with imported Gallo-Belgic ware and local copies showing that such contexts formed after *c.*15 BC (when Gallo-Belgic pottery makes its first appearance anywhere). The question of whether or not 'Belgic' pottery was present on the site before the arrival of Gallo-Belgic pottery will have to await an analysis of site stratigraphy.

8 The Adoption of 'Belgic' Pottery in Cambridgeshire

A small cremation cemetery with 'Belgic' pottery was excavated at the far north of Hinxton parish itself (Hill et al. 1999). At Castle Hill in Cambridge, the pottery from a Late Iron Age settlement founded after *c.*15 BC has no sign of Middle Iron Age material and is thoroughly Aylesford-Swarling in its typology, with imported Gallo-Belgic wares (Farrar et al. 1999).

There are striking similarities between the Late Iron Age pottery from Hinxton and the Aylesford-Swarling material from Castle Hill in

Cambridge (Farrar et al. 1999). At both sites 'Belgic' pottery had effectively displaced existing Middle Iron Age ceramic traditions long before the Roman invasion. Otherwise there was a pronounced reluctance in Cambridgeshire to adopt 'Belgic' pottery in the Late Iron Age.

Indeed on some sites in East Anglia wheel-thrown and grog-tempered pottery of Aylesford-Swarling type does not make its appearance until after the Roman invasion (Gregory 1995,93–4; Lyons and Percival 2000,222). Approached from this perspective, the Late Iron Age assemblages from Hinxton are exceptional and of regional importance.

9 Roman Period Pottery at Hinxton

The quantities of Roman period recovered were modest. None of the groups is large, and many consist of less than five sherds. There are many contexts dated Late Iron Age or Early Roman that further post-excavation evaluation may well show to be conquest period.

Few fine wares or imports are present in the Roman material as a whole. There are some samian sherds and a (very) few Nene valley colour-coated scraps. Imported amphorae are represented by one or two body sherds from Dressel 20, the ubiquitous olive oil amphora from Baetica in Spain.

There is no indication in the Roman period pottery that the community using it was of significant or exceptional status.

It is difficult to date the material with any precision because contexts are small and many of the sherds consist of anonymous sandy grey ware, with a real possibility of confusion with medieval sandy wares.

Only one Late Roman group could be identified: a small assemblage of less than five sherds from Phase 8 ditch fill 2262 with a mortarium and a flanged bowl dated *c*.AD 250–410 +.

10 Hinxton and Current Research Agendas

The adoption of Aylesford-Swarling pottery on the margins of its core distribution is one of the major topics of current research, particularly with reference to Cambridgeshire and other parts of East Anglia (Bryant 2000, 16; Haselgrove et al. 2001, 3; Hill 2002).

Mindful of the late adoption of Aylesford-Swarling in East Anglia, it is understandable that Hill (1999, 202) has suggested replacing the tripartite division of the East Anglian Iron Age with an 'earlier' and a 'later' Iron Age. The incontrovertible presence of 'Belgic' pottery in substantial quantities from pre-conquest horizons at Hinxton suggests it would be premature to abandon the tripartite division of the Iron Age.

As has been demonstrated, Castle Hill in Cambridge is the only other Cambridgeshire site to have produced 'Belgic' pottery in comparable quantities to Hinxton. Although the Castle Hill report was published in 1999, it was written many years ago and its methodology does not stand comparison with the best contemporary work on prehistoric pottery. It is a matter for regret that data on sherd counts and weights is not available in the report.

This makes the research potential of the Hinxton pottery all the more important because it provides an opportunity to quantify the incidence of Aylesford-Swarling on a Late Iron Age in East Anglia where it was present in significant quantities.

Nor should the imperative to publish more Iron Age pottery from Hertfordshire, Essex, Cambridgeshire and East Anglia be overlooked (Bryant 2000, 16). Cambridgeshire has fared badly in recent years, with little Iron Age pottery from the county appearing in print. The excellent report on the Middle Iron Age pottery from Wardy Hill (Hill and Horne 2003) is a milestone in the right direction.

Addendum: The Results of Spot Dating

Phase	Number of contexts	Percentage
Prehistoric, before the Middle Iron Age	21	5.9
Middle Iron Age	28	7.8
Middle or Late Iron Age	28	7.8
Late Iron Age	110	30.7
Late Iron Age or Early Roman	18	5.0
Early Roman	17	4.7
Roman	45	12.6
Post-Roman	35	9.8
Undateable	56	15.6
Total number of contexts	358	

Table A5.1. The chronological distribution of contexts by spot-dating

Table A5.1 gives the distribution by period of the 358 contexts at Hinxton after a spot-dating exercise. The Iron Age accounts for nearly half at 46.4 %. This gives a misleading picture of the incidence of pottery because it overlooks the quantities from individual contexts. Some of the Late Iron Age contexts are very large indeed with assemblages ranging up to 7.5 kg and it is estimated that at least 75 % of the pottery by weight is Late Iron Age.

Bibliography

Bryant, S. R. 2000 'The Iron Age'. In N. R. Brown and J. Glazebrook (eds) *Research and Archaeology: a Framework for the Eastern Counties, 2. Research Agenda and Strategy* (East Anglian Archaeology Occasional Paper No.8), 14–18. Norwich

Farrar, R. A. H., Hull, M. R. and Pullinger, J. 1999 'The Iron Age pottery'. In J. A. Alexander and J. Pullinger *Roman Cambridge: Excavations on Castle Hill 1956–1988* (Proc. Cambridge Antiq. Soc. Vol.88), 117–30. Cambridge

Fitzpatrick, A. P. and Timby, J. R. 2002 'Roman pottery in Iron Age Britain'. In A. B. Woodward and J. D. Hill (eds) *Prehistoric Britain: the Ceramic Basis* (Prehistoric Ceramics Research Group Occasional Publication No.3), 161–72. Oxford

Flitcroft, M. 2001 *Excavation of a Romano-British Settlement on the A149 Snettisham Bypass, 1989* (East Anglian Archaeology Report No.93) Gressenhall

Fox, C. F. 1924 'A settlement of the early Iron Age at Abington Pigotts, Cambs., and its subsequent history; as evidenced by objects preserved in the Pigott Collection' *Proc. Prehist. Soc. East Anglia*, 4 (2) for 1923–24, 211–33

Gregory, A. K. 1995 'The Iron Age pottery'. In R. Rickett *The Anglo-Saxon Cemetery at Spong Hill, North Elmham, Part VII: the Iron Age, Roman and Early Saxon Settlement* (East Anglian Archaeology Report No.73), 90–4. Gressenhall

Haselgrove, C. C., Armit, I., Champion, T. C., Creighton, J. D., Gwilt, A., Hill, J. D., Hunter, F. and Woodward, A. B. 2001 *Understanding the British Iron Age: an Agenda for Action* Salisbury

Hill, J. D. 2002 'Just about the potter's wheel ? Using, making and depositing middle and later Iron Age pots in East Anglia'. In A. B. Woodward and J. D. Hill (eds) *Prehistoric Britain: the Ceramic Basis* (Prehistoric Ceramics Research Group Occasional Publication No.3), 143–60. Oxford

Hill, J. D., Evans, C. and Alexander, M. 1999 'The Hinxton rings - a Late Iron Age cemetery at Hinxton, Cambridgeshire, with a reconsideration of northern Aylesford-Swarling distributions' *Proc. Prehist. Soc.*, 65, 243–73

Hill, J. D. and Horne, L. 2003 'Iron Age and early Roman pottery'. In C. Evans *Power and Island Communities: Excavations at the Wardy Hill Ringwork, Coveney, Ely* (East Anglian Archaeology Report No.103), 145–84. Cambridge

Hodder, I. A. 1982 *Wendens Ambo. The Excavations of an Iron Age and Romano-British Settlement* (The Archaeology of the M11. Vol.2) London

Lyons, A. and Percival, S. 2000 'Pottery'. In S. Bates 'Excavations at Quidney Farm, Saham Toney, Norfolk 1995' *Britannia*, 31, 211–22

Rigby, V. A. 1988 'The late prehistoric, Roman and later wares'. In I. H. Longworth, A. B. Ellison and V. A. Rigby *Excavations at Grimes Graves, Norfolk, 1972–1976. Fascicule 2. The Neolithic, Bronze Age and Later Pottery*, 100–10. London

Sealey, P. R. 1985 *Amphoras from the 1970 Excavations at Colchester Sheepen* (British Archaeological Reports, British Series No.142) Oxford

Sealey, P. R. 1996 'The Iron Age of Essex'. In O. R. Bedwin (ed.) *The Archaeology of Essex: Proceedings of the Writtle Conference*, 46–68. Chelmsford

Sekulla, M. F., Thoday, G. R. and de Jersey, P. 1999 'The coins'. In J. A. Alexander and J. Pullinger *Roman Cambridge: Excavations on Castle Hill 1956–1988* (Proc. Cambridge Antiq. Soc. Vol.88), 109–11. Cambridge

Thompson, I. M. 1982 *Grog-tempered 'Belgic' Pottery of South-eastern England* (British Archaeological Reports, British Series No.108) Oxford

West, S. E. 1990 *West Stow, Suffolk: the Prehistoric and Romano-British Occupations* (East Anglian Archaeology Report No.48) Bury St Edmunds

Appendix 6: Post-Roman Pottery

by Carole Fletcher

1 Introduction

This report considers pottery from the archaeological evaluation and excavation at Welcome Trust, Genome Campus Site at Hinxton and Ickleton in 2002 and 2003.

2 Methodology

The basic guidance in the Management of Archaeological Projects (MAP2) has been adhered to (English Heritage 1991). In addition the Medieval Pottery Research Group (MPRG) documents *Guidance for the processing and publication of medieval pottery from excavations* (Blake and Davey, 1983), *A guide to the classification of medieval ceramic forms* (MPRG, 1998) and *Minimum Standards for the Processing, Recording, Analysis and Publication of Post-Roman Ceramics* (MPRG, 2001) act as a standard.

Spot dating was carried out using CAM ARC's in-house system based on that used at the Museum of London. Fabric classification has been carried out for all previously described types. All sherds have been counted classified, and weighed. Sherds warranting possible illustration have been flagged, as have possible cross-fits.

All the pottery has been spot dated on a context-by-context basis. This information was entered directly onto a database (Access 2000).

3 Quantity and date range of material

The fieldwork generated a small assemblage of 275 sherds of post-Roman pottery, weighing in total 4.172 kg, including unstratified material a further 23 sherds of Roman material weighing 0.152 kg were also identified by Stephen Macaulay. The pottery was recovered from thirty-four contexts from the Hinxton evaluation and excavation and six contexts from the area of excavation across the River Cam in Ickleton.

The main period represented in the assemblage is Late Saxon to early medieval. The date of most material falls within the 1025 to 1225 bracket, this can subsequently be subdivided into two groups, the first dating AD 1025 to 1150 and the second AD 1100 to 1225. In both groups the predominant fabric was identified as Early Medieval Essex Micaceous Sandy ware (EMEMS), often in the form of EMEMS shell dusted ware in the earlier group.

Thirty medieval sherds weighing 0.376 kg were also identified in the assemblage. Among these were fourteen sherds from several Sibble

Hedingham (HEDI) vessels including sherds from rounded stamped striped jugs c.1200 to 1350 (Cotter 2000 85 fig 52). Four sherds of Colchester ware were also recovered, along with a single sherd from a Medieval Ely ware jug.

Further to this material there are nineteen sherds of St Neots type ware, seven sherds of Thetford type ware and six sherds of Saxon pottery including four sherds from a decorated urn, which provide an almost complete profile of the vessel. Five sherds of post–medieval pottery were also recovered.

4 Provenance and contamination

Basic statistics relating to source area for the assemblage are given in Table A6.1. This indicates Essex as the source for the bulk of the assemblage.

General provenance	% of assemblage by count	% of assemblage by weight
Cambridgeshire	0.67	0.72
Cambridgeshire/Bedfordshire/Huntingdonshire	6.38	5.29
Essex	78.52	78.22
Norfolk	2.69	4.51
Roman	7.39	3.22
Saxon	2.01	6.89
Staffordshire	0.67	0.74
Unknown	1.67	0.41

Table A6.1 General provenance areas for assemblage by weight (kg) and count.

The dominance of fabrics from Essex is very obvious and is mirrored in all vessel types. Jars and bowls are produced in coarse ware fabric EMEMS and later in Medieval Essex Micaceous Sandy (MEMS), alongside jugs in finer fabrics such as HEDI.

Residuality is light, although there is some evidence of intrusive pottery (in small quantities; see spot-dating table below). No Saxo–Norman glazed pottery is present in this assemblage, though it was recovered from the main Hinxton Hall excavations (Spoerry pers. comm.)

The identification of Essex as the main supplier of post-Roman pottery to the site at Hinxton reflects patterns found on nearby sites such as Hinxton Road, Duxford (author's own observations). The southern Cambridgeshire sites main pottery needs appear to being supplied by Essex producers from early in the 11th century, supplying the day-to-day requirements of the site.

5 Sampling bias

The initial trenches during evaluation and the open areas of the excavation were excavated by machine and further excavation was carried out by hand and selection made through standard sampling procedures on a feature-by-feature basis. There are not expected to

be any inherent biases. Where bulk samples have been processed for environmental remains, there has also been some recovery of pottery. These are only small amounts, however, and serious bias is not expected to result.

6 Condition

The assemblage is small with an average sherd weight of approximately 14.51g. Statistical analysis is likely to be limited on a dataset of this size. The assemblage is significantly fragmented and in a well-understood and published region would be deemed of limited value beyond the basic requirements of the stratigraphic sequence and the need to provide comparative period statistics. However this material forms part of a much larger Iron Age and Roman assemblage. The assemblage should also be considered alongside the post-Roman pottery recovered from the Hinxton Hall excavations (1993–4). The excavation lies on the periphery of the Hinxton Hall excavation site, the edge of which is located less than 100m to the north of the current Genome Campus site.

This assemblage has no complete vessels; it does however have several examples of large sherds, which provide a full vessel profile, and further sherds worthy of illustration. Almost all of the material is moderately abraded, suggesting some reworking of the material after initial deposition. No preservation bias has been recognised and no long-term storage problems are likely.

7 Provenance

The assemblage is small and it appears that the early medieval and medieval fabric types are mainly Essex products. It is possible that some of the coarse fabrics are manufactured more locally than has previously been thought, on the edge of Essex or perhaps in southern Cambridgeshire itself, although as yet no kiln material has been identified to support this theory. The presence of sherds of Colchester ware and HEDI indicate that vessels are being transported from Essex into Cambridgeshire in the medieval period.

The other sources of pottery to the site are St Neots ware from the Cambridgeshire, Bedfordshire, Huntingdon area, and Thetford type ware from Norfolk. Both provide only a small amount of pottery to the site. There are two sherds from the kilns at Ely, a single sherd from a medieval Ely ware jug and a sherd from a post-medieval Babylon ware drinking vessel. Further to this there are two sherds from a Bone China plate and the remainder of the small amount of post–medieval material comes from Essex. The Saxon sherds are likely to be of local origin with the exception of what may be a granodioritic sherd from Mountsorrel in Leicestershire.

8 Main Vessel types

The vessel types represented in the assemblage are mainly EMEMS coarse ware jars and some bowls. A single sherd from a spouted pitcher was identified in an EMEMS fabric, and there are jug sherds in the medieval Essex fabrics and a single sherd from a drinking vessel in a post-medieval Ely fabric. There are also four rim sherds from various St Neots ware bowls including a complete profile, and various sooted body sherds in the same fabric. The assemblage appears to be one of domestic vessels.

9 Conclusion

The small size of the assemblage makes it difficult to generalise about activity on the site. However it would appear that the assemblage is early medieval and domestic in nature, with the majority of the vessels represented possibly used in the storage and cooking of food. There are very few table vessels as demonstrated and these are only present in medieval fabrics.

10 Proposals for Further Recording and Analysis (method statement)

Stratified pottery from the evaluation and excavation described has been quantified to at least a basic level. The proposal should be to identify and fully quantify stratified pottery from excavation areas, recording all fields associated with fabric, form, decoration and technology.

i) Analysis of this assemblage on various field criteria, based on major stratigraphic units. The assemblage should be fully quantified to aid understanding of trade and site function.
(Time required 1-½ days)

ii) A textual report on the results of the above.
(Time required 1 day)

iii) Macroscopic inspection (based on x20 magnification) of all major fabric types.
(Time required 1 day)

iv) Tabular statistics of fabric and form data.
(Time required ½ day)

v) Illustrations of new forms and traits, especially relating to local fabric types which are otherwise unpublished to date.
The Saxon urn should be drawn alongside the EMEMS shell dusted and EMEMS jar sherds, which includes a complete vessel profile
(Time required 1 day)

vi) Recommendation of those fabric types warranting scientific analysis as part of a regional study if any (not proposed as part of this report).

11 Publication

The above report will be included in the final report on the Hinxton Genome Campus site, where the post–Roman pottery will also be considered as an additional part of the Hinxton Hall (1993–4) excavation assemblage to create a fuller picture site and its hinterland.

Bibliography

Blake, H and Davey, P. 1983: Guidelines for the Processing and Publications of Medieval Pottery from Excavations. Directorate of Ancient Monuments and Historic Buildings Occasional Paper 5

Cotter, J. 2000 Post–Roman Pottery from Excavations in Colchester, 1971–85. Colchester Archaeological Report 7

Management of Archaeological Projects: English Heritage 1991

Medieval Pottery Research Group 1998: A Guide to the Classification of Medieval Ceramic Forms. Medieval Pottery Research Group Occasional Paper 1

Medieval Pottery Research Group 2001: Minimum Standards for the Processing, Recording, Analysis and Publication of Post-Roman Ceramics. Medieval Pottery Research Group Occasional Paper 2

Addendum: Post-Roman Spotdating results

Period	Phase	Site Code	Context	Spot date range	Comments
1	5 (MIA)	HIN RIV 02	77	1100 to 1150	Intrusive
1	6 (LIA)	HIN GC 02	857	1050 to 1225	Intrusive
1	6 (LIA)	HIN GC 02	2765	1250 to 1350	Intrusive
2	7 (RB)	HIN RIV 02	76	1100 to 1200	Intrusive
2	8 (RB)	HIN RIV 02	32	1100 to 1200	Intrusive
2	8 (RB)	HIN GC 02	1173	1100 to 1200	Intrusive
2	8 (RB)	HIN GC 02	1025	1100 to 1250	Intrusive
2	8 (RB)	HIN GC 02	2761	1250 to 1400	Intrusive
2	8 (RB)	HIN GC 02	325	1780 to 1900	Intrusive
3	10 (ES)	HIN GC 02	340	500 to 600	
3	10 (ES)	HIN GC 02	525	1075 to 1150	Intrusive
3	12 (LS)	ICK GC 03	4025	900 to 1150	
3	12 (LS)	ICK GC 03	4066	900 to 1150	
3	12 (LS)	ICK GC 03	4074	900 to 1150	
3	12 (LS)	ICK GC 03	4010	900 to 1200	
3	12 (LS)	ICK GC 03	4168	900 to 1200	
3	12 (LS)	HIN GC 02	388	1100 to 1200	Intrusive
3	12 (LS)	HIN GC 02	383	1100 to 1225	Intrusive
4	13 (EM)	HIN GC 02	2583	1025 to 1150	
4	13 (EM)	HIN GC 02	936	1050 to 1125	
4	13 (EM)	HIN GC 02	487	1050 to 1200	
4	13 (EM)	HIN GC 02	642	1100 to 1150	
4	13 (EM)	HIN GC 02	895	1100 to 1150	
4	13 (EM)	HIN GC 02	1066	1100 to 1150	
4	13 (EM)	HIN GC 02	453	1100 to 1175	
4	13 (EM)	HIN GC 02	449	1100 to 1225	
4	13 (EM)	HIN GC 02	451	1100 to 1225	
4	13 (EM)	HIN GC 02	976	1100 to 1275	
4	13 (EM)	HIN GC 02	195	1200 to 1350	Intrusive
4	13 (EM)	HIN GC 02	216	1200 to 1350	Intrusive
4	13 (EM)	HIN GC 02	644	1200 to 1350	Intrusive
4	13 (EM)	HIN GC 02	233	1500 to 1600	Intrusive
4	13 (EM)	HIN GC 02	232	1500 to 1700	Intrusive
4	14 (M)	HIN GC 02	1436	1200 to 1350	
4	14 (M)	HIN GC 02	917	1250 to 1375	
4	14 (M)	HIN GC 02	901	900 to 1200	Residual
5	16 (Mod)	ICK GC 03	4001	1500 to 1700	Residual

Key:

MIA = Middle Iron Age
LIA = Late Iron Age
RB = Romano-British
ES = Early Saxon
LS = Late Saxon
EM = Early medieval
M = Medieval
Mod = Modern

Appendix 7: Ceramic Building Material

by Carole Fletcher

1 Introduction

The fieldwork (evaluation and excavation) generated a small assemblage of 154 fragments, of ceramic building material (CBM) weighing 14.944 kg, including unstratified material, from 57 contexts out of a total of more than 3300. The main period represented by the CBM is Roman with 59 fragments weighing 10.772 kg. The second largest group of CBM was undatable, with the remainder of the material being post–Roman, including post–medieval roof tile. Two fragments of a Roman brick showed evidence of reuse with traces of mortar across the breaks. Two large pieces of tile in a shelly fabric that may be Saxon (Spoerry pers. comm.) were also recovered from ditch fill 656 (Period 2, Phase 7) and pit fill 1742 (Period 2, Phase 8).

2 Methodology

The basic guidance in MAP2 has been adhered to (English Heritage 1991). In addition the Archaeological Ceramic Building Materials Group (ACBMG) *Draft: Minimum Standards for the Recovery, Analysis and Publication of Ceramic Building Material* act as a standard.

The assessment was carried out using CAM ARC's in-house system. All fragments have been counted classified, and weighed. Fragments warranting possible illustration have been flagged, as have possible cross-fits.

All the CBM has been recorded on a context by context basis; this information was entered directly onto a full quantification database (Access 2000) which allows for the appending of further quantification data.

3 Contamination bias and condition

The assemblage is small and statistical analysis is not viable. The presence of mica in some of the Roman CBM suggests that at least part of the assemblage was produced in Essex. Forty-nine fragments of post–medieval roof tile including peg tile were identified in the assemblage.

On average the fragment size is small (0.097 kg). No preservation bias has been recognised and no long-term storage problems are likely. This assemblage has no near complete tiles.

4 Sampling bias

The evaluation trenches were excavated by machine and the main excavation was open area. Excavation was carried out by hand and selection made through standard sampling procedures on a feature by feature basis. There are not expected to be any inherent biases. Where bulk samples have been processed for environmental remains, there has also been some recovery of CBM. These are only small amounts, however, and serious bias is not expected to result.

5 Main form types

The form types represented in the assemblage are summarised in table A7.1.

Form	Brick / Tile	Tile	Brick	Roof Tile	Peg Tile	Tegula	Unclassified
Weight in kg	4.362	2.088	5.984	0.804	0.554	0.71	0.442
Count	49	36	11	32	8	4	14

Table A7.1 Summary of form types

The form descriptors used are in some cases self-evident i.e. tegula - others less so. Where a single surface survives, either upper or lower, the material has been classified as brick/tile, with the exception of post-Roman material which has been described as tile/roof tile. Where both surfaces survive the material is classified as brick or tile. Those fragments with no surviving surface features have been recorded as unclassified. No effort has been made to identify specific types of tile other than the obvious forms at this stage, as further measurements would be required.

6 Provenance

The assemblage is very small and it appears that the fabric types are from the Essex or with some more local products.

7 Statement of Research Potential

The CBM assemblage though small can provide information pertaining to local and regional trade, also evidence for settlement function. The Roman material may have originated from the Roman Town of Great Chesterford which lies less than 1 km to the south-east of the Welcome Trust Genome Campus site.

8 Proposals for Further Recording and Analysis (method statement)

Stratified CBM from the evaluation and excavation described has been quantification to at least a basic level. The proposal should be to identify and fully quantify stratified CBM from excavation areas, recording all fields associated with fabric, form, decoration and technology.

i) Analysis of this assemblage on various field criteria, based on major stratigraphic units. The assemblage should be fully quantified to aid understanding of trade and site function.
(Time required 1 day)

ii) A textual report on the results of the above.
(Time required 3/4 day)

iii) Macroscopic inspection (based on x20 magnification) of all major fabric types.
(Time required 1 day)

iv) Tabular statistics of fabric and form data.
(Time required ½ day)

v) Illustrations of new forms and traits, especially relating to local fabric types which are otherwise unpublished to date.
(not proposed as part of this report).

vi) Recommendation of those fabric types warranting scientific analysis as part of a regional study if any (not proposed as part of this report).

9 Publication

The above report will be included as an appendix to the final report.

Bibliography

Archaeological Ceramic Building Materials Group, 2001, *Draft Minimum Standards for the Recovery, Analysis and Publication of Ceramic Building Material (3rd Draft)*

English Heritage, 1991, *Management of Archaeological Projects* (MAP2)

Appendix 8: Worked Bone

by Scott Kenney

1 Introduction

The fieldwork generated a small assemblage of five worked bone artefacts, of which four were recovered from HIN GC 02 and the fifth from ICK GC 03. All five were recovered from different contexts, with the Ickleton example being unstratified.

2 Typology and Function

Only one of the objects (SF115) is definitely an awl, with no hole being present in the distal end. Both SF200 and SF216 were pierced at the distal end and were probably needles, although the latter would have been a heavy example, perhaps only good for netmaking. The double-pointed pin-beater (SF111) is a relatively small example of the type and was extensively polished and scratched. The spindle whorl from Ickleton is made from a femoral ball joint.

It is likely that the pin-beater and spindle whorl were both used in weaving while the other artefacts were for leather-working.

SF No	Context	Type	Dimensions	Comments
111	340	Pin-beater	82 x 8.5 x 6.5	Pointed at both ends
115	346	Awl	119 x 12 x 8	
200	2463	Needle	111.5 x 6 x 4	
216	3069	Needle?	82 x 11 x 9	Point missing. Net-making needle?
4072	99999	Spindle whorl	44 x 40 x 22	9mm diameter hole. Similar to lithic examples

Table A8.1 Worked bone artefact data

3 Dating

All of the artefacts belong to forms that are long-lived, with prehistoric examples being similar to those of the Saxon and medieval periods. Three of the objects (SF111, 115 and 200) were recovered from the fills of SFBs and are unlikely to be either residual or intrusive, meaning that they are Early Saxon. The spindle whorl was unstratified and could be Roman, Saxon or medieval. The broken needle (SF216) was found in an Iron Age ditch fill and is of that date.

3 Further work

The entire worked bone assemblage from both Hinxton Hall and the Genome Campus will be examined by Ian Riddler as part of the post-excavation programme and his report integrated into the final publication.

Appendix 9: Worked Wood

by Maisie Taylor

1 Quantification and condition

The material from 20 contexts was received for analysis. All the material came from Late Saxon (Period 3, Phase 12) fills within the large hollow or working area in the Ickleton/Hinxton Riverside part of the site. The material is mostly debris from wood working (woodchips), with smaller quantities of roundwood and timber debris. There are also a few artefacts and pieces of timber, along with a piece of root. Most of the material is preserved in reasonable condition. Using the table developed by the Humber Wetlands Project (Van de Noort, Ellis, Taylor and Weir 1995 Table 15.1) the wood from Ickleton and Hinxton scores 4 or 5.

	Museum Conservation	Tech-nology Analysis	Woodland Management	Dendro-chronology	Species Identification
5	+	+	+	+	+
4	-	+	+	+	+
3	-	+/-	+	+	+
2	-	+/-	+/-	+/-	+
1	-	-	-	-	+/-
0	-	-	-	-	-

Table A3.1 Worked wood condition

2 The Assemblage

There are 6 artefacts, or parts of artefacts. Several of these are pieces with holes, which are obviously related to the wattle in some way. They may, for example, represent hurdle makers accessories. There are nearly 40 pieces of roundwood, mostly samples from wattle. The samples will produce data on woodland management and species. There are 75 woodchips. These will be derived from woodworking in the immediate area. They are not, on first examination, derived from the working of the roundwood of the wattle structure. This is a large enough assemblage to make a statistical analysis valuable. There are only 4 small timbers from the site, and 20 pieces of timber debris. When examined in more detail, it may well be that some of this material is, like some of the artefacts, derived from wooden formers and other equipment connected with hurdle making.

3 New research questions and potential of data

Artefacts: Wooden artefacts are rare on archaeological excavations and these finds will swell the small number of objects of this date. Because of their rarity, and the fact that they are mostly associated

with a structure, these artefacts are of particular value. If some of the artefacts are part of the toolkit of the hurdle maker who worked on the wattle structure, they may well be unique as an assemblage.

Roundwood: There should be enough data from the roundwood, combined with the artefacts to learn, even down to quite small details, about the choice of wood and construction of a wattle structure.

Woodchips: Recent work on woodworking debris has been very productive, but very little has been done on material from this period. Statistical analysis should reveal whether these woodchips derive from the timber working or from some other activity in the area. Woodchips are often all that remains of some woodworking activities where the finished objects have been removed.

Timber and timber debris: The timber and timber debris needs detailed analysis to determine whether it too is part of the hurdle makers toolkit, part of the wattle structure or derived from some other structure or activity.

The total assemblage of material is particularly important and must all be considered together. Material of this period is rare, but a coherent assemblage from a rural context is almost unknown. Having the range of material, including the debris and detritus, should advance our understanding of the craft of hurdle making. The artefacts may help to explain the use and particular purpose behind the building of this structure.

4 Recommendations

A full catalogue of the wood needs to be compiled before there is any more deterioration in the stored material. This is largely completed (appended below).

The artefacts need to be studied in detail and a record made, accompanied by drawings and photographs.

Species identification and ring counts on the roundwood will be productive for woodland management.

Simple statistical analysis of the wood chips, linked with a timber and timber debris should provide a detailed picture of the wood working activity in the area.

With these more detailed studies of the individual categories, the final report should be able to draw together enough data to clarify the building, purpose and use of the wattle structure.

Bibliography

Van de Noort, R., Ellis, S., Taylor, M. and Weir,D. Preservation of archaeological sites. In Van de Noort, R. and Ellis, S. 1995 *Wetland Heritage of Holderness – an archaeological survey* Humber Wetlands Project

Catalogue

Wood number	Same as	Context	Length	Max breadth	Min breadth	Max thickness	Min thickness	Dia distorted y/n?	Long axis	Short axis	Dia (not distorted)	Orig dia	Dimension notes	Type (tim rw root wc rwdeb timdeb bark)	Bark, sapwd, heartwd (b/s/h)	SP TR HEW TORN OTHER	Woodworking notes
1	SF4024	4066	328	61	25	21	20							artefact	h	sp,tr,	Radial split, trimmed square and paddle shaped, 3 holes
2	SF4031	4066	115	64	28	7	3							wc	h		cross-grained
3	SF4031	4066											To damaged to measure	wc	s/h		tangential
4	SF4031	4066	167					y	20	16				rw	s/h	tr	1 end/1 dir
5	SF4031	4066						y	22	19				rw	s/h	tr	1 end/1 dir
6	SF4031	4066	89+	41	23	32	30							artefact	h	sp,tr,	prob. 1/4 sp, trimmed to dowel
7	SF4031	4066	75	38	21	18	9							wc	s/h		tangential
8	SF4026	4066	170+					y	30	28			1 end missing	rw	b/s/h	tr	1 end/1 dir
9	SF4026	4066	78	33	20	27	15							timdeb	h	sp,tr,	1/4 split, trimmed square
10	SF4026	4066	109	77	60	38	12							timdeb	h	sp,tr,	Radial split, trimmed square and 1 end/1 dir(flat)
11	SF4037	4066	72	41	25	5								wc	h		radial
12	SF4037	4066	50	34		8	5							wc	h		radial
13	SF4037	4066	66	32	21	10	4							wc	h		cross-grained
14	SF4037	4066	50	28	16	3								wc	h		radial
15	SF4037	4066	31	29	22	10	3							wc	h		radial
16	SF4037	4066	72+	35	16	11	4							wc	h		radial
17	SF4013	4015	95+	44	40	22	17							timdeb	s/h	sp,tr,	1/4 split, trimmed square
18	SF4013	4015	79+	22	15	15	12							wc	h		radial, trimmed square
19	SF4013	4015	80+	45	30	25	10							wc	h		radial
20	SF4013	4015	80+	25	19	12	10							wc	h		tangential
21	SF4013	4015	45+								14			rw	s/h	tr	1 end/1 dir
22	SF4013	4015	56+	32	20	17		n						wc	h		radial
23		4037	105	20	15	13	12							wc	s/h		cross-grained
24		4037	52+					y	13	8				rw	b/s/h		
25		4037	80+	79	45	9	7						ends missing	timdeb	h	sp	radial
26		4006															

Wood number	Same as	Context	Length	Max breadth	Min breadth	Max thickness	Min thickness	Dia distorted y/n?	Long axis	Short axis	Dia (not distorted)	Orig dia	Dimension notes	Type (tim rw root wc rwdeb timdeb bark)	Bark, sapwd, heartwd (b/s/h)	SP TR HEW TORN OTHER	Woodworking notes
27	SF4011	4013	269+	52	40	25	14							timdeb	s/h	sp	tangential through pith
28	SF4011	4013	179+	45	15	30	19							timdeb	s/h	sp, tr	1/2 split, 1 end/1 dir
29	SF4011	4013	80+	40	10	15	5							wc	h		radial
30	SF4011	4013	65+	32	21	10								wc	h		radial
31	SF4011	4013	85+					y	17	15			ends missing	rw	s/h		
32	SF4011	4013	65+					y	16	15			ends missing	rw	s/h		
33	SF4011	4013	85+					y	19	17			ends missing	rw	b/s/h		
34	SF4011	4013	68+					y	20	14			ends missing	rw	s/h		
35	SF4011	4013	68+					n			17		ends missing	rw	b/s/h		
36	SF4011	4013	88+	24	15	17	12						1 end missing	wc	h		cross-grained
37	SF3	351	110	80		52	40						ends missing	artefact		sp,tr	1/4 split, squared with hole
38	SF4	351	225	90		40							1 end missing	artefact	h	sp,tr	1/4 split, squared with hole
39	SF4026	4066	84+	19	11	15	6						1 end missing	timdeb	h	tr	trimmed to point, all directions
40	SF4026	4066	70	35	20	25	10							wc	h		radial
41	SF4026	4066	115	20	4	13	3							wc	h		tangential
42	SF4026	4066	25	24		16								timdeb	h	hew	boxed heart
43	SF4026	4066	62	30	20	12	11							wc	s/h		cross-grained
44	SF4026	4066	38	17	14	3							ends missing	wc	s/h		tangential
45	SF4026	4066	75	27	15	25	15							wc	h		radial
46	SF4026	4066	101	23	6	10	6					23		rwdeb	b/s/h	sp	1/2 split
47	SF4026	4066	63	26	19	10	4							wc	s/h		tangential
48	SF4026	4066	45	22	9	4	2							wc	h		tangential
49	SF4026	4066	102	31	9	11	4							wc	h		radial
50	SF4026	4066	54	35	24	14	4							wc	h		tangential
51	SF4026	4066	45	15		6								wc	h		radial
52	SF4026	4066															
53	SF4026	4066															

Wood number	Same as	Context	Length	Max breadth	Min breadth	Max thickness	Min thickness	Dia distorted y/n?	Long axis	Short axis	Dia (not distorted)	Orig dia	Dimension notes	Type (tim rw root wc rwdeb timdeb bark)	Bark, sapwd, heartwd (b/s/h)	SP TR HEW TORN OTHER	Woodworking notes
54	SF4024	4066	90	30	25	19	3						1 end missing	wc	s/h		1/2 split, 1 ens square
55	SF4024	4066	76	30	30	9	4							wc	h		tangential
56	SF4024	4066	70	22	8	22	19							wc	s/h		radial
57	SF4024	4066	90	47	39	9	7							wc	h		cross-grained
58	SF4024	4066	75	31	16	23	9							wc	h		radial
59	SF4024	4066	70	55	30	42	16							timdeb	h	sp,tr	radial, squared across the grain, 1 end/1 dir
60	SF4025	4066	65	25	14	13	3							wc	h		cross-grained
61	SF4024	4066	115	39	29	16	6							wc	h		radial
62	SF4025	4066	104	28	21	20	2							wc	h		cross-grained
63	SF4025	4066	70	32	15	8	2							wc	s/h		tangential
64	SF4025	4066	119	22	20	21	3							r/w	s/h	tr	1 end/flat, 1 end/2 dir
65	SF4025	4066	90+					y	14	13			1 end missing	r/w	s/h	tr	1 end/ 2 dir
66	SF4024	4066	62+	29	15	9							1 end missing	wc	h		cross-grained
67	SF4024	4066	81	24	20	11	5							wc	h		radial
68	SF4024	4066	82+	30	15	13	2							timdeb	h	hew,tr	boxed heart, 1 end/2 dir
69	SF4024	4066															
70	SF4024	4066	91	44	39	12	7							wc	h	sp	cross-grained
71	SF4024	4066	42	32	21	10	2							wc	h		tangential
72	SF4021	4066	135	54	29	7	2							wc	h		cross-grained
73	SF4021	4066	109	40	29	15	3							wc	h		radial
74	SF4023	4064	138+					n			45		ends missing	rw	b/s/h		
75	SF4028	4064	127	40	32	14	2							wc	h		cross-grained
76	SF4021	4066	170+					y	24	20			1 end missing	rw	b/s/h	tr	1 end/2 dir
77	SF4021	4066	82	20	15	15	9							wc	s/h		1 end/1 dir, 1 end/flat
78	SF4123	4064	120	47	30	25	17							timdeb	h	sp,tr	radial split, squared and 1 end/flat, 1 end/1 dir
79	SF4021	4066	160+					n			25		1 end missing	rw	s/h	tr	1 end/point
80	SF4020	4066	95	90		15								wc	h		radial
81	SF4020	4066	180					y	35	25				rw	s/h	tr	1 end/1 dir
82	SF4020	4066	140					y	19	15			Bag says	rw	s/h	tr	1 end/1 dir

Wood number	Same as	Context	Length	Max breadth	Min breadth	Max thickness	Min thickness	Dia distorted y/n?	Long axis	Short axis	Dia (not distorted)	Orig dia	Dimension notes	Type (tim rw root wc rwdeb timdeb bark)	Bark, sapwd, heartwd (b/s/h)	SP TR HEW TORN OTHER	Woodworking notes
													0.80m??				
83	SF4028	4064	236					y	51	45			Bag says 1.30m??	rw	b/s/h	*tr*	1 end/1 dir
84	SF4023	4064	90					y	36	29			Bag says 1.30m??	rw	s/h		
85	SF4020	4066	82	15	11	4	2							wc	h		radial
86	SF4020	4066	84	19		4								wc	h		radial
87	SF4021	4066	91					n			34			rw	b/s/h	tr	1 end/1 dir(point, 1 end/flat
88	SF4021	4066	240+	24		23								timdeb	h	tr	1 end/5 dir, 1 end/dowel
89	SF4020	4066	60+	32		30							1 end missing	rwdeb	s/h	tr, sp	1/2 split,
90		4003	54	36	19	33								timdeb	h	tr, sp	radial split, squared and 1 end/1 dir
91		4003	55	35		15	11						ends missing	wc	h		1/2 split, squared
92		4003	20	22		30							ends missing	wc	b/s/h		radial
93		4003	73	34	20	16							ends missing	wc	h		tangential
94		4003	50	29		11							ends missing	wc	h		radial
95		4017	49+	25		8	3						1 end missing	wc	h		radial
96		4003	85	35	31	15	6							wc	h		cross-grained
97		4003	52+	35		24							ends missing	wc	h		radial
98	SF4019	4015	134	56	29	20	3							wc	h		radial
99		4003	151	65	50	12	2							wc	h		cross-grained
100		4017	50+	16		2						16	ends missing	rwdeb	s/h	sp	1/2 split
101		4017	110+					y	12	10			1 end missing	rw	s/h		
102		4037	90+					y	27	19				rw	s/h		
103		4037	145					y	36	25			1 end missing	rw	s/h	tr	1 end/all dir
104		4037	36	10		10								wc	h		cross-grained
105		4037	82	25	19	15	2							wc	h		radial
106		4037	32+	21	17	12	8						1 end	wc	h		1/2 split, squared

Wood number	Same as	Context	Length	Max breadth	Min breadth	Max thickness	Min thickness	Dia distorted y/n?	Long axis	Short axis	Dia (not distorted)	Orig dia	Dimension notes	Type (tim rw root wc rwdeb timdeb bark)	Bark, sapwd, heartwd (b/s/h)	SP TR HEW TORN OTHER	Woodworking notes
													missing				
107		4037	65	21	20	15	10							wc	h		1/4 split, squared
108		4037	115+					y	32	24			ends missing	rw	s/h		
109		4037	92	61	52	12	2							wc	s/h		radial
110		4037	100	56	31	15	8							wc	h		cross-grained
111		4037	60					y	15	12				rw	s/h	tr	2 ends/1 dir
112		4037	85+	21		10					45		1 end missing	rwdeb	s/h	sp,tr	1/2 split, 1 end/1 dir
113		4037															
114		4037	81	35	26	10	6							wc	h		cross-grained
115		4037	77	32	15	17	14							wc	h		radial, modified square
116		4037	105	34	31	10	5							wc	h		radial
117		4037	80+	15	6	10	2						1 end missing	wc	h		radial
118		4037	50+	26	10	9	3							wc	h		cross-grained
119		4037	64	25	19	10	5							wc	s/h		radial
120		4027	136	26	11	17	6							rw	s/h	tr	all directions to tapering point
121	4027	4066	148+					y	35	30			ends missing	root?	s/h		
122	4027	4066	69	35	11	10	2						1 end missing	wc	h		tangential
123	4025	4066	162+	55	46	7	4						ends missing	wc	h		cross-grained
124	4023	4064	900					y	45	36				rw	b/s/h	tr	1 end/3 dir
125	4009	4014	205+	30	21	17	12						ends missing	timdeb	h	sp,tr	radial split, squared
126	4012	4014	200+	50	30	25	20						ends missing	timdeb	s/h	sp	radial
127	4007	4012	282	161	26	20	5							artefact	s/h	sp,tr	radial split with square notch and round holes
128	4007	4012	127	64	22	19	13							artefact	h	sp,tr,hew	radial split, squared, hewn end with holes
129	11	306	114	40	22	29	19							timdeb	h	hew	hewn all over
130	6	306	115+	50		25	18						1 end missing	timdeb	b/s/h	sp,tr	1/2 split, tangentially squared and 1 end/1 dir
131	5	306	145	70		60								wc	s/h		radial
132	7	306	54+	20	18	20	11						ends	timdeb	h	sp,hew	tangential split, fading to

Wood number	Same as	Context	Length	Max breadth	Min breadth	Max thickness	Min thickness	Dia distorted y/n?	Long axis	Short axis	Dia (not distorted)	Orig dia	Dimension notes	Type (tim rw root wc rwdeb timdeb bark)	Bark, sapwd, heartwd (b/s/h)	SP TR HEW TORN OTHER	Woodworking notes
													missing				dowel
133	8	306	59+	15	3	11	7						1 end missing	wc	h	sp,tr	tangential split, modified square and 1 end/1 dir
134	9	306	46	24		9								wc	h	sp,tr	tangential
135	10	350	210	111	60	35	10							wc	h		radial
136	2	351	210	50	38	50	46							timdeb	h	sp,hew	radial split, squared across the grain, hole
137	4011	4013	66+					y	19	16			1 end missing	rw	s/h	tr	1 end/3 dir
138	4030	4065	103					y	22	17				rw	b/s/h		
139	4030	4065	115					y	12	10				rw	s/h		
140	4030	4065	165+					y	23	18				rw	s/h	tr	1 end/1 dir
141	4030	4065	92+					y	20	16				rw	s/h	tr	1 side branch
142	4030	4065	134+					y	13	10				rw	b/s/h		
143	4030	4065	135+					y	17	14				rw	s/h	tr	1 side branch
144		4016	693	63	30	56	43						1 end missing	tim	s/h	sp,tr	radial split, squared
145		4037	498	150		90								tim	s/h	sp	radial split (rough)
146		4078	420					y	73	58			1 side branch missing	rw	s/h	sawn	2 ends/sawn
147		4079	300+					n			260			rw	s/h	tr	1 limb/flat - 1 limb/v-shaped
148		4080	1006	163	80	32	14						ends disintegrating	tim	h	sp,hew	Tangential split, hewn with holes
149		4084	512	80	60	45	40							tim	h	sp, hew	Radial split, hewn square
150		4085	540	70	24	65	25							timdeb	s/h	tr,sp	Radial split, squared

Appendix 10: Human Skeletal Remains

by Sue Anderson

1 Introduction

Six articulated skeletons and one disarticulated mandible were submitted for analysis, the small size of the group meaning that assessment was not appropriate. In addition there was a small group of unstratified fragments from the Ickleton site. The burials were dispersed over wide areas of the site. Radiocarbon dating has placed one individual in the Bronze Age and another in the Late Iron Age to Early Roman period. The remainder are thought to be broadly contemporary with the latter. Similar patterns of burial have been seen at Fenland sites around Lakenheath and Mildenhall in the Roman period, and despite the distance between the individual graves, they may form part of a single 'cemetery'.

2 Method

Measurements were taken using the methods described by Brothwell (1981), together with a few from Bass (1971) and Krogman (1978). Sexing and ageing techniques follow Brothwell (1981) and the Workshop of European Anthropologists (WEA 1980), with the exception of adult tooth wear scoring which follows Bouts and Pot (1989). Stature was estimated according to the regression formulae of Trotter and Gleser (Trotter 1970). All systematically scored non-metric traits are listed in Brothwell (1981), and grades of cribra orbitalia and osteoarthritis can also be found there. Pathological conditions were identified with the aid of Ortner and Putschar (1981) and Cotta (1978).

3 Number of individuals

Eight individuals are represented by the remains. Five of the six articulated contexts were near-complete, although some had clearly been disturbed post-mortem, with resultant bone loss. The sixth, 318, was very fragmentary. The two other individuals were represented by a mandible (1599) and a few fragments of skull, pelvis and arm (ICK GC 02 U/S).

4 Condition

Macroscopically, bone preservation was generally good and there was little surface erosion, but most of the skeletons were heavily fragmented.

5 Demographic analysis

Type	Context	Sex	Age	Date
Burial	241	Female	Middle-aged/old	LIA/Rom?
	318	Female	Young/middle-aged	3303 ± 68 BP (BA)
	355	Female	Young/middle-aged	LIA/Rom?
	758	Child	c.15 years	LIA/Rom?
	1231	Male	Middle-aged/old	2029 ± 49 BP (LIA/ERom)
	1964	Male	Old	LIA/Rom?
Disarticulated	1599	Male	Young/middle-aged	LIA/Rom?
	ICKGC03 U/S	Unsexed	Adult	LIA/Rom?

Table A10.1 The age and sex of the eight identified individuals.

Only one of the eight individuals was pre-adult. Of the adults, there were three males and three females, one of the latter being from an earlier phase. The group is too small and dispersed to draw any conclusions about age or sex ratios.

5 Metrical and morphological analysis

Measurements were taken for each of the articulated skeletons (see appendix), and stature could be calculated for four. The males ranged from 1.590m (5' 2½") to 1.741m (5' 8½"), and the females were 1.586m (5' 2½") and 1.635m (5' 4"). These are within the normal range for skeletons of this period.

Only one cranial index could be calculated, Sk. 1964, who was dolichocranial (73.7). Although other skulls were incomplete, the halves that were present also appeared narrow.

Non-metric traits were scored for the bones present and these are listed in the catalogue. Unfortunately the results of this analysis could neither confirm nor deny the presence of family relationships within the group. With the exception of bilateral detached acromial epiphyses in 1231, nothing particularly unusual was seen. This trait, whilst it may have a genetic or developmental component, has been associated with archery as it was common amongst the skeletons recovered from the Mary Rose.

6 Dental analysis

Complete or partial dentitions were present for six adults and a sub-adult. This group is too small for a full statistical analysis of the dental remains, but some comments can be made.

The three oldest individuals in the group had all suffered ante-mortem tooth loss. In middle-aged/old female 241 this had affected the two lower mesial incisors only, and this unusual position may indicate that an occupational use of the teeth, or perhaps trauma, had resulted in their loss. Middle-aged/old male 1231 had lost four maxillary teeth, but most of the mandible was missing. All molars and the lower right second premolar of old male 1964 had been lost before death.

The same three individuals were affected with caries and abscesses. Sk. 241 had small carious lesions interstitially in the lower left second and third molars, and abscesses on the upper left first molar and lower right second molar. Advanced carious lesions were present in the upper right first molar and upper left second premolar of Sk. 1231, and there was a small lesion lingually at the cementum-enamel junction of the lower right second molar. Abscesses were present on the upper canine and first premolar of this individual. In Sk. 1964, there was advanced caries of the upper right canine, and abscesses had affected eleven positions out of the 19 that still contained teeth at the time of death. In most cases these were caused by opening of the pulp cavity due to heavy wear, although the wear may have been accelerated by caries. There was evidence for periodontal disease — pitting and resorption of the alveolus — in all three individuals.

Deposits of calculus were present on most of the teeth, and were particularly heavy in the older individuals. No enamel hypoplasia was seen, although in several dentitions the crowns were obscured by calculus.

There was retention of both deciduous canines in the disarticulated mandible 1599. This was due to impaction of both permanent canines, which were present in the jaw lying diagonally below the sockets of the deciduous teeth.

7 Pathology

7.1 Congenital and developmental anomalies

Slight sagittal keeling, which may be indicative of premature synostosis of this suture, was present in 241 and 1964. Sk. 241 also had an occipital bun.

Both the older men, 1231 and 1964, had calcified xiphisternums. This may be developmental, but can also occur in mature individuals with a predisposition for 'bone forming', which is associated with diffuse idiopathic skeletal hyperostosis.

7.2 Deficiency disease

Cribra orbitalia was present in two of four individuals for whom the condition was assessable. Both cases (241, 318) were porotic, and both were very minor. This condition is associated with iron deficiency anaemia.

7.3 Degenerative disease

Four individuals had degenerative changes. These were particularly common in the spine, which is the normal pattern to be found in archaeological groups.

Small osteophytes (outgrowths of new bone) were present on most of the thoracic and lumbar spine of Sk. 241 and some of the costal joints, and there was Grade II osteoarthritis of the left first rib head and the articular facets of the third to fifth thoracic vertebrae. Calcified thyroid and costal cartilage was present in this individual.

Osteophytes were present on one thoracic and two lumbar vertebrae of Sk. 355, and there was new bone growth around the pubis.

In 1231, osteophytes were present on the thoracic and lumbar vertebrae, the acetabuli and sacro-iliac joints. Osteoarthritic changes were present in the articular facets of the third and seventh cervical and the first thoracic vertebrae, and the right 12th rib and thoracic vertebra. The osteophytes on the right side of the second to third lumbar vertebrae were close to fusion, suggesting the onset of ankylosing hyperostosis.

Figure A10.2. Fractured tibia and fibula of 1964. Line indicates approximate line of fracture.

Osteophytes affected the mid to lower thoracic and lumbar vertebrae and the acetabuli of Sk. 1964, and there was new bone growth on the iliac crests of the pelvis. Some of the vertebrae appeared osteoporotic with slight flattening of the bodies, particularly the second and fifth lumbars, and the pelvis may also have been affected.

7.4 *Trauma and evidence of physical stress*

Schmorl's nodes of the vertebral bodies were present in the lower thoracic area of 214, the mid thoracic to lumbar of 355, 758, 1231 and 1964, and were particularly large on the 10th thoracic to first lumbar vertebrae 1231. These lesions are common in most skeletal populations and indicate physical stress affecting the back. However, in most cases the lesions were small.

Three individuals had fractures. Sk. 355 had a well-healed fracture of the distal quarter of the right ulna. There was a small quantity of rounded callus, indicating that it had been remodelled and was probably quite old at the time of death. This kind of fracture, a 'parry fracture', is often associated with direct physical violence, and results from the victim holding up the forearm in defence.

The distal end of the right scapula of Sk. 1231 showed evidence for healed trauma, possibly a fracture, although it could have been the result of a piercing injury (Fig. A10.2). Unfortunately this area of the bone was not very well preserved. The inferior angle had been pushed forwards, possibly with upward shifting of the medial border, and with rough new bone growth around a hole in this area close to the edge of the bone. None of the ribs appeared to have been affected.

An oblique fracture of the right lower leg of 1964 had affected both bones. The fracture line ran diagonally through the upper third of the fibula and the lower third of the tibia (Fig. A10.1). Both bones were well-healed and were not noticeably shorter than their pairs. The callus had been heavily remodelled, suggesting old wounds.

7.5 *Infectious disease*

Evidence for infectious and inflammatory diseases in this group was all relatively minor. There was slight graining of the shaft of the right tibia of 318, probably indicating periostitis. Two cyst-like lesions surrounded by pitting, one in the anterior of the right pubis of 355 and the other in the insertion for the costo-clavicular ligament of the right clavicle of 758, may have been the result of torn muscle attachments due to trauma. Maxillary sinusitis was present in the left sinus of 1231 and bilaterally in 1964, in both cases probably a result of chronic dental disease. Slight pitting on the ischial tuberosities of 1231 indicated inflammatory changes to the ischial bursae, a condition associated with movement on a hard seat, hence its common name of 'weaver's bottom'.

Figure A10.1. Fractured scapula of 1231.

8 Summary and discussion

Eight individuals were present in this small group of skeletons. They consisted of one sub-adult, three adult males, three adult females and an unsexed adult. One of the females was dated to the Bronze Age, and the rest were probably broadly contemporary and belonged to the Late Iron Age to Early Roman period. Physically, the skeletons were within the normal range for the period in which they lived, in terms of height and skull shape. Three individuals, all in the older age groups,

suffered from dental disease. The prevalence of caries and abscesses was relatively high, but this is often the case in Roman groups and suggests increased consumption of carbohydrates. Moderate to heavy deposits of tartar on the teeth indicated a general lack of dental hygiene, but is also likely to be related to eating softer foods that required less chewing. Diseases associated with physical stress and degeneration of the spine were relatively common, but none of the changes were particularly gross. Stress lesions of the ankles are often found in rural groups, but they were not observed in these individuals. Fractures had occurred in three individuals, and two of them may have been associated with direct violence. The third, a fracture of the lower leg, was more likely to be accidental and may have been caused by a bad fall in which the leg was twisted. Generally, however, pathological changes in this group were minor and the bones provided little evidence for malnutrition or stress.

Bibliography

Bass, W., 1971, *Human Osteology*. Missouri Archaeol. Soc.

Bouts, W. and Pot, T J., 1989, 'Computerized recording and analysis of excavated human dental remains', in Roberts, C.A., Lee, F. and Bintliff, J. (eds), *Burial Archaeology: current research, methods and developments*, BAR Brit. Ser. 211.

Brothwell, D., 1981, *Digging up Bones*. London, BM(NH)/OUP.

Cotta, H., 1978, *Orthopaedics, a brief textbook*. Stuttgart, Georg Thiem Verlag.

Krogman, W., 1978, *The Human Skeleton in Forensic Medicine*. Illinois, C.C. Thomas.

Ortner, D. and Putschar, W., 1981, *Identification of Pathological Conditions in Human Skeletal Remains*. Washington, Smithsonian Institute.

Trotter, M., 1970, 'Estimation of stature from intact long limb bones', in Stewart, T.D. (ed), *Personal Identification in Mass Disasters*. Washington, Smithsonian Institute.

WEA, 1980, 'Recommendations for age and sex diagnoses of skeletons', *J. Human Evolution* 9, 517–49.

Addendum: Catalogue

Notes

Methods of age and sex determination are generalised to give an idea of the bones used. Sexing based on the pelvis used more traits than entries might suggest. "DF" stands for discriminant function, a statistical method of determining sex, where +2.0 is very male, -2.0 very female (WEA, 1980).

Teeth are recorded in the form illustrated below.

```
Maxilla R.   8 7 6 5 4 3 2 1   1 2 3 4 5 X 7 U     L.
Mandible             O 7 6 5 4 - - -   / / 3 4 5 6 7 C
                       A   C
```

Code	Meaning
1 2 3 etc.	Tooth present in jaw.
X	Tooth lost ante-mortem.
/	Tooth lost post-mortem.
U, u	Tooth unerupted.
O, o	Tooth in process of erupting.
C	Tooth congenitally absent.
- - -	Jaw missing.
A	Abscess present (above/below tooth number).
C	Caries present (above/below tooth number).

Lower case letters a-e and u/o are used for deciduous teeth. Attrition patterns are coded according to the scores suggested by Bouts and Pot (1989, modified version of Brothwell's original tooth wear chart).

A few abbreviations have been used in the catalogue for commonly occurring pathological conditions and anatomical regions. These are as follows:

OA	osteoarthritis	MT	metatarsal
OP	osteophytosis, osteophytes	MC	metacarpal
C	cervical)	L.	left
T	thoracic) vertebrae	R.	right
L	lumbar)		

Any other abbreviations should be self-explanatory, since they are simply shortened forms of bone names or anatomical areas (prox = proximal, etc.).

Tables of measurements for the skull and major long bones are included after the catalogue of disarticulated remains. Tables of non-metric trait scores are also provided.

Articulated skeletons

Sk. 241 Female, middle-aged/old.

Description: Incomplete and disturbed skeleton, lacking the left side of the head, most of the pelvis, the upper left leg and most bones of the feet and ankles. A few fragments (toe and finger bones) were also collected from 240 as a sample.

Condition: Good but fragmented.

Determination of age: Medial clavicle fused, tooth wear moderate, some degeneration.

Determination of sex: Cranium DF -1.2, long bones small and gracile.

Stature: 158.6cm (5' 2½") from R. fibula.

Cranial index: -

Teeth:

														A			
C	7	6	5	4	3	2	1	1	2	3	4	5	6	7	C		
C	7	6	5	4	3	2	X	X	2	3	4	5	6	7	8		
	A													C	C		
Tooth wear: -	4	5	4	3	3	4	4	4	2	3	3-	3	5	4	-		
			+		+				+			+					
-	4	5	3	3	3	3	-	-	3	3-	3-	3	5	4	2		
	+		+			+								+	+		

Dental pathology: Caries on lower L. M2-3 interstitial cervical. Heavy calculus, especially labial and buccal. Alveolar resorption advanced, pitting, periodontal disease.

Pathology:

- *Congenital anomalies:* Slight sagittal and metopic keeling. Occipital bun.
- *Cribra orbitalia:* Slight pitting R.
- *Sinusitis:* R. not assessable; L. none
- *Schmorl's nodes:* T10-12 small.
- *Osteophytosis:* T3-10, L1-3, L5, all small. T11-12 vertebral jts for rib heads. R. clavicle-manubrium jt.
- *Osteoarthritis:* T3-5 facets Grade II. L. 1st rib head Grade II.
- *Degeneration:* Calcified thyroid and costal cartilage.
- *Miscellaneous:* Muscle markings fairly pronounced.

Sk. 318 Female, young/middle-aged.

Description: Very incomplete skeleton. Fragments of left side of skull, left arm, right lower arm, hands, a few scraps of torso, left pelvis, fragments of lower legs and feet. Left femur taken for C14 dating before analysis.

Condition: Fair but very fragmented, lots of small pieces collected from samples.

Determination of age: Tooth wear slight to moderate, cranial sutures patent.

Determination of sex: Cranium DF -0.9, pelvis -2.0, long bones small-medium.

Stature: -

Cranial index: -

Teeth:

-	-	-	-	-	-	-	-	-	2	3	4	5	6	7	8		
-	-	-	-	-	-	-	1	1	2	3	4	5	6	7	8		
Tooth wear: -	-	-	-	-	-	-	-	-	2	2	2	2	4	4	2		
									+	+	+	+			+		
-	-	-	-	-	-	-	4	4	3-	3	2	2	4	3	2		
											+	+			+		

Dental pathology: Medium calculus.

Pathology:

- *Cribra orbitalia:* Slight pitting L.
- *Sinusitis:* None in L.
- *Infection:* Slight graining of R. tibia.

Sk. 355 Female, young/middle-aged.

Description: Most areas of the skeleton represented, but left leg damaged and incomplete. A few small fragments of skull were collected as 368.

Condition: Good, but fragmented.

Determination of age: Tooth wear slight-moderate, medial clavicle fused, pubis suggests young to middle-aged, cranial suture closure advanced.

Determination of sex: Cranium DF -1.7, pelvis -2.0, long bones small and gracile.

Stature: 163.5cm (5' 4") from R. Fem.

Cranial index: -

Teeth:

8	7	6	5	/	/	/	/	/	2	3	4	5	6	7	/		
8	7	6	/	/	/	/	/	/	/	/	4	5	6	7	8		
Tooth wear: 2	3-	4	4	-	-	-	-	-	2	2	3	4	4	3-	-		
+		+	+						+	+	+	+					

	2-	3	5	-	-	-	-	-	-	-	-	2	3-	4	3	2
														+		+

Dental pathology: Heavy calculus.

Pathology:

Congenital anomalies: Detached neural arch L4.

Sinusitis: None.

Schmorl's nodes: T7-L5.

Osteophytosis: T7, L4-5. OP pubis.

Infection: Small cyst-like hole anterior R. pubis, possible infection following torn ligament? Pitting and new bone growth around the area.

Trauma: Fracture distal quarter R. ulna, well-healed, small quantity of rounded callus, probably old at the time of death.

Miscellaneous: Very prognathic.

Sk. 758 Child, c.15 years.

Description: Skull fragmentary, post-cranial skeleton near-complete. Some of the skull was collected as 732, and there were fragments of rib, hand/wrist and arm bones in 759.

Condition: Good.

Determination of age: Tooth eruption suggests c.12–15yrs, long bone lengths c.15–16, epiphyseal fusion <16.

Determination of sex: Pelvis has some male characteristics, but too young to be certain.

Stature: -

Cranial index: -

Teeth:

-	7	6	5	4	3	2	1	1	2	3	4	5	6	7	-
U	7	6	5	4	3	2	1	1	2	3	4	5	6	7	C

Tooth wear:

-	1	3-	2-	2	2	2	2	2	2	2	2-	2-	2-	3-	2-	-
							+	+								
-	1	3-	2-	2-	2	2	4	3	2	2	2-	2-	3-	1	-	
					+	+		+	+	+						

Dental pathology: Slight calculus.

Pathology: .

Sinusitis: None.

Schmorl's nodes: T7-L3, small.

Infection: Large cyst-like lesion R. clavicle insertion for costo-clavicular ligament.

Sk. 1231 Male, middle-aged/old.

Description: Near-complete, but left side of skull lost, and left femur removed for C14 dating.

Condition: Good, but several bones broken. Skull partly reconstructed for measurement.

Determination of age: Tooth wear and loss heavy, pubis suggests middle-aged or older, some degenerative changes, cranial suture closure advanced.

Determination of sex: Cranium DF +0.9, pelvis +1.7, bones large and robust.

Stature: 174.1cm (5' 8½") from R. Fem+Tib.

Cranial index: -

Teeth:

		C									A	A	CA			
-	-	6	X	X	/	/	/	/	2	3	4	5		X	X	-
-	7	-	-	-	-	-	-	-	-	-	-	-		-	7	-
	C															

Tooth wear:

-	-	5	-	-	-	-	-	-	4	6	7	5+	-	-	-	
		+							+							
-	?	-	-	-	-	-	-	-	-	-	-	-	-	2	-	

Dental pathology: All caries advanced, except lower R. M2 at lingual CEJ. The lower teeth may be M3s, not M2s, but they are large, and both crowns covered in calculus.

Pathology:

Congenital anomalies: Spina bifida occulta S5 only. Articular facets between L5 and S1 unusually small. Calcified xiphisternum.

Cribra orbitalia: None in R. orbit.

Sinusitis: L. maxillary sinus pitted.

Schmorl's nodes: T6-L5, heavy on T10-L1.

Osteophytosis: T3-L5. Acetabuli and SIJs.

Osteoarthritis: C3 R. superior facet III, C7-T1 L. facets II, T12 R. facet for rib head II.

Ankylosing spondylitis: Large OPs R. side L2-3, close to ankylosis.

Infection: Slight pitting of ischial bursae.

Trauma: Distal end of R. scapula shows evidence for healed trauma, probably a fracture, but could be a result of a wound with piercing injury. The inferior angle has been pushed forward, possibly with upward shifting at the medial border, with rough new bone growth around a hole in this area. Unfortunately poorly preserved. Nothing on ribs in this area.

Miscellaneous: Well-marked muscle attachments. R. arm noticeably longer than L.

Sk. 1964 Male, old.

Description: Near-complete skeleton. A few finger bones were collected as 2150.

Condition: Good but fragmented, some distortion of cranium post-mortem.

Determination of age: Tooth wear and loss heavy, pubis suggests middle-aged or older, some degenerative changes, cranial suture closure moderate.

Determination of sex: Cranium DF +1.6, pelvis +2.0, long bones medium length but robust.

Stature: 159.0cm (5' 2½")

Cranial index: 73.7 - dolichocranial

Teeth:

					A	CA							A	A				
X	X	X	5	4	3		2	/	/	/	/	4	5	X	X	X		
X	X	X	X	4	3		2	1	1	2	3	4	5	X	X	X		
				A	A		A	A	A	A			A					

Tooth wear:

-	-	-	3	6-	-	5	-	-	-	-	-	7	3	-	-	-		
-	-	-	-	7	7	7	7	7	7	5	5	6-	-	-	-			
										+	+							

Dental pathology: Caries advanced.

Pathology:

Congenital anomalies: Spina bifida occulta S5 only. Calcified xiphisternum. Slight sagittal keeling.

Cribra orbitalia: None.

Sinusitis: Slight pitting both maxillary sinuses.

Schmorl's nodes: T6-9, L1-2.

Osteophytosis: T7-12, L2-4. OP acetabuli and new bone on iliac crests.

Degeneration: Vertebrae appear osteoporotic, L2 and L5 in particular, bodies seem slightly flattened. Pelvis probably also osteoporotic, v. fragmented.

Trauma: Oblique fracture through R. tibia and fibula - upper third of fib, lower third of tib. Both well-healed, not noticeably shorter than L. Callus heavily remodelled, old at time of death.

Miscellaneous: Unusually wide nose (nasal bones and aperture). Mandible very similar in shape to DA 1599.

Disarticulated remains

HIN GC 02

1599 Near-complete adult male mandible with very flaring gonions and prominent chin.

Teeth:

/	7	6	/	/	U	/	/	/	/	U	/	/	/	7	8			
-	3-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2	
		+															+	

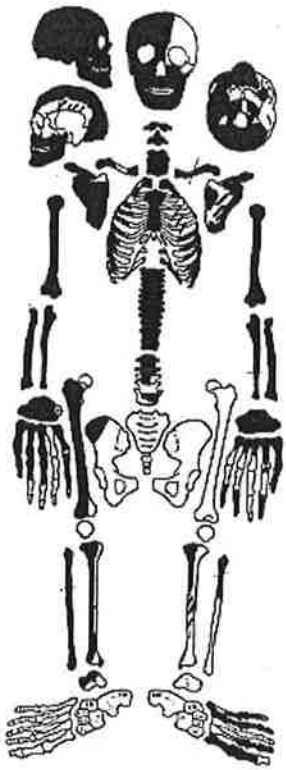
Tooth wear:

Dental pathology: Advanced alveolar resorption, medium calculus. Both deciduous canines retained (lost p-m), adult canines impacted diagonally in the jaw.

ICK GC 02

U/S Eight fragments of adult cranial vault.
Five fragments of adult L. ischium.
Small fragment of adult rib shaft.
Proximal end adult L. radius.
Possibly all one individual.

Skeleton diagrams (black areas present)



241

318

355

758

1231

1964

Measurements **(mm)**

		241	318	355	758	1231	1964
Cranium							
Max Length	L	182				195	190
Max Breadth	B						140
Max Height	H'	133					
Basi-nasal length	LB	98					
Upper facial height	G'H						65
Bimaxillary breadth	GB						94
Nasal height	NH'						48
Nasal breadth	NB						27
Simotic chord	SC						14
Bi-dacryonic chord	DC						24
Orbital breadth R.	O'1						39
Orbital breadth L.	O'1						38
Orbital height R.	O2						33
Orbital height L.	O2						33
Palatal length	G'1	43					46
Palatal breadth	G2	34					35
Min Frontal Breadth	B'						104
Biasterionic breadth	BiastB	104					109
Frontal arc	S1	107				129	133
Parietal arc	S2	138				129	135
Occipital arc	S3	117				124	111
Frontal chord	S'1	98				116	116
Parietal chord	S'2	126				116	121
Occipital chord	S'3	100				103	94
Trans-biporial arc	B'Q						315
Mastoid process height R.	MPH	28				28	34
Mastoid process height L.	MPH						36
Cranial index							73.7
Height/length index		73.1					
Orbital index R.							84.6
Orbital index L.							86.8
Palatal index							76.1
Nasal index							56.3

		241	318	355	758	1231	1964
Mandible							
Bicondylar width	W1	118					117
Bigonial breadth	GoGo	86		88			115
Foramen mentale breadth	ZZ	38		42			42
Symphyseal height	H1	24		28			33
Mandibular length	ML	91					105
Bicoronoid breadth	CrCr	102					101
Minimum ramus breadth R.	RB'	29				33	32
Minimum ramus breadth L.	RB'	29	31	29			33
Coronoid height R.	CrH	60					68
Coronoid height L.	CrH	60		54			68
Condylar length R.	CyL	21					22
Condylar length L.	CyL		21	18			21
Gnathion-gonion length R.	GnGo	73		74			92
Gnathion-gonion length L.	GnGo	75	82	78			95

			241	318	355	758	1231	1964
Femur								
Maximum length	FeL1	R			443	340*	472	
		L				342*		410
Oblique length	FeL2	R			439		469	
		L						
Head diameter	FeHead	R			41		48	
		L			41			45
Bicondylar breadth	FeE1	R			75		86	
		L						
Min subtrochanteric A-P diameter	FeD1	R	24		23	20	28	24
		L			22	22		23
Max subtrochanteric M-L diameter	FeD2	R	33		30	29	34	33
		L			31	29		34
Minimum shaft diameter (A-P)	FeD3	R	26		26	21	32	27
		L				22		27
Maximum shaft diameter (M-L)	FeD4	R	27		24	20	28	24
		L				21		25
Meric Index 100(FeD1/FeD2)		R	72.7		76.7	69.0	82.3	72.7
		L				75.9		67.6
Robusticity Index 100((FeD3+FeD4)/FeD2)		R			11.4		12.8	
		L						
Tibia								
Maximum Length	TiL1	R				280*	380	(304)
		L				280*	379	
Bicondylar Breadth	TiE1	R					81	
		L					82	
A-P diameter at nutrient foramen	TiD1	R			29	28	39	30
		L				29	36	
M-L diameter at nutrient foramen	TiD2	R			21	20	25	22
		L				20	24	
Cnemic Index 100(TiD2/TiD1)		R			72.4	71.4	64.1	73.3
		L				69.0	66.7	
Fibula								
Maximum Length	FiL1	R	338			271*		(306)
		L				272*		
Humerus								
Maximum Length	HuL1	R	318		313	255*	337	298
		L	312		319		328	287
Head diameter	HuHead	R	43		41		50	47
		L	42		41		48	46
Epicondylar Breadth	HuE1	R	61		58		69	65
		L	59		57			66
Radius								
Maximum Length	RaL1	R	236		223	190*		220
		L	234		223		254	218
Ulna								
Maximum Length	UlL1	R	251			207*		244
		L	248		242	207*	274	
Calcaneus								
Maximum Length	CaL1	R			77	65*	84	73
		L				67*	86	73

			241	318	355	758	1231	1964
Clavicle								
Maximum Length	ClL1	R			135	113*	145	133
		L	140		139		149	129
Sacrum								
Maximum Length	SaL1						125	
Maximum Width	SaW1						124	
S1 Width							63	51
Sacral index (SaW1/L1)							99.2	
Sacral index (S1/SaW1)							50.8	
Stature			1586		1635		1741	1590

* measurements taken without epiphyses.

Non-metric traits: cranial

		241	318	355	758	1231	1964
Highest nuchal line	R	0	-	0	-	0	0
	L	0	-	0	-	0	0
Ossicle at lambda/Inca		0	-	0	-	0	0
Lambdoid wormian bones	R	+?	-	-	-	+	0
	L	+?	-	+	-	-	+
Parietal foramen	R	0	-	-	-	+	0
	L	+	-	0	-	+	0
Bregmatic bone		0	-	-	-	0	0
Metopism		0	0	0	0	0	0
Coronal wormian bones	R	0	-	-	-	0	0
	L	0	-	-	-	0	0
Epipteric bone	R	0	-	-	-	-	0
	L	-	-	-	-	-	0
Fronto-temporal articulation	R	0	-	-	-	-	0
	L	-	-	-	-	-	0
Parietal notch bone	R	0	-	-	-	0	0
	L	-	0	0	-	-	0
Asterionic ossicle	R	0	-	-	-	-	0
	L	0	-	0	-	-	0
Auditory torus	R	0	-	-	-	0	0
	L	-	0	0	-	-	0
Huschke's foramen	R	0	-	-	-	0	0
	L	-	0	0	-	-	0
Post-condylar canal	R	+	-	-	-	+	0
	L	+	-	+	-	-	-
Double condylar facet	R	0	-	-	-	0	0
	L	-	-	0	-	-	-
Precondylar tubercle	R	0	-	-	-	-	0
	L	-	-	0	-	0	0
Double hypoglossal canal	R	+	-	-	-	0	0
	L	+	-	0	-	-	+
Foramen ovale incomplete	R	0	-	-	-	-	0
	L	-	-	-	-	-	0
Extra palatine foramen	R	-	-	+	-	-	-
	L	-	-	+	-	-	-
Palatine torus	R	0	-	0	-	-	0
	L	0	-	0	-	-	0
Maxillary torus	R	0	-	-	-	-	0
	L	0	-	0	-	-	0
Zygoma-facial foramen	R	1	-	-	2	1	1
	L	-	2	2	-	-	1

		241	318	355	758	1231	1964
Supra-orbital foramen complete	R	0	-	0	-	+	0
	L	-	0	+	-	0	0
Extra infra-orbital foramen	R	0	-	-	-	-	+
	L	-	-	-	-	-	-
Sagittal wormian		-	-	-	-	0	0
Squame parietal ossicle	R	0	-	-	-	-	0
	L	-	-	0	-	-	0
Multiple mental foramen	R	0	-	0	0	-	0
	L	0	0	0	0	-	0
Mandibular torus	R	0	-	0	0	-	0
	L	0	0	0	0	-	0

Non-metric traits: post-cranial

		241	318	355	758	1231	1964
Atlas bridge lateral	R	0	-	-	0	0	0
	L	0	0	-	0	-	0
Atlas bridge posterior	R	0	-	-	0	0	0
	L	0	0	-	0	-	0
Atlas double facet	R	0	-	-	-	0	0
	L	0	0	-	0	-	0
Suprascapular foramen	R	-	-	0	0	0	0
	L	-	-	0	-	-	0
Detached acromial epiphysis	R	0	-	0	-	+	0
	L	0	-	0	-	+	0
Sterno-manubrial fusion	R	0	-	0	0	0	0
	L	0	-	0	0	0	0
Septal aperture of humerus	R	0	-	+	0	0	0
	L	0	0	+	-	0	0
Epicondylar process of humerus	R	0	-	0	0	0	0
	L	0	0	0	0	0	0
Sacralisation of L5	R	-	-	0	0	0	0
	L	-	-	0	0	0	0
Four sacral segments		-	-	-	-	0	-
Six sacral segments		-	-	-	-	0	-
Acetabular crease	R	-	-	0	-	-	0
	L	-	+	0	-	+	0
Allen's fossa of femur	R	-	-	0	-	0	0
	L	-	-	0	-	-	0
Poirier's facet of femur	R	-	-	0	-	+	0
	L	-	-	0	-	-	0
Plaque formation of femur	R	-	-	0	-	+	0
	L	-	-	0	-	-	0
Third femoral trochanter	R	0	-	+	0	0	0
	L	-	-	+	0	-	0
Vastus notch of patella	R	-	-	0	0	0	-
	L	-	-	0	0	+	0
Calcaneus double facet	R	-	0	+	0	0	0
	L	-	-	-	0	0	0
Cuboid-navicular articulation	R	-	+	-	+	+	+
	L	-	+	-	+	+	0

Appendix 11: Faunal Remains

by Ian L. Baxter

1 The Assemblage

At the time of writing this report only a minority of contexts had been provisionally dated. This assessment is based on those contexts for which spot dates were then available. All the bones forming the basis of this assessment were collected by hand. However, the residues from environmental samples taken from 16 contexts are available for analysis and time has been allocated for their analysis in this report. At the time of writing this report there was no information regarding residuality and contamination. The animal bones derive from ditches, pits and structural features. The preservation of the animal bone ranges from good to poor with most fragments displaying fair to poor preservation. The total weight of the animal bones is 78kg.

2 Methods

This assessment is based on 33% by weight of the total assemblage. Numbers of "countable" bones, ageable mandibles and measurable bones are recorded in Tables A11.1 and A11.2. The counting system is based on a modified version of the system suggested by Davis (1992) and used by Albarella *et al.* (1997).

3 Variety

The assemblage is primarily composed of the bones of domestic species, including cattle, sheep/goat, pig, horse, dog, chicken and goose. Red deer (*Cervus elaphus*) antler fragments occur in a Period 1, Phase 5 pit fill (687). Items of interest include a cattle cranium in a Period 1, Phase 6 cleaning deposit (2493), a horse cranium in a pit fill (Period 2, Phase 7, 958) and the skeleton of a fairly large dog in a deliberate burial (Period 2, Phase 7, 524). The partial skeleton of an achondroplastic dwarf hound was found in a Romano-British context (1024). Several water voles (*Arvicola terrestris*) are represented in the residues of a sample taken from a Middle or Late Iron Age context (1520) and the remains of anuran amphibians (frogs and toads) are common in the residues of several deposits.

4 Potential and recommendations

This is a medium sized assemblage of animal bones, which should provide useful information regarding the economy and husbandry practices at the site during the Iron Age, which may usefully be compared with the growing database for Cambridgeshire during this period. The Romano-British and Anglo-Saxon assemblages are rather smaller, but may still yield useful information.

All fragments from dated contexts should be fully recorded. The analysis of the animal bones should not take place until the site dating and phasing has been completed.

Bibliography

Albarella, U., Beech, M. and Mulville, J. 1997. The Saxon, Medieval and Post-medieval mammal and bird bones excavated 1989–1991 from Castle Mall, Norwich (Norfolk). English Heritage AML Report 72/97.

Davis, S.J.M. 1992. A rapid method for recording information about mammal bones from archaeological sites. London: English Heritage AML Report 19/92.

PERIOD	COUNTABLE BONES						
	Cattle	Sheep /Goat	Pig	Other	Bird	Total	Comments
Iron Age Assessment	70	35	65	5	+	**175**	Includes horse, goose
Iron Age estimated	*210*	*105*	*195*	*15*	*0*	***525***	
Romano-British assessment	10	65	15	1	5	**96**	Includes dog, goose
Romano-British estimated	*30*	*195*	*45*	*3*	*15*	***288***	
Anglo-Saxon assessment	4	3	2	0	+	**9**	Includes chicken
Anglo-Saxon estimated	*12*	*9*	*6*	*0*	*0*	***27***	
Assessment total	**84**	**52**	**82**	**6**	**5**	**229**	
Estimated total	***252***	***156***	***246***	***18***	***15***	***687***	

Table A11.1. Number of hand-collected "countable" bones used for assessment and estimates of their total.

"+" means that the taxon is present but no specimens could be "counted" (see text).

PERIOD	AGEABLE MANDIBLES				MEASUREMENTS					
	Cattle	Sheep /Goat	Pig	Total	Cattle	Sheep /Goat	Pig	Other	Bird	Total
Iron Age Assessment	10	5	10	**25**	15	5	0	5	0	**25**
Iron Age estimated	*30*	*15*	*30*	***75***	*45*	*15*	*0*	*15*	*0*	***75***
Romano-British assessment	0	0	5	**5**	0	5	0	1	5	**11**
Romano-British estimated	*0*	*0*	*15*	***15***	*0*	*15*	*0*	*3*	*15*	***33***
Anglo-Saxon assessment	0	0	0	0	3	2	1	0	0	**6**
Anglo-Saxon estimated	*0*	*0*	*0*	***0***	*9*	*6*	*3*	*0*	*0*	***18***
Assessment total	**10**	**5**	**15**	**30**	**18**	**12**	**1**	**6**	**5**	**42**
Estimated total	***30***	***15***	***45***	***90***	***54***	***36***	***3***	***18***	***15***	***126***

Table A11.2 Assessment of ageable mandibles

Appendix 12a: Macrobotanical Remains from HIN GC 02

by Val Fryer

1 Introduction

Samples for the extraction of the plant macrofossil assemblages were taken from across the excavated area, and approximately two hundred and twenty-four were submitted for this assessment.

2 Methods

The samples were bulk floated by a member of the CAM ARC team, collecting the flots 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 on Tables A12.1 – A12.10. Nomenclature within the tables follows Stace (1997). Unless otherwise stated, all plant macrofossils were charred. Modern contaminants including fibrous roots, seeds and chaff were present throughout.

3 Results of assessment

3.1 Plant macrofossils

Cereal grains/chaff, seeds of common weeds and wetland plants and/or tree/shrub macrofossils were recorded at low to moderate densities from all but forty-six samples. Preservation was very variable; some cereal grains were very puffed and distorted (probably due to high temperatures during combustion), and many of the chaff elements were heavily fragmented.

3.1.1 Cereals

Cereal grains/chaff were recovered from one hundred and fifty-nine samples. Oat (*Avena* sp.), barley (*Hordeum* sp.), rye (*Secale cereale*) and wheat (*Triticum* sp.) grains were recorded, with wheat generally being predominant. Both 'drop form' grains typical of spelt wheat (*T. spelta*) and rounded forms of probable bread wheat (*T. aestivum/compactum*) or rivet wheat (*T. turgidum*) types were present throughout. An asymmetrical lateral grain of six-row barley (*H. vulgare*) was noted in Sample 188 from Phase 6 Iron Age ditch fill 1538, which was possibly contaminated with intrusive Roman material. Chaff was generally rare, but emmer (*T. dicoccum*) and spelt glume bases were recorded along with rachis nodes of bread wheat and rivet wheat types, barley and rye. In the absence of the diagnostic floret bases, it was not possible to ascertain whether the oat grains were of wild or cultivated types.

3.1.2 *Wild flora*

Seeds of common weed plants were recovered, generally at very low densities, from eighty-seven samples. Segetal taxa including corn cockle (*Agrostemma githago*), stinking mayweed (*Anthemis cotula*), brome (*Bromus* sp.), black bindweed (*Fallopia convolvulus*) and dock (*Rumex* sp.) were recorded along with grasses and grassland herbs including goosegrass (*Galium aparine*), fumitory (*Fumaria officinalis*), buttercups (*Ranunculus* sp.) and vetch/vetchling (*Vicia/Lathyrus* sp.). Wetland plant macrofossils were extremely rare, but nutlets of sedge (*Carex* sp.) and spike-rush (*Eleocharis* sp.) were noted in six samples. Hazel (*Corylus avellana*) nutshell fragments were recorded from twenty-three samples, and other tree/shrub macrofossils included a sloe (*Prunus spinosa*) fruit stone, elderberry (*Sambucus nigra*) 'pips' and a possible fragment of oak (*Quercus* sp.) cupule.

3.1.3 *Other plant macrofossils*

Charcoal fragments and pieces of charred root or stem were present throughout at varying densities. Other plant macrofossils were rare, but did include indeterminate buds, culm nodes, inflorescence fragments and *Prunus* type thorns. Rare mineral replaced root/stem fragments were noted in some pit fills.

3.2 *Molluscs*

Although specific sieving for molluscan remains was not undertaken, shells were noted in a number of samples. Of these, a proportion was probably modern in origin as they retained delicate surface structures and colouration. However, small assemblages of weathered and abraded shells of predominantly open country species were noted in two samples (51 and 54) and a single burnt shell of a probable marshland snail was noted in Sample 252 from Phase 6 ditch fill 2161.

3.3 *Other materials*

The fragments of black porous 'cokey' material and black tarry material, which were present in most samples, are probable residues of the combustion of organic materials at extremely high temperatures. Possible domestic and/or dietary refuse included bone fragments (some burnt), eggshell and fish bone. Although very rare, some remains possibly related to small scale 'industrial' activities were noted. These included ferrous globules, hammer scale, fragments of burnt or fired clay and vitrified globules.

Small pieces of coal, possibly largely derived from recent agricultural practises including steam ploughing, were present in most excavated features.

4 Discussion

For the purposes of this discussion the features will be dealt with by period. Where a context has been ascribed to more than one possible period, for example Late Iron Age/Early Roman, it is catalogued/tabulated by the latest date.

4.1 Neolithic and Bronze Age features (Table A12.1)

A single sample (30) was taken from Phase 3 Neolithic pit fill 374. The assemblage is typically sparse, containing only a single cereal grain along with pieces of hazel nutshell and charcoal, and it appears most likely that it is derived from a low density of scattered refuse. Similarly, the three assemblages from the Late Bronze Age features contain very little material, although hazel nutshell fragments are reasonably common in Sample 4 from Phase 4 pit fill 97. These may be suitable for dating determinations if required. A small number of Neolithic/Early Bronze Age features probably associated with farming and quarrying were recorded during previous work within the grounds of Hinxton Hall (Spoerry 1995).

4.2 Middle Iron Age features (Tables A12.2a and A12.2b)

Iron Age features had not previously been recorded from the Hinxton area, but the current work has revealed a small number of Middle Iron Age contexts and a series of features apparently associated with a Late Iron Age farmstead (see below). Unfortunately, the assemblages from the Middle Iron Age contexts are largely inconclusive. However, fuel residues in the form of charcoal and charred root/stem may be present in Sample 1 from Phase 5 pit fill 79.

4.3 Late Iron Age features (Tables A12.3a – A12.3d)

A total of thirty-six contexts of Late Iron Age date were sampled. The assemblages are characterised by extremely low densities of material (all <0.1 litres), and as a result specific activities are difficult to pinpoint. However, small deposits of possible domestic and/or agricultural waste, including grains, weed seeds and dietary refuse, are recorded from Samples 67, 160 and 293, with small quantities of similar material being scattered throughout a number of other contexts. Sample 252 from ditch fill 2161 may possibly contain a low density of material derived from burnt grass or hay. Although tenuous, the presence of a burnt shell of *Vertigo* sp. may indicate material gathered from damper grassland areas, possibly close to the River Cam. Sample 301 from ditch fill 2695 possibly contains a low density of cereal processing debris, as segetal weed seeds are reasonably common within the assemblage. Possible mixed refuse deposits, including cereal processing waste and domestic debris, are recorded from Phase 6 ditch fills 2160 and 2555 (Samples 251 and 279 respectively).

4.4 *Roman features (Tables A12.4a and A12.4b)*

Of the nineteen samples taken from contexts of Roman date only five contain a sufficient density of material to enable tentative interpretation. The assemblages from Samples 156 (ditch fill), 158 (ditch fill), 188 (ditch fill), 275 (pit fill) and, to a lesser extent, 287 (posthole fill) appear to contain assemblages comprising a mixture of domestic refuse and possibly cereal processing waste. Grains (principally wheat), chaff and weed seeds are present/common in each along with charcoal and small quantities of dietary refuse. Although chaff is present, spelt chaff, which is frequently predominant in assemblages of Roman date, only occurs in one sample (188), and then only at a moderate density. Somewhat unusually bread wheat chaff is slightly more common. The reason for this is not fully understood at present. The remaining assemblages contain insufficient material for any conclusive interpretation.

4.5 *Early Saxon features (Table A12.5)*

A total of ten samples were taken, five from layers within sunken-featured buildings (Samples 20, 21, 22, 24, 269), three from a hearth (Samples 25, 26 and 27) and from two unspecified contexts (Samples 17 and 18). The samples from the sunken-featured buildings contain very little apart from charcoal fragments and very occasional cereal grains. Assemblages of this type are not uncommon from such structures, and although the reason for this is not fully understood at present, it may be due in part to the presence of flooring within the building, with the little material recovered falling through the floor boards into the under-floor space. The purpose for which the structure was used would also presumably influence the composition of the assemblages. Three samples were taken from a hearth within one of the sunken-featured buildings. The recovered assemblages contain numerous seeds of grasses, grassland herbs and some wetland plant remains, some or all of which may be derived from either burnt flooring or dried plant material used as kindling for the fire. Wheat and barley grains are also common and may have been accidentally charred during culinary preparation. The assemblages from Samples 17 and 18 contain only charcoal fragments and a single spelt glume base. Whilst this may be a late occurrence of spelt, a single specimen could easily be residual from earlier contexts.

4.6 *Medieval and post-medieval features (Table A12.6)*

Plant macrofossils are very rare in all seven samples taken from the medieval and possible post-medieval features. However, small deposits of charred grain and/or cereal processing waste may be present in Samples 155, 157, 278 and 314. The presence of such material within pit fill 1066 (Sample 155) may indicate that this feature served as a refuse pit, whilst the material from ditch fills 388 and 2765 (Samples 157 and 314 respectively) may be derived from refuse deliberately dumped within an available open feature. The inclusion of charred grains, chaff and weed seeds within posthole **2583** (Sample

278) was probably accidental. The remaining samples contain insufficient material for accurate interpretation of the assemblages.

4.7 The ponds (Tables A12.7a and A12.7b)

A series of six undated ponds were excavated, and samples were taken from each feature in the sequence. Plant macrofossils and other remains are extremely scarce within all the assemblages, and it appears most likely that most, if not all of the material is derived from small quantities of wind-blown detritus that became accidentally incorporated within the pond fills.

4.8 Un-dated grave fills (Table A12.8)

Six graves were excavated, all of which are currently un-dated. Sample 10 from fill 240 is perhaps a little unusual as cereal grains are quite common, but otherwise the assemblages contain only charcoal, pieces of black porous and tarry material and rare small fragments of bone.

4.9 Undated pits and other features (Tables A12.9 and A12.10)

At the time of writing a total of thirty-nine pits and seventy other features have yet to be placed within the sites stratigraphic sequence. Most of the assemblages within these features are extremely small and none contain intrinsically datable material. However, four of the pit fills (Samples 32, 63, 64 and 208) and five of the other features (Samples 145, 222, 227, 229 and 326) do contain quantifiably viable assemblages principally composed of grain, chaff and weed seeds.

5 Conclusions and recommendations for further work

In summary, despite the extensive sampling that took place during the excavation, a high percentage of the assemblages contained insufficient material (i.e. <0.1litres) to enable any accurate interpretation of the recovered plant macrofossils. The reason for this is not immediately apparent. However, it is tentatively suggested that either this site was always subsidiary to that discovered at the nearby Hinxton Hall excavations, where plant macrofossils were noticeably more abundant (Fryer and Murphy, forthcoming), or a different regime was being followed, for example pastoralism, which leaves few traces in the archaeological record.

With the exception of the few Early Saxon assemblages from hearth deposits, evidence of domestic activity on or near the site is very rare and equally, agricultural practises such as cereal processing appear to have contributed little to the local economy. These factors may again be indicative of a pastoral economy, where the food requirements of the few occupants were being met by imported goods, not by local production.

Evidence for the local environment is equally scant. However, two small mollusc assemblages from Middle Iron Age ditch fill 571 (sample

51) and Late Iron Age ditch fill 60 (Sample 54) may indicate that the features were set in an area of dry, predominantly short grassland with possible nearby woodland or similar shaded areas. For the later periods, if the possible kindling/fuel recovered from the Early Saxon hearths was gathered locally, as seems most likely, this again indicates grassland with a moderately rich accompanying flora.

Although most of the samples studied contained insufficient material for quantification, the following assemblages all produced in excess of 100 specimens and are, therefore quantifiably viable:

Roman	Ditch fill 978	Sample 156
Roman	Ditch fill 391	Sample 158
Roman	Ditch fill 1538	Sample 188
Roman	Pit fill 2546	Sample 275
Early Saxon	Hearth 399	Sample 25
Early Saxon	Hearth 400	Sample 26

Some or all of the highlighted samples on Tables A12.9 and A12.10 may also be suitable for analysis if they can be placed with the stratigraphic sequence. However, the excavator may feel that analysis of so few samples may be of little value to the overall interpretation of the site.

Bibliography

Fryer, V. and P.	'Plant macrofossils' in Spoerry, P., *'Excavations at* Murphy, *Hinxton Hall, Cambridgeshire'*. forthcoming
Spoerry, P., 1995	*Hinxton Hall Excavations 1993-4*; *Summary Statement* Unpublished report, Cambridgeshire County Council
Stace, C., 1997	*New Flora of the British Isles*. Second edition. Cambridge University Press

Key to Tables A12.1 – A12.10

x = 1 – 10 specimens xx = 10 – 100 specimens xxx = 100+ specimens
NEO = Neolithic LBA = Late Bronze Age MED = Medieval EMED = Early medieval
PMED = post medieval
b = burnt tf = testa fragment coty = cotyledon pmc = possible modern contaminant
ph = post-hole ps = pre-sorted sfb = sunken featured building

Addenda: Tables

Sample No.	30	4	16	234
Context No.	**374**	**97**	**351**	**2028**
Context type	**pit**	**pit**	**pit**	**gully**
Period	**NEO**	**?LBA**	**LBA**	**LBA**
Cereals				
Cereal indet. (grains)	x			x
Triticum sp. (grains)				xcf
Herbs				
Vicia/Lathyrus sp.				xcf
Tree/shrub macrofossils				
Corylus avellana L.	x	xxx		
Other plant macrofossils				
Charcoal <2mm	xxx	xx	x	xxx
Charcoal >2mm	x	x		
Charred root/rhizome/stem		x		
Other materials				
Black porous 'cokey' material	x	x	x	x
Black tarry material	x	x	x	x
Bone				x
Burnt organic concretions		x		
Fish bone				x
Small coal frags.	x	x		x
Sample volume (litres)				
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**

Table A12.1 Samples from Neolithic and Bronze Age features (Phases 3 and 4)

Sample No.	1	34	35	38	39	49	51
Context No.	79	567	588	609	617	636	571
Context type	pit	natural	natural	natural	natural	natural	natural
Cereals							
Cereal indet. (grains)	x			x		x	
Hordeum sp. (grains)			x				
Triticum sp. (grains)	xcf			x		xcf	
Herbs							
Bromus sp.			x				
Small Poaceae indet.	x			x			
Rumex sp.		x					
Tree/shrub macrofossils							
Corylus avellana L.							
Other plant macrofossils							
Charcoal <2mm	xxx	x	x	x	x	xx	x
Charcoal >2mm	x						
Charred root/rhizome/stem	x						
Molluscs							
Woodland/shade loving species							
Aegopinella pura							xx
Carychium sp.							x
Oxychilus sp.							x
Punctum pygmaeum							x
Open country species							
Helicella itala							xx
Pupilla muscorum							xx
Vallonia sp.							xxx
V. costata							xx
V. pulchella							x
Catholic species							
Cepaea sp.							x
Cochlicopa sp.							x
Trichia hispida group							xxx
Marsh/freshwater slum species							
Vertigo sp.							x
Other materials							
Black porous 'cokey' material	x		x		x		
Black tarry material	x	x	x	x	x	x	
Bone			x xb				
Burnt/fired clay	x						
Small coal frags.			x	x			
Sample volume (litres)							
Volume of flot (litres)	**0.2**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table A12.2a Samples from Middle Iron Age features (Phase 5)

Sample No.	57	251	279	284	321
Context No.	**687**	**2160**	**2555**	**2602**	**2649**
Context type	**pit**	**ditch**	**ditch**	**ph**	**ph**
Cereals					
Avena sp. (grains)		xcf			
Cereal indet. (grains)		x	x	x	x
Hordeum sp. (grains)		x			
Triticum sp. (grains)	x	x		x	
T. dicoccum Schubl. (glume bases)		xcf			
Herbs					
Atriplex sp.		x			
Chenopodium album L.			x		
C. ficifolium Sm.			x		
Fallopia convolvulus (L.)A.Love		x			
Galium aparine L.			x		
Hyoscyamus niger L.		x			
Small Poaceae indet.		x	x		x
Polygonum aviculare L.			xcf		
Polygonaceae indet.			x		
Rumex sp.		x			
Tree/shrub macrofossils					
Corylus avellana L.	x				
Other plant macrofossils					
Charcoal <2mm	xx	xx	x	x	x
Charcoal >2mm					x
Indet.culm nodes					x
Other materials					
Black porous 'cokey' material		x		x	x
Black tarry material		x			
Sample volume (litres)					
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**

Table 12.2b Samples from Middle Iron Age features (Phase 5)

Sample No.	11	19	54	67	70	72	73	160	164	181
Context No.	264	368	60	747	759	1185	867	716	1521	1568
Context type	pit	grave	ditch	pit	burial	ph	ph	ditch	pit	ditch
Cereals										
Avena sp. (grains)	x									x
Cereal indet. (grains)	x	x				x	x	x	x	x
Hordeum sp. (grains)						x	x	x		
Triticum sp. (grains)		x						x		x
(glume bases)								x		
T. aestivum/compactum type (rachis nodes)								x		
Herbs										
Atriplex sp.										xcf
Fabaceae indet.								x		
Fallopia convolvulus (L.)A.Love										x
Vicia/Lathyrus sp.								x		x
Tree/shrub macrofossils										
Corylus avellana L.				x						
Quercus sp. (cupule frag.)								xcf		
Other plant macrofossils										
Charcoal <2mm	xx	xx	x	xxx	xx	x	xxx	xx		xxx
Charcoal >2mm		x	x	x	x			x		x
Charred root/rhizome/stem								x		x
Molluscs										
Open country species										
Helicella itala			x							
Pupilla muscorum			xxx							
Vallonia sp.			xx							
V. costata			x							
V. pulchella			x							
Other materials										
Black porous 'cokey' material	x	xx						x		xx
Black tarry material	x	xx		x	x		x	x	x	
Bone		xx		xx xb	x			x		
Burnt/fired clay				x				x		
Eggshell							x			
Ferrous globules								x		
Small coal frags.		x	x		x			x		
Small mammal/amphibian bones		xpmc				x				
Sample volume (litres)										
Volume of flot (litres)	**<0.1**	**0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**ps**	**0.2**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**		**50%**

Table 12.3a Samples from Late Iron Age features (Phase 6)

Sample No.	184	186	187	189	192	193	194	196	202	205
Context No.	1778	1764	1766	1753	1583	1587	1593	1824	1575	1809
Context type	ditch	pit	pit	ditch	ditch	ditch	ditch	pit	ditch	ditch
Cereals										
Cereal indet. (grains)	x	x	x	x	x	x		x	x	x
Hordeum sp. (grains)			x						xcf	x
Triticum sp. (grains)		x	x		x	x	x			
T. spelta L. (glume bases)							x			
Herbs										
Asteraceae indet.		x								
Atriplex sp.										x
Bromus sp.								xcf		
Chenopodiaceae indet.										x
Fallopia convolvulus (L.)A.Love		x			x					x
Galium sp.		x								
Rumex sp.										x
S. media (L.)Vill.					x					
Tree/shrub macrofossils										
Corylus avellana L.					x					
Other plant macrofossils										
Charcoal <2mm	x	x	xx	xx	xx	xx	x	xxx	xx	x
Charcoal >2mm				x	x			xx		
Charred root/rhizome/stem		x		x	x					
Other materials										
Black porous 'cokey' material	x	x	x	xx	xx					xx
Black tarry material		x	x	x	x	x			x	x
Bone					x			x xb		
Eggshell		x								
Small coal frags.		x		x	x					
Vitreous material					x					x
Sample volume (litres)										
Volume of flot (litres)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
% flot sorted	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 12.3b Features from Late Iron Age features (Phase 6)

Sample No.	209	231	232	250	252	253	273	292	293
Context No.	**1971**	**2226**	**2155**	**1935**	**2161**	**2166**	**2507**	**2643**	**2666**
Context type	**ph**	**pit**	**pit**	**ditch**	**ditch**	**ditch**	**ditch**	**pit**	**pit**
Cereals									
Avena sp. (grains)									x
Cereal indet. (grains)	x	x		x	x		x	x	
Hordeum sp. (grains)	x	xcf	xcf	x					x
Hordeum/Secale cereale type (rachis nodes)									x
Secale cereale L. (grains)			x						xcf
Triticum sp. (grains)	x		x						x
T. aestivum/compactum type (rachis nodes)									x
Herbs									
Anthemis cotula L.									x
Atriplex sp.					x				
Fallopia convolvulus (L.)A.Love				xtf	x				x
G. aparine L.									x
Linum sp.					x				
Medicago/Trifolium/Lotus sp.					xcf				
Small Poaceae indet.				x	x				
Ranunculus acris/repens/bulbosus					x				
Rumex sp.				x	xx				
Silene sp.									x
Tree/shrub macrofossils									
Corylus avellana L.	x								xcf
Other plant macrofossils									
Charcoal <2mm	xxx	x	xx	xx	x	x	xx	x	xx
Charcoal >2mm			x			x	x		x
Charred root/rhizome/stem					x				
Indet.culm nodes									x
Indet.seeds	xm				x		x	x	
Molluscs									
Marsh/freshwater slum species									
Vertigo sp.					xb				
Other materials									
Black porous 'cokey' material		x			xx	xx			
Black tarry material	x	x	x	x	x			x	x
Bone	x			x					
Burnt/fired clay	x								x
Fish bone				x					
Hammer scale									xcf
Small coal frags.	x	x				x			
Sample volume (litres)									
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table A12.3c Samples from Late Iron Age features (Phase 6)

Sample No.	294	299	301	303	304	315	328	329	330
Context No.	2678	796	2695	2680	2682	2767	3033	2732	2757
Context type	pit	surface	ditch	ditch	ditch	pit	ditch	ditch	ditch
Cereals									
Avena sp. (grains)						x	x		
Cereal indet. (grains)	x	x	x	x	x	x	x	x	x
(sprout frags.)						x			
Hordeum sp. (grains)	x	x	x		x		x	x	
Triticum sp. (grains)		x	x	x	x	x		xcf	
Herbs									
Anthemis cotula L.						x			
Atriplex sp.			x						
Bromus sp.				x	x			x	
Chenopodium album L.			x				x		
C. ficifolium Sm.			x						
Chenopodiaceae indet.			xx			x			
Fallopia convolvulus (L.)A.Love							x		
Fumaria officinalis L.			x						
Medicago/Trifolium/Lotus sp.							xcf	xcf	
Small Poaceae indet.			x		x				
Large Poaceae indet.	x							x	
Polygonum aviculare L.			x						
Polygonaceae indet.			x						
Rumex sp.			x				x		
Stellaria sp.			x						
S. media (L.)Vill.			x						
Vicia/Lathyrus sp.		x							
Wetland plants									
Eleocharis sp.	x								
Tree/shrub macrofossils									
Corylus avellana L.		x							
Prunus spinosa L.					x				
Other plant macrofossils									
Charcoal <2mm	x	xx	xx	xx	x	xx	xx	xx	x
Charcoal >2mm		x		x	x		x		
Charred root/rhizome/stem			x	x	x	x			
Indet.culm nodes									
Indet.seeds		x	x		x		x		
Other materials									
Black porous 'cokey' material	x	x	xx				x		
Black tarry material	x	x			x			x	
Bone		x	x						
Small coal frags.		xx			x	x			
Sample volume (litres)									
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table A12.3d Samples from Late Iron Age features (Phase 6)

Sample No.	6	50	59	82	154	156	158	163	188	203
Context No.	99	662	110	955	1238	978	391	794	1538	1961
Context type	ditch	ditch	ditch	pit	ditch	ditch	ditch	ditch	ditch	pit
Cereals										
Avena sp. (grains)						xx	xx			
(awn)					x				x	
Cereal indet. (grains)	x		x	x	x	xxx	xx		xxx	x
Hordeum sp. (grains)						x	xcf	x	xx	
(rachis nodes)									x	
H. vulgare L. (asymmetrical lateral grains)									x	
Hordeum/Secale cereale type (rachis nodes)							x		x	
Secale cereale L. (grains)					xcf	xcf	x			
(rachis nodes)					x					
Triticum sp. (grains)		x		x	x	xxx	xxx	x	x	x
(glume bases)									x	
T. spelta L. (glume bases)									xx	
T. aestivum/compactum type (rachis nodes)					x	x	xx			
Herbs										
Agrostemma githago L.						x	x		xcf	
Anthemis cotula L.					x					
Atriplex sp.									x	
Bromus sp.									x	
Centaurea sp.						x	x			
Chenopodium ficifolium Sm.									x	
Fabaceae indet.						xcoty			x	
Fallopia convolvulus (L.)A.Love									x	
Galium aparine L.						x	x			
Hyoscyamus niger L.						xcf				
Lithospermum arvense L.						x				
Medicago/Trifolium/Lotus sp.						x			x	
Mentha sp.									x	
Plantago lanceolata L.							x		x	
Small Poaceae indet.				x			x		x	
Polygonum aviculare L.									x	
Polygonaceae indet.							x			
Rumex sp.						x			xx	
Sheradia arvensis L.									x	
Stellaria media (L.)Vill.									x	
Vicia/Lathyrus sp.							x			
Tree/shrub macrofossils										
Corylus avellana L.									xcf	
Sambucus nigra L.						x				
Other plant macrofossils										
Charcoal <2mm	xx	x	xx	xx	xx	xx	xxx	xx	xx	x
Charcoal >2mm			x			x	x		x	
Charred root/rhizome/stem	x				x		x	x	x	
Indet.culm nodes							x		x	
Indet.seeds					x				x	
Indet.thorns (*Prunus* type)									x	
Other materials										
Black porous 'cokey' material	x				x	xx	xxx		xx	x
Black tarry material		x		x			x	x		x
Bone	x				x		x		x xb	
Burnt/fired clay									x	
Eggshell	x					xb	x			
Fish bone					x		x			
Small coal frags.		x		x					x	
Small mammal/amphibian bones						xb			xb	
Vitrified material					x	x			xx	
Sample volume (litres)										
Volume of flot (litres)	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	0.2	<0.1	0.1	<0.1
% flot sorted	100%	100%	100%	100%	100%	25%	100%	100%	100%	100%

Table A12.4a Samples from Romano-British features (Phases 7-9)

Sample No.	254	268	275	276	287	291	295	298	318	320
Context No.	**2170**	**2489**	**2546**	**2576**	**2608**	**2627**	**2537**	**2635**	**2517**	**2655**
Context type	**ditch**	**ditch**	**pit**	**ditch**	**ph**	**ditch**	**ditch**	**ditch**		
Cereals										
Avena sp. (grains)		x			x					
Cereal indet. (grains)		x	xx	x	x	x				x
Hordeum sp. (grains)			xcf	xcf	x					
Hordeum/Secale cereale type (rachis nodes)			x							
Triticum sp. (grains)		x	xx	x	xx	x			x	x
T. aestivum/compactum type (rachis nodes)			x		x		x			
Herbs										
Anthemis cotula L.			x			x				
Asteraceae indet.			x							
Atriplex sp.					x					
Bromus sp.					x					
Centaurea sp.			x							
Chenopodiaceae indet.										x
Hyoscyamus niger L.						x				
Medicago/Trifolium/Lotus sp.			x							
Papaver sp.					xcf					
Small Poaceae indet.										x
Large Poaceae indet.						x		x		
Rumex sp.			x							
Vicia/Lathyrus sp.			x							
Wetland plants										
Carex sp.			x							
Eleocharis sp.									x	
Tree/shrub macrofossils										
Corylus avellana L.		x							x	
Other plant macrofossils										
Charcoal <2mm	x	x	xxx	xxx	xxx	x		x	xx	xx
Charcoal >2mm		x	x	xx						
Charred root/rhizome/stem			x	x						
Indet.buds				x						
Indet.culm nodes			x		x					
Indet.inflorescence frags.					x					
Indet.seeds			x			x		x		
Other materials										
Black porous 'cokey' material		x	xx	xx	x				x	x
Black tarry material		x		x	x		x			x
Bone			x	x	x					
Brick/tile			x							
Burnt/fired clay				x						
Fish bone			x							
Small coal frags.			x	x	x					x
Small mammal/amphibian bones			x							
Vitrified material										x
Sample volume (litres)										
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table A12.4b Samples from Romano-British features (Phases 7-9)

Sample No.	17	18	20	21	22	24	25	26	27	269
Context No.	392	392	393	395	396	360	399	400	401	2463
Context type	sfb	sfb	sfb	sfb	sfb	sfb	hearth	hearth	hearth	sfb
Cereals										
Avena sp. (grains)							x	x		
Cereal indet. (grains)			x	x	x	x	x	xx	x	x
(detached embryos)							x			
Hordeum sp. (grains)					x		x	xx	x	
Triticum sp. (grains)			x	x			x	xx		
T. spelta L. (glume bases)	x									
Herbs										
Anthemis cotula L.						x		x		
Apium nodiflorum (L.)Lag							xcf			
Asteraceae indet.							x			
Bromus sp.								xcf		
Cannabis sativa L.							xcf			
Caryophyllaceae indet.							x			
Chenopodium album L.						x				
Chenopodiaceae indet.						x				
Fabaceae indet.							x			
Fallopia convolvulus (L.)A.Love							x	x		
Fumaria sp.							x			
F. officinalis L.								x		
Galium aparine L.							x	xx	x	
Malva sp.							xx			
Medicago/Trifolium/Lotus sp.						x				
Plantago lanceolata L.							x			
Small Poaceae indet.						x	xx	x	x	
Large Poaceae indet.							x	x	x	
Polygonum aviculare L.							x			
Polygonaceae indet.								x		
Rumex sp.						x	x	x		
Rumex/Carex sp.							x			
Vicia/Lathyrus sp.						x				
Wetland plants										
Carex sp.							xcf	x		
Eleocharis sp.							x			
Other plant macrofossils										
Charcoal <2mm	xxx	xxx	xx	xx	x	xx	xxx	xxx	xx	xx
Charcoal >2mm	x	xx		x			x	xx		
Charred root/rhizome/stem			x	x				x	x	
Indet.seeds						x	x	x	x	x
Indet.thorns (Prunus type)									x	
Other materials										
Black porous 'cokey' material	xx			x	xx	x	x	x	x	x
Black tarry material	x			x	xx	x		x	x	
Bone		x					x	x	xb	
Burnt/fired clay							x	x		
Eggshell							x		xb	
Small coal frags.	x		x		x		x		x	x
Small mammal/amphibian bones							xpmc			
Tufaceous concretions										
Vitrified material							x			x
Volume of flot (litres)	**0.1**	**0.2**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**0.2**	**<0.1**	**<0.1**
% flot sorted	**100%**	**50%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table A12.5 Samples from Anglo-Saxon buildings (Phase 10)

Sample No.	155	157	159	278	314	325	233
Context No.	**1066**	**388**	**487**	**2583**	**2765**	**2583**	**2024**
Context type	**pit**	**ditch**	**ditch**	**ph**	**ditch**	**ph**	**pit**
Cereals							
Avena sp. (grains)	xcf	x		x	x		
Cereal indet. (grains)	xx	xx	x	x	xx		x
Hordeum sp. (grains)		xcf	xcf	xcf	x	x	
Hordeum/Secale cereale type (rachis nodes)	x			x			
Secale cereale L. (rachis nodes)				xcf			
Triticum sp. (grains)	xx	xx	xcf	x	xx	x	
(rachis internodes)	x						
(rachis node frags.)					x		
T. aestivum/compactum type (rachis nodes)	x			x		x	
T. turgidum type (rachis nodes)					xcf		
Herbs							
Anthemis cotula L.	x	x			x		
Bromus sp.				x			
Centaurea sp.				x			
Fabaceae indet.					x		
Large Poaceae indet.					x		
Polygonaceae indet.					x		
Wetland plants							
Carex sp.				x			
Other plant macrofossils							
Charcoal <2mm	xx	xx	x	xx	xx	xx	xx
Charcoal >2mm	x	x		x	x		
Charred root/rhizome/stem	x	x			x	x	
Indet.culm nodes				x	x		
Indet.seeds				x	x		
Other materials							
Black porous 'cokey' material		x	x	xx	xx		
Black tarry material	x	x	x				x
Bone	x			x			
Eggshell	x						
Mineralised/faecal concretions		x					
Small coal frags.	x			x			
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table A12.6 Samples from medieval and post-medieval features (Phases 13 and 15)

Sample No.	85	90	100	105	108	110
Context No.	**1077**	**1082**	**1092**	**1099**	**1121**	**1123**
Pond No.	**6**	**6**	**6**	**6**	**5**	**5**
Cereals						
Cereal indet. (grains)	x	x				x
Hordeum sp. (grains)		xcf				
Triticum sp. (grains)						x
Herbs						
Polygonaceae indet.		x				
Tree/shrub macrofossils						
Corylus avellana L.						
Other plant macrofossils						
Charcoal <2mm	xx	x	x	x	xx	xx
Charcoal >2mm					x	
Charred root/rhizome/stem					x	
Other materials						
Black porous 'cokey' material	x		x		xx	xx
Black tarry material			x	x		x
Bone						x
Burnt/fired clay					x	
Small coal frags.	x	x	x	x	x	x
Sample volume (litres)						
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table A12.7a Samples from the ponds

Sample No.	113	115	119	120	125	129	131	135
Context No.	**1131**	**1133**	**1145**	**1146**	**1152**	**1155**	**1157**	**1161**
Pond No.	**4**	**4**	**3**	**3**	**2**	**1**	**1**	**1**
Cereals								
Avena sp. (grains)				xcf				
Cereal indet. (grains)	x	x				x		
Hordeum sp. (grains)			x					
Triticum sp. (grains)		x	x					x
Tree/shrub macrofossils								
Corylus avellana L.	x							x
Other plant macrofossils								
Charcoal <2mm	xx	x	xx	x	x	x	xx	xx
Charred root/rhizome/stem			x					x
Other materials								
Black porous 'cokey' material	xx	x	x	x	xx			x
Black tarry material			x	x			x	
Bone		x			x			x
Burnt/fired clay				x				
Mineralised concretions		x						
Small coal frags.	x	x	x	x	x		x	x
Sample volume (litres)								
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table A12.7b Samples from the ponds

Sample No.	10	15	138	142	213	214
Context No.	**240**	**318**	**1230**	**1230**	**2150**	**2150**
Cereals						
Cereal indet. (grains)	xx					
Hordeum sp. (grains)	xx					
Herbs						
Vicial Lathyrus sp.	x					
Other plant macrofossils						
Charcoal <2mm	xx	x	x	xx	x	x
Charcoal >2mm	x					
Indet.seeds	x					
Other materials						
Black porous 'cokey' material	xx	x		xx		
Black tarry material	xx	x		x		
Bone	x	x		x		
Burnt/fired clay				x		
Small coal frags.		x		x		
Sample volume (litres)						
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table A12.8 Samples from undated grave fills

Sample No.	Context No.	Contents
2	81	nut;ch;bud;cr/r/st;bpc;b/fc
3	71	gr;s/f;ch;bpc;bl.tarry mat;b
5	82	gr;ch;bl.tarry mat.
7	164	nut;ch;bpc
8	208	ch
9	252	gr;s/f;ch;cr/r/st;bpc
31	372	gr;nut;ch;bpc;bl.tarry mat.
32	486	gr;chf;nut;ch;s/f;cr/r/st;bpc;bl.tarry mat.;b;b/fc;egg;fb;sm.coal;sm/amph.;molls;m/p;vitmat
33	650	ch;bpc;bl.tarry mat.
58	688	ch;cr/r/st;bl.tarry mat;sm.coal
60	689	ch
61	710	nut;ch;bl.tarry mat
62	709	gr;nut;ch;bpc;bl.tarry mat;b;b/fc;sm.coal
63	486	gr;s/f;chf;ch;cr/r/st;bpc;fb;sm.coal;sm/amph
64	486	gr;s/f;ch;cr/r/st;sm/amph
65	538	ch
66	730	gr;ch;bl.tarry mat.
68	748	nut;s/f;chbl.tarry mat;b;am/amph
71	761	ch;bl.tarry mat;b
76	927	gr;ch;bl.tarry mat.
81	958	gr;s/f;ch;cr/r/st;bpc;fb;sm/amph;min.inv;min/faec.concret
144	538	gr;s/f;ch;bpc;fb;sm/amph;sm.coal;min.concret
152	1260	gr;s/f;ch;cr/r/st;mr/r/st;bpc;b;fb;sm.coal;min/faec.concret
153	1261	gr;chf;s/f;ch;bpc;bl.tarry.mat;m/p;min.inv
185	1772	gr;s/f;ch;bpc;b;sm.coal;min/faec.concret
195	1817	gr;ch;bpc;b;burnt stone
197	1506	ch
199	1913	gr;ch;cr/r/st;molls;min.inv
200	1919	ch;b;fb;sm.coal;min.inv;vitmat
201	1324	gr;s/f;ch;cr/r/st;bl.tarry mat;
208	1980	gr;chf;nut;s/f;ch;bpc;b;sm.coal
248	2301	gr;s/f;ch;indet.tuber;bpc;b/fc
249	2303	ch;cr/r/st;bpc
263	2356	gr;ch;bpc;bl.tarry mat
277	2594	gr;s/f;ch;bl.tarry mat
305	2762	gr;s/f;ch;cr/r/st;bpc
311	2743	gr;ch;bpc
316	2657	gr;s/f;ch;fr.st.fg(m);mr/r/st;bpc;bl.tarry mat;b;min.inv
317	2733	ch
319	2533	gr;chf;s/f;ch;cr/r/st;bpc

Table A12.9 Samples from undated pits and other features

Key

nut = nutshell
ch = charcoal
cr/r/st = charred root/rhizome/ stem
bpc = black porous cokey material
molls = molluscs
b/fc = bumt/fired clay
gr = grains
s/f = seeds/fruits
bl.tarry mat = black tarry material
m/p = mortar/plaster
b = bone
chf = chaff
fb = fish bone
sm.coal = small coal
sm/amph = small mammal/ amphibian bone
vitmat = vitrified material
min/faec.concret. = mineralised/ faecal concretion
min.inv = mineral replaced arthropods
fr.st.fg = fruit stone fragment
(m) = mineral replaced

Sample No.	Context No.	Context type	Contents
12	307	ph	gr;s/f;ch;bpc
13	309	ph	gr;chf;ch
14	311	ph	ch;bpc
23	358	ditch	gr;ch;bpc;bl.tarry mat;sm.coal
28	444	ph	ch;bpc;bl.tarry mat
29	445	ph	nut;ch;bpc
52	236	ditch	ch;sm/amph
53	178	ditch	ch;cr/r/st;bl.tarry mat
55	682	ditch	gr;ch;bl.tarry mat;b;sm.coal
74	871	ph	gr;s/f;ch;molls;sm/amph
75	817	ph	gr;s/f;ch;cr/r/st
80	929	ph	gr;s/f;ch;bpc;bl.tarry mat;b;sm/amph;sm.coal;min/faec.concret
145	1354	ph	gr;chf;s/f;ch;cr/r/st;bpc;b/fc
147	1356	ph	gr;chf;s/f;ch;bpc;b
161	670	ditch	gr;ch;bpc;bl.tarry mat;sm.coal
162	700	ditch	gr;ch
169	1533	ditch	gr;ch;bpc;sm.coal
190	1757	ditch	ch
191	1761	ditch	ch
198	1866	ditch	gr;ch;bl.tarry mat
204	1992	pit/ph	ch/bl.tarry mat
206	1925	ditch	gr;ch;sm.coal
207	1930	ditch	gr;s/f;ch;b
210	1997	ph	gr;nut;s/f;cr/r/st;bpc;bl.tarry mat;b;fb;sm/amph;sm.coal
211	2104	hearth	gr;s/f;ch;bl.tarry mat;b
212	1982	hearth	gr;s/f;ch;cr/r/st;bl.tarry mat;b;b/fc
215	1418		gr;s/f;ch;bpc
216	1414	ph	gr;ch;bl.tarry mat
217	1400	ph	gr;ch
218	1402	ph	gr;ch;indet.tuber
219	1408	ph	ch
220	1412	ph	gr;ch;bpc
221	1404	ph	ch;bpc;bl.tarry mat
222	1654		gr;chf;s/f;ch;bpc;b/fc
224	1624	ph	gr;chf;s/f;ch;bpc;b
226	1668		gr;s/f;ch
227	1652		gr;chf;s/f;ch;bpc;vitmat
228	1406	ph	gr;chf;s/f;ch;cr/r/st;bpc;b/fc
229	1658		gr;chf;s/f;ch;cr/r/st;bpc;b;b/fc
230	1416	ph	gr;s/f;ch;bpc
236	2003	tree bole	gr;s/f;ch;bpc;bl.tarry mat
255	2169	ditch	ch;bpc;bl.tarry mat;sm.coal
262	2411	ph	ch
265	2454	ditch	modern mouse stache of Atriplex sp.;ch;bl.tarry mat;sm.coal
267	2487	ph	ch;bl.tarry mat
270	2500	pond	gr;s/f;ch;bl.tarry mat
271	2501	ph	gr;s/f;ch;bl.tarry mat
272	2503	ph	gr;ch;bl.tarry mat
274	2505	ditch	gr;ch;bl.tarry mat;sm.coal
280	2566	ditch	ch
281	2569	ditch	ch;cr/r/st;bpc;bl.tarry mat
282	2550	ditch	gr;ch;bl.tarry mat
283	2600	ph	gr;s/f;ch;cr/r/st;bpc;bl.tarry mat;sm.coal
285	2604	ditch	gr;chf;s/f;ch;cr/r/st;
286	2606	beam slot	gr;ch;cr/r/st;bpc;bl.tarry mat
288	2621	ditch	gr;chf;ch;bl.tarry mat;fe glob
289	2623	ditch	ch;cr/r/st;bpc;bl.tarry mat
290	2625		gr;ch;cr/r/st;bpc;bl.tarry mat
296	2631	ditch	gr;ch;bpc
297	2633	ditch	ch;bpc
300	2719	ditch	ch;bpc;bl.tarry mat
306	3049	natural	gr;ch;bpc;bl.tarry mat;sm.coal

308	3050	natural	gr;bpc;bl.tarry mat;sm.coal
312	3005	ph	ch;bpc
313	2675	ditch	gr;ch;bl.tarry mat
322	2793	ph	gr;chf;ch;bpc;bl.tarry mat
323	2717	ph	gr;chf;s/f;ch;cr/r/st;bpc;b;egg;sm.coal
326	1662		gr;s/f;ch;cr/r/st;bpc;bl.tarry mat;sm.coal
333	2558	ditch	gr;s/f;ch;cr/r/st;indet.tuber;molls;sm.coal;sm/amph;b;vitmat
334	2558	ditch	gr;s/f/;ch;cr/r/st;bl.tarry mat;molls

Table A12.10 Samples from undated pits and other features

Key

gr = grain
s/f = seeds/fruits
ch = charcoal
bpc = black porous 'cokey' material
bl.tarry.mat = black tarry material
sm.coal = small coal fragments
nut = nutshell
sm/amph = small mammal/amphibian bone
cr/r/st = charred root/rhizome/stem
b = bone
min/faec.concret = mineralised/faecal concretion
chf = chaff
b/fc = burnt/fired clay
vitmat = vitrified material
fe.glob = ferrous globule
egg = eggshell

Appendix12b: Macrobotanical Remains from ICK GC 02/03

by Val Fryer

1 Introduction

Excavations at Ickleton revealed a series of waterlogged deposits were revealed including layers, hurdles, revetments and ditches. Dating evidence was sparse, but some features were thought to be Middle Iron Age or earlier, whilst one hurdle was dated to 900 – 1150 A.D. Seventeen plant macrofossil assemblages were submitted for this report which forms an appendix to the main assessment (Appendix 12a).

2 Methods

The samples were bulk floated by a member of the CAM ARC team, collecting the flots in a 500 micron mesh sieve. Hydrogen peroxide was used to assist with the deflocculation of the compacted matrix. As waterlogged plant macrofossils were present in all assemblages, the flots were stored in water prior to assessment. The wet retents were scanned under a binocular microscope at magnifications up to x 16, and the plant macrofossils, molluscs and other remains noted are listed on Tables A12.11a and b. Nomenclature within the tables follows Stace (1997). Tabulated plant remains are waterlogged unless otherwise stated.

3 Results of assessment

3.1 Plant macrofossils

Crop plant remains, seeds of common weeds and wetland/aquatic plants, and tree/shrub macrofossils were present at varying densities in all samples. Preservation was generally good, although some waterlogged macrofossils were compacted and misshapen. Charred cereal remains were noted in seven samples. Preservation of this material was variable, with some grains being puffed and distorted, possibly due to high temperatures during combustion.

3.1.1 Cereals and other crop plants

Charred grains of oat (*Avena* sp.), barley (*Hordeum* sp.), rye (*Secale cereale*) and wheat (*Triticum* sp.) were recorded along with chaff elements including spelt wheat (*T. spelta*) glume bases and bread wheat (*T. aestivum/compactum*) type rachis nodes. Waterlogged remains of other possible crop plants included hemp (*Cannabis sativa*) seeds and both seeds and capsule fragments of flax (*Linum usitatissimum*).

3.1.2 *Dry land herbs*

Seeds of common dry land herbs, including segetal, ruderal and grassland taxa, were common in all samples. Common segetal species included corn cockle (*Agrostemma githago*), stinking mayweed (*Anthemis cotula*), orache (*Atriplex* sp.), brome (*Bromus* sp.), fat hen (*Chenopodium album*), black bindweed (*Fallopia convolvulus*), hemp-nettle (*Galeopsis tetrahit*), poppy (*Papaver* sp.), knotgrass (*Polygonum aviculare*), campion (*Silene* sp.), chickweed (*Stellaria media*) and charlock (*Sinapis* sp.). Ruderal and grassland taxa were predominant and included thistle (*Cirsium* sp.), *persicaria*/redshank (*Persicaria maculosa/lapathifolia*), grasses (Poaceae), self-heal (*Prunella vulgaris*), meadow/creeping/bulbous buttercup (*Ranunculus acris/repens/bulbosus*), dock (*Rumex* sp.), sow-thistle (*Sonchus* sp.) and stinging nettles (*Urtica dioica*).

3.1.3 *Wetland/aquatic plants*

Seeds/fruits of wetland and aquatic plants were common or abundant in most samples. The taxa most frequently noted included water plantain (*Alisma plantago-aquatica*), wild celery (*Apium graveolens*), sedge (*Carex* sp.), spike-rush (*Eleocharis* sp.), rush (*Juncus* sp.), mint (*Mentha* sp.), fine-leaved water-dropwort (*Oenanthe aquatica*), water crowfoot (*Ranunculus* subg. *Batrachium*) and yellow-cress (*Rorippa* sp.).

3.1.4 *Tree/shrub macrofossils*

Tree/shrub macrofossils were recorded at low to moderate densities from nine of the samples assessed. Hazel (*Corylus avellana*) nutshell fragments (including charred specimens) and elderberry (*Sambucus nigra*) seeds were the most abundant although bramble (*Rubus* sect. *Glandulosus*) 'pips' were also recovered.

3.1.5 *Other plant macrofossils*

Fragments of waterlogged root/stem were abundant in all samples. Charcoal fragments and pieces of charred root/stem were also present in all but Sample 4034. Wood fragments (including some roundwood over 5mm in diameter) were recorded from seven samples and other plant macrofossils included indeterminate buds, capitula (seed head) fragments, moss fronds, seeds, thorns and twigs.

3.2 Other materials

With the exception of waterlogged arthropod remains, which were present in all but Sample 4022, other remains were scarce. Caddis larval cases, bone and fish bone fragments were noted along with rare fragments of black 'cokey' material and some possible calcareous concretions.

3.3 Molluscs

Mollusc shells were present at varying densities in all but Sample 4007. Most specimens were very fragmented and fragile, although this may in part be due to the use of hydrogen peroxide, which is proven to damage molluscan remains (Laura Eley, Bournemouth, pers comm.). All four of Evans (1972) ecological groups of land snails are represented (i.e. woodland/shade loving species, open country species, catholic species and marsh/freshwater slum species) and freshwater obligate taxa were also common, especially in the assemblages from Samples 4003, 4040, 4045 and 4047.

4 Discussion

As only three samples are tentatively dated at present, no attempt has been made to study the material chronologically. However, certain components within the assemblages are possibly linked with activities already identified during earlier phases of the excavation programme, and these may give some indication of the potential date of the contexts. In particular, work at Hinxton Hall (Fryer and Murphy forthcoming) identified the importance of flax to the economy of the Late Saxon settlement. Although identified as a potential food source, it is probably reasonable to assume that retting may also have taken place, and it is, therefore significant that possible retting waste in the form of seeds and capsule fragments is present in Samples 4017, 4018, 4033, 4034 and most particularly 4042. A small number of poorly preserved flax seeds and capsule fragments are also recorded from Samples 4008, 4012 and 4046, although it is considered unlikely that these are directly indicative of retting activities in these instances. Flax stems may also be present in some cases, but high power microscopy will be required to identify these. The area from which the samples were taken is well suited to retting as it is adjacent to the river, ensuring a constant water supply, and it is sufficiently removed from the settled area to prevent the malodorous activity from being a nuisance. Rare hemp seeds are also recorded from both the current site and the Hinxton Hall excavation. Although hemp was utilised for the manufacture of rope, the small number of seeds recorded may indicate that it was present as a medicinal herb.

Other elements within the assemblages indicate a predominantly damp grassland/meadow habitat, which probably flooded regularly. Shaded areas appear to have been rare, although there is some evidence for sparse scrub including hazel, brambles and elderberries. It would appear that once retting ceased, the area reverted to a marshy habitat capable of sustaining a range of ruderal weeds, wetland plants and marsh/freshwater molluscs. Some charred and waterlogged cereal processing waste is recorded, although this may be derived from flood debris rather than direct deposition from adjacent agricultural activities.

The remaining assemblages are primarily composed of material derived from the local flora, and as a result they cannot be directly linked to any particular period of the sites occupation or use. Although most appear to indicate that wet grassland conditions prevailed, the predominance of yellow-cress seeds within Sample 4007 (from a layer of possible Middle Iron Age or earlier date) may suggest that drier conditions with only intermittent flooding were more common during this early period.

5 Conclusions and recommendations for further work

In summary, although most samples were from un-dated contexts, the presence of flax seeds and capsule fragments within certain of the assemblages may tentatively link them to Late Saxon deposits recovered from the nearby Hinxton Hall excavations, in which flax seeds were abundant. Other elements within the assemblages indicate that damp grassland/meadow conditions were locally predominant close to the river.

Although the list of species shown on Tables A.11a and b is comprehensive, the interpretation of such assemblages is extremely difficult, and in the absence of dating, such interpretation would contribute little to the overall understanding of the site or its component features. If the assemblage from Sample 4042 can be shown to be of possible Late Saxon date, then full quantitative analysis may be considered, but otherwise no further work is recommended at this stage.

Bibliography

Evans, J., 1972, *Land Snails in Archaeology*. London

Fryer, V., 2004 Charred plant macrofossils and other remains from the Hinxton Genome Campus Extension, Hinxton, Cambridgeshire (HINGC 02): Assessment report for the Cambridgeshire County Council Archaeological Field Unit

Fryer, V. and Hall, Murphy, P., Forthcoming, 'Plant macrofossils' in Spoerry, P., 'Excavations at Hinxton Cambridgeshire.'

Stace, C., 1997, *New Flora of the British Isles*. Second edition. Cambridge University Press

Key to Tables A12.11a and b

x = 1 – 10 specimens xx = 10 – 100 specimens xxx = 100+ specimens
c = charred tf = testa fragment

Sample No.	4003	4006	4007	4008	4012	4017	4018	4022
Context No.	**4014**	**4033**	**4037**	**4037**	**4052**	**4013**	**4013**	**4066**
Cereals and other crop plants								
Cannabis sativa L.		xcf						
Cereal indet. (grains)				xc				
Hordeum sp. (grains)					xc			xc
Linum usitatissimum L.				x	x	x	x	
(capsule frags.)				xcf		x	xcf	
Secale cereale L. (rachis nodes)		xc						
Triticum sp. (grains)		xc			xc			
Dry land herbs								
Aethusa cynapium L.					x			
Agrostemma githago L.		x xtf		xtf	xcftf	x xtf		x
Ajuga sp.		x	x		xcf			x
Anthemis cotula L.		x	x	x xc	x	xx	x	xx
Aphanes arvensis L.		x						
Apiaceae indet.	x	x			x			x
Atriplex sp.		x		x	x	x	x	x
Brassicaceae indet.						x		
Bromus sp.			xc	xc	xc			
Cerastium sp.					x			
Chenopodium album L.	x	x		xcf		x		x
C. ficifolium Sm.					x			
Chenopodiaceae indet.					x			
Cirsium sp.	x	x	x	x	x	xx	x	x
Epilobium sp.			x					
Fallopia convolvulus (L.)A.Love	x			x				
Galeopsis tetrahit L.				x	x	xx	x	
Hyoscyamus niger L.		x						
Lamium sp.						x		
Lamiaceae indet.				x				
Lapsana communis L.					x	x		
Medicago lupulina L.							x	
Papaver sp.		x		x		x		
P. argemone L.		x	x				x	x
P. dubium L.		x	x				x	
P. somniferum L.				x				
Persicaria maculosa/lapathifolia	x	x	x	x	x	x	x	x
P. lapathifolia L						xx		
Plantago major L.		x				x		
Small Poaceae indet.		x	xc			x	x	
Large Poaceae indet.						xc		
Polygonum aviculare L.		x	x	x	xcf	x		
Polygonaceae indet.		x						
Potentilla sp.			x			xcf		
P. anserina L.	x			x				
Prunella vulgaris L.		x		x	x		x	x
Ranunculus sp.		x			x			
R. acris/repens/bulbosus	xx	x	xx	x	x	x	x	x
Raphanus raphanistrum L. (siliqua frags.)		x						
Rumex sp.	x	x	x	x	x	x	x	x

Sample No.	4003	4006	4007	4008	4012	4017	4018	4022
Context No.	**4014**	**4033**	**4037**	**4037**	**4052**	**4013**	**4013**	**4066**
Silene sp.	x	x	x	x	x	x	x	x
Sinapis sp.		x						
Solanum nigrum L.						x		
Sochus asper (L.)Hill	x			x		x		
(capitula frags.)						x		
Stellaria sp.						xx	x	
S. media (L.)Vill.	x		x	x		xx		x
S. graminea L.				x		x		
Urtica dioica L.	x	x	x	x	x	x		x
U urens L.				x				
Wetland/aquatic plants								
Alisma plantago-aquatica L.				x				
Apium graveolens L.	x	x	x	x			x	x
Bidens tripartita L.						x		
Carex sp.	xxx	x	x	x	x	x	x	x
Eleocharis sp.						x		x
Juncus sp.		x				x	x	
Lycopus europaeus L.	x				x	x		
Mentha sp.	x	x		x				x
Oenanthe aquatica (L.)Poiret	x	xx	x	x		xcf		x
Polygonum minor (Hudson) Opiz						x		x
Potamogeton sp.								x
Ranunculus subg. *Batrachium* (DC)A.Gray		x	x	x				x
R. flammula L.		x		x				
R. sceleratus L.				x				
Rorippa sp.			xx	x				x
R. nasturtium-aquaticum (L.)Hayek			x					
Thalictrum flavum L.		x						
Typha sp.				x				
Tree/shrub macrofossils								
Corylus avellana L.	xcf					x	x	
Rubus sect. *Glandulosus* Wimmer & Grab	x				x			
Sambucus nigra L.	x			x				

Charcoal <2mm	x	x	x		x	xx	x	xx
Charcoal >2mm				x		x		
Charred root/rhizome/stem	x	x		x	x	x	x	
Waterlogged root/stem	x	xxx	xxx	xxx	xx	xxx	xxx	xxx
Phrgamites type stem						xcf		
Roundwood frags. >5mm				x				
Wood frags. <5mm						x		xxx
Wood frags. >5mm	x					x		
Indet.buds		x xc				x		x
Indet.culm nodes		xc					x	
Indet.moss		x		x	x	x		x
Indet.seeds		x	x	x	x		x	x
Indet.thorns (*Rosa* type)	x			x				
Indet.twigs.				x		x		x
Other materials								
Caddis larval cases	x			x	x			

CAM ARC Report No. 891

Sample No.	4003	4006	4007	4008	4012	4017	4018	4022
Context No.	**4014**	**4033**	**4037**	**4037**	**4052**	**4013**	**4013**	**4066**
Calcareous concretions						xcf		
Fish bone					x			
Ostracods			x					
Waterlogged arthropods	x	x	x	x	x	x	x	
Molluscs								
Woodland/shade loving species								
Aegopinella sp.	x							
Carychium sp.	xxx			xx	x			x
Nesovitrea hammonis	xx	xcf		x				
Vitrea sp.				x				
V. crystallina	x							
Open country species								
Helicidae indet.	x	x						
Vallonia sp.	xxx			xx	x		x	x
V. costata	x							
V. pulchella	xx			x	x			x
Catholic species								
Cepaea sp.	x	x						
Cochlicopa sp.	xx	x		x	x			x
Limacid plates					x		x	
Trichia hispida group	xxx			x	x			x
Marsh/freshwater slum species								
Carychium minimum	x							
Succinea sp.	xcf							
Vertigo sp.	xx			x				x
V. antivertigo	x				x			
V. pygmaea	x							
Freshwater obligate species								
Anisus leucostoma	x			x				
Bithynia sp.	x			x	x			x
(operculi)					x	x		x
Lymnaea sp.	xxx				x			x
L. glabra				xcf				
L. peregra	x			x				
L. truncatula	xx							
Pisidium sp.	x			x				
Planorbis sp.	x							
P. planorbis	x							x
Valvata piscinalis	x							x
Sample volume (litres)	?	?	1/10	10	10	1	1	1/10
Volume of flot (litres)	**0.3**	**0.4**	**0.3**	**0.4**	**0.8**	**0.3**	**0.4**	**0.4**
% flot sorted	**50%**	**25%**	**50%**	**25%**	**<10%**	**50%**	**25%**	**25%**

Table A12.11.a Plant macrofossils and other remains from the Ickleton site

Sample No.	4033	4034	4036	4040	4042	4043	4045	4046	4047
Context No.	4071	4065	4071	4003	4075	4076	4155	4150	4136
Cereals and other crop plants									
Avena sp. (grains)				xc	xc				
Cannabis sativa L.						x			
Cereal indet. (grains)				xxc	xxc		xc		
(basal rachis nodes)				xc					
Hordeum sp. (grains)				xc	xc		xc		
(rachis nodes)				xc					
Hordeum/Secale cereale (rachis nodes)				xc	xc				
Linum usitatissimum L.		x			xx				
(capsule frags.)	xcf	xcf			xx			xcf	
Secale cereale L. (grains)				xc					
(rachis nodes)				xc					
Triticum sp. (grains)				xc	xc		xc		
T. spelta L. (glume bases)				xc			xc		
T. aestivum/compactum type (rachis nodes)				xc	xc		xc		
Dry land herbs									
Aethusa cynapium L.		x							
Agrostemma githago L.			xcftf	xc	xtf	x			
Anthemis cotula L.		x	xx	xc	x		x		
Apiaceae indet.		x			x		x		x
Asteraceae indet.							x		
Atriplex sp.				x	x		xx		
Bromus sp.					xc				
Carduus sp.							x		
Chenopodium album L.	x		x	x			x	x	
Chenopodiaceae indet.	x		x						
Chrysanthemum segetum L.	x								
Cirsium sp.	x	x	x		x	x	x	x	x
Fabaceae indet.				xc					
Fallopia convolvulus (L.)A.Love				x	x	x			
Fumaria officinalis L.				x	x				
Galeopsis tetrahit L.		x			xx	x			
Hieracium sp.									xcf
Hyoscyamus niger L.				x			x		
Lamium sp.									x
Lamiaceae indet.							x		
Lapsana communis L.								x	
Medicago lupulina L.		x							
Papaver sp.			xx						
P. argemone L.	x				x				
P. dubium L.			x						
Persicaria maculosa/lapathifolia			x	x	xx	x	x		
P. lapathifolia L	x	x			x				
Small Poaceae indet.		x		xc	x		x		x
Large Poaceae indet.			xc						
Polygonum aviculare L.			x		x		x		
Potentilla anserina L.							x		
Prunella vulgaris L.		x	x						x

Sample No.	4033	4034	4036	4040	4042	4043	4045	4046	4047
Context No.	4071	4065	4071	4003	4075	4076	4155	4150	4136
Ranunculus sp.			x						
R. acris/repens/bulbosus	x	x	x	x	x		xx	x	xx
Reseda lutea L.				x			x	x	
Rumex sp.						x	x	x	x
Scandix pecten-veneris L.		x				x			
Scleranthus annuus L.							x		
Sherardia arvensis L.				xc					
Silene sp.		x	x	xc	x		xx		x
Sinapis sp.		x	xcf		x		xx		
Solanum nigrum L.		x							
Solanaceae indet.								x	
Sochus asper (L.)Hill		x	x		x		x		
Sonchus oleraceus L.					x				
Stellaria media (L.)Vill.		x	x		x				
S. graminea L.							x		
Urtica dioica L.		x		x	x		x	x	
U urens L.			x				x		x
Verbena sp.							x		
Wetland/aquatic plants									
Alisma plantago-aquatica L.			x						xx
Apium graveolens L.			x	x			xx	xx	x
Barbarea vulgaris R. Br.							x		
Bidens tripartita L.								x	x
Carex sp.	x	xx	xx	x	x	x	x	x	x
Eleocharis sp.			x	x	x		x		x
Juncus sp.	x		x		x		x		x
Lychnis flos-cuculi L.									x
Lycopus europaeus L.		x					x	x	
Mentha sp.		x	x		x		x		x
Menyanthes trifoliata L.				x			x		
Oenanthe aquatica (L.)Poiret	x	x	xcf	xx	x	x	xx	xx	x
Polygonum minor (Hudson) Opiz							x		x
Potamogeton sp.							x	x	
Ranunculus subg. *Batrachium* (DC)A.Gray	x	x	x		x		x	x	x
R. sceleratus L.	x						x		
Rorippa sp.	x								
Sagittaria sagittifolia L.							xcf		
Sparganium sp.									x
Thalictrum flavum L.									x
Tree/shrub macrofossils									
Corylus avellana L.				xc	xx				
Rubus sect. *Glandulosus* Wimmer & Grab					x		x		
Sambucus nigra L.				xx			xx		x
Other plant macrofossils									
Charcoal <2mm	x			xxx	x	x	xx	x	x
Charcoal >2mm				xx	x	x			
Charred root/rhizome/stem			x	x	x		xxx		
Waterlogged root/stem	xx	xxx	xxx	xx	xxx	xxx	xxx	xxx	xxx
Phrgamites type stem		x							
Roundwood frags. >5mm		x					x		

Sample No.	4033	4034	4036	4040	4042	4043	4045	4046	4047
Context No.	**4071**	**4065**	**4071**	**4003**	**4075**	**4076**	**4155**	**4150**	**4136**
Wood frags. <5mm		x	x						
Indet.bark	x								
Indet.buds			xc		x				
Indet.capitula frags.					x				
Indet.culm nodes				xc	xc				
Indet.fruit stone frag.							x		
Indet.moss			x				x		x
Indet.seeds	x	x	x			x	x	x	x
Indet.thorns (*Rosa* type)							x		
Indet.twigs.	x	x					x		
Other materials									
Black porous 'cokey' material				x					
Bone			x	x		x			
Fish bone				x					
Waterlogged arthropods	x	x	x	x	x	x	xx	x	xx
Molluscs									
Woodland/shade loving species									
Aegopinella sp.									x
Carychium sp.		x	xx	x			xx		xx
Nesovitrea hammonis				x					x
Oxychilus sp.									xcf
Vitrea sp.			x				x		
V. crystallina									x
Open country species									
Helicidae indet.			x						
Pupilla muscorum				x					x
Vallonia sp.		x	x	xxx			x	x	xx
V. costata									x
V. pulchella			x	x			x		x
Catholic species									
Cepaea sp.			x			x			x
Cochlicopa sp.			x		x	x	x	x	xx
Limacid plates				x					
Trichia hispida group		xcf	x	xx		xx	x	x	xx
Marsh/freshwater slum species									
Succinea sp.								x	
Vertigo sp.		x	xx				x	x	x
V. antivertigo				x					
V. pygmaea				x					x
Freshwater obligate species									
Anisus leucostoma				x					x
Bathyomphalus contortus				x			x		x
Bithynia sp.		x	x			x	xx	x	xx
(operculi)				xx				x	
Gyraulus albus				x			xcf		
Hippeutis complanata				x					
Lymnaea sp.				x			x	x	x
L. peregra		x	x	x		x	x		
Pisidium sp.				xx			xx	x	x
Planorbis sp.			x					x	x

Sample No.	4033	4034	4036	4040	4042	4043	4045	4046	4047
Context No.	4071	4065	4071	4003	4075	4076	4155	4150	4136
P. planorbis				xx			x	x	x
Planorbarius corneus				x			x		
Valvata sp.							xx		
V. cristata	x		x	x			x		x
V. macrostoma							xcf		
V. piscinalis				x			x		x
Sample volume (litres)	10	10	10	1/10	1/5	1/5	10	10	10
Volume of flot (litres)	<0.1	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.3
% flot sorted	100%	25%	25%	50%	50%	50%	25%	50%	50%

Table App.12.11b Plant macrofossils and other remains from the Ickleton site

Appendix 13: Geoarchaeology and Palynology

by Steve Boreham

1 Introduction

This report describes geological sections exposed in archaeological trenches at two adjacent sites south of Hinxton Hall, Cambridgeshire; Hinxton Genome Campus and Ickleton/Hinxton Riverside. The Hinxton Genome Campus site was located on a gravel terrace (c.35m O.D.) at the foot of a chalky slope some 150m northeast of the River Cam (TL 499 422). The Hinxton Riverside site was located on the floodplain (c.32m O.D.) within a meander loop of the River Cam (TL 497 441). The sections/trenches sampled below are located on Fig. 3.

2 Hinxton Genome Campus

2.1 Hinxton G Section A

An area of sloping valley side adjacent to a flatter terrace surface above the river floodplain had been cleared of ploughsoil for inspection. The slope was generally underlain by gravelly pellet chalk, interpreted as a periglacial solifluction deposit. However, a number of conspicuous shallow channel-forms filled by red-brown sand forming minor valleys or runnels aligned down-slope were observed. A trench was cut at 90˚ to one of the channels to inspect the stratigraphy of the slope deposits. Section A was photographed and described from the eastern face of the trench. There was strong evidence for periglacial activity in the floor of the trench where blocks of heaved angular chalk formed polygonal patterning. The contorted gravelly pellet chalk is itself evidence for the mass movement of chalky regolith downslope under permafrost conditions. The brown sand overlying the pellet chalk clearly originated as decalcified slope wash, and must be contemporaneous with the periglacial activity, since it was heaved by freeze-thaw action into tongues and diapirs within the chalky matrix. The overlying red/brown sand was much less disturbed and filled a small channel-form presumably eroded into the underlying material by running water. A red sand unit formed the core of the channel feature, although the present hillside channel appeared to be superimposed across the line of the older channel-form.

These deposits are interpreted as representing Late Glacial periglacial activity (pellet chalk), climatic amelioration leading to slope wash (brown sand), followed by renewed periglacial activity, perhaps the Loch Lomond stadial c.11,000 BP, incorporating the brown sand into the chalky matrix. There was then a period of incision and the deposition of red/brown slopewash sand, perhaps at the beginning of the Holocene. The heavily oxidised red sand may represent a time of fully temperate conditions prevailing before vegetation cover had

stabilised the soils in the catchment. An erosional channel cutting across the older deposits may date from the much later clearance of tree in the catchment c.4000 years ago.

2.2 *Hinxton G Section B*

At the foot of the sloping valley side on the terrace surface, a patch of brown shelly sand was observed. A trench was cut through this area to investigate the stratigraphy of the deposit. Section B was photographed and described from the northwest face of the trench. The area was floored by brown gravel and sand, and overlain by contorted gravelly pellet chalk. Strings, tongues and diapirs of red/brown sand were incorporated into this chalky matrix, indicating that periglacial activity must have re-started after the formation of these slopewash deposits. It seems likely that this sand material originally formed as debris fans at the break in slope between the valley side and the gravel terrace. However, the overlying brown shelly sand was generally less contorted, although it filled several pipes and fissures. The conspicuous shells were identified (R. C. Preece) as *Arianta arbustorum*, a large terrestrial snail intolerant of very cold conditions.

These deposits are interpreted as representing a gravel terrace overlain by soliflucted Late Glacial pellet chalk incorporating red/brown sand suggesting a short phase of slope wash followed by renewed periglacial activity. The overlying brown sand with Arianta could be Late Glacial or early Holocene in age, and is clearly a terrestrial rather than aquatic deposit. These deposits are consistent with debris fans formed from slopewash channels at the break in slope between the valley side and the gravel terrace.

2.3 *Hinxton G Section C*

On the terrace surface some 20m northwest of Section B, a northeast facing section containing charcoal was described from an archaeology trench. The section at TL 5002 4421 showed context 302 overlying context 304 (both Period 1, Phase 1). The stratigraphy of Section Ci was as follows;

Below -40cm	Orange clayey sand.
-40 to -5cm	Orange clayey sand, with carbonate mottling, probable Chara tubules.
	Significant patches of charcoal stained sand were visible at –25 and –15cm. The datum 0cm represents the base of the archaeological excavation.
-5 to 10 cm	Pale yellow slightly silty sand.
10 to 15cm	Grey sand with charcoal.
15 to 30cm	Black silty sand with abundant charcoal.
30 to 45cm	Dark brown soft silty sand
45 to 130cm	Light orange/brown slightly silty sand with occasional flint pebbles (c.10mm).
130 to 165cm	Plough Soil (brown silty sand with pebbles).
165cm	Top of section

An attempt to sample charcoal at -25 and -15cm was made, but the material was too superficial. However, a charcoal sample was obtained from the black silty sand at 20–30cm. This material was submitted to The University of Waikato, New Zealand, for express bulk dating. The full dating results and calibrations appear in Appendix 2. A summary of the radiocarbon date appears below;

Site code	Wk	dC13	% Modern	Result
Hinxton_G_Ci_20-30cm	13861	-25.0 +/- 0.2	56.0 +/- 0.3	4664 +/- 42 BP

This date calibrates to 3350–3530BC (88.9%), placing it in the Early Neolithic. This is interesting, since it suggests that burning and clearance was taking place on the valley side and terrace surface at a relatively early date. It also suggests that the overlying orange/brown slightly silty sand formed as slopewash during the Bronze Age and Iron Age. Pollen samples taken at -5cm and 25cm could be used to assess the vegetation signal from these sediments. A second sample of sediment (Cii) for potential charcoal and radiocarbon analysis was taken from a shallow channel filling 2m north of Ci from the interface between the dark brown silty sand and orange/brown silty sand with pebbles.

This sequence is interpreted as representing initial slopewash and perhaps ponding of water on the terrace surface, indicated by the algae Chara. Charcoal in these sediments may represent episodes of local burning. It is clear that sandy slopewash continued to accumulate, recording the burning event in the early Neolithic. The continued disturbance and clearance of vegetation on the valley side throughout the Bronze Age and Iron Age would have released large quantities of eroding slope material giving rise to the colluvial regolith observed today.

2.4 Hinxton G Section D

The terrace surface near Section D was underlain variously by gravel and sand, and pellet chalk, and was crossed by shallow channel forms terminating in what appeared to be a series of pool or pond infillings on the terrace surface. One such pond infilling had been partially excavated to reveal a crouched human burial. A radiocarbon date from this burial has previously been reported (as Bronze Age). Section D was described from a south facing exposure located 1m south of the burial at TL 4982 4446. At first it was not clear whether the burial had been made whilst the pond was still in existence, or whether the burial simply took advantage of the softer ground conditions prevailing on the pond sediment. Evidence from the stratigraphy and the subsequent discovery of a second burial close by, suggests that the latter option is more probable. The stratigraphy of Section D was as follows;

-15 to -9cm White/orange mottled crumbly pellet chalk.
-9 to 0 cm Grey/brown silty sand with flint pebbles (c.20mm).
The datum 0cm represents the base of the archaeological excavation.
0 to 25cm Grey/black organic silty sand with occasional flint pebbles (c.5mm).

25 to 40cm	Grey/brown slightly silty sand with occasional flint pebbles (10mm).
40 to 63cm	Brown/light brown crumbly silty sand with occasional flints.
63 to 90cm	Light brown clayey sand with angular flints (c.20mm). flint pebbles (c.10mm).
90-120cm	Plough Soil (removed).
120cm	Top of section

Pollen samples were taken at 5cm intervals from -5cm to 50cm.

It seems likely that this pond infilling sequence underlain by pellet chalk of the terrace surface represents Late Glacial or Early Holocene slopewash material delivered to the pool or pond by the channels or runnels draining the adjacent valley side. The presence of pebbles and generally sandy nature of the deposit throughout, hints that sediment delivery was at times by quite high-energy events. Indeed it is tempting not to view this as a true pond deposit at all, since permanent bodies of standing water tend to accumulate fine-grade organic sediments. The only hint of organic material this is at 0 to 25cm. It seems more likely that these deposits represent a temporary pool, fed from time to time by run-off from the valley sides carrying colluvial material. The standing water presumably drained through the terrace surface or evaporated. In many respects these deposits may be similar to those of the colluvial debris fan identified in Section B. It is probable that by Bronze Age or Iron Age times, the 'pond' was infilled and simply provided a conveniently dry flat area of soft sediment into which excavations for burials could be made. Thus, the difference in age between the 'pond' sediments and the burial could be as much as 8000 years. Pollen analysis of these sediments could provide a vegetation profile for the Early Holocene from the site, but is unlikely to shed light on the later human activity.

2.5 Conclusions

Taken together, the evidence from the Hinxton Genome site is for Late Glacial and Early Holocene periglacial activity and slopewash. A series of channels or runnels drained down the valley side delivering sandy colluvial material to debris fans and pond-like areas on the terrace surface. It is likely that as vegetation became established on the valley side in the Early Holocene, the amount of colluvial sediment reduced significantly. However, there is direct evidence for Neolithic burning and a suggestion that valley-side channels became active again in the Bronze Age/Iron Age delivering a new colluvial regolith onto the terrace surface.

3 Ickleton/Hinxton Riverside (ICK GC 02-03)

3.1 Previous work

In November 2002 the author reported on a 140cm long sequence of river sediments described and sampled from the eastern end of Hinxton Riverside Trench 3 at TL 49804420. Eight pollen samples

from this sequence were analysed, and found to represent much of the early and middle Holocene, apparently terminating with tree clearance within the Bronze Age. In contrast, a Saxon radiocarbon date of 1180 — 950BP (95%) was obtained from worked ash wood taken from Section 15 in Trench 8 only 25m southwest of this the pollen sequence. This strongly suggested the presence of a Saxon channel cut into the older sediments. The absence of Iron Age or Romano-British material was unfortunate, given that a Roman waterfront is known to exist within 100m of this site on the eastern bank of the River Cam.

3.2 *Trench 8*

Following the radiocarbon dating of worked Saxon wood in Trench 8, a 5 x 5m area was excavated on the northwest side of the trench, opposite Section 15 to investigate the deposits further. A woven wooden hurdle was discovered on the floor of a c.5m wide depression. As a consequence, a relatively large number of sections have been described and sampled from this area.

3.3 *Section 8-A*

This section was described and sampled from the southwest side of the 5 x 5m excavation containing the woven wooden hurdle.

The stratigraphy of Section 8-A was as follows;

The datum 0cm represents the base of the archaeological excavation.

0 to 10cm	Grey/yellow gravel and coarse sand. Most flints 20–30mm, exceptionally 100mm., chaotically arranged.
10 to 15cm	Black organic silt with pebbles (20–100mm).
15 to 23cm	Black organic silt with occasional molluscs.
23 to 28cm	Grey silt with organic flecks and abundant molluscs.
28 to 32cm	Orange mottled silty clay (iron pan?)
32 to 56cm	Grey silty clay with organic flecks, molluscs and race (post-depositional carbonate).
56 to 75cm	Grey/brown mottled silty clay with molluscs and race.
75 to 105cm	Ploughsoil removed

Pollen samples were taken at 5cm intervals from 10cm to 65cm; contiguous bulk samples were taken at 5cm intervals from 10cm to 65cm.

Section 8-A showed a basal flint pebble 'pavement' overlain by an organic silt unit, which contained the woven wooden hurdle. This unit was overlain by an alluvial silty clay unit. It is presumed that the organic silt here is of Saxon age, which would make the overlying alluvial silty clay medieval or later.

3.4 *Section 8-B*

Section 8-B was adjacent to the original Section 15, which produced the radiocarbon dated worked ash wood described above. The section was opposite the 5 x 5m excavation containing the woven wooden

wooden hurdle, and shows the composition of the gravel forming the 'pavement' described in Section 8-A above.

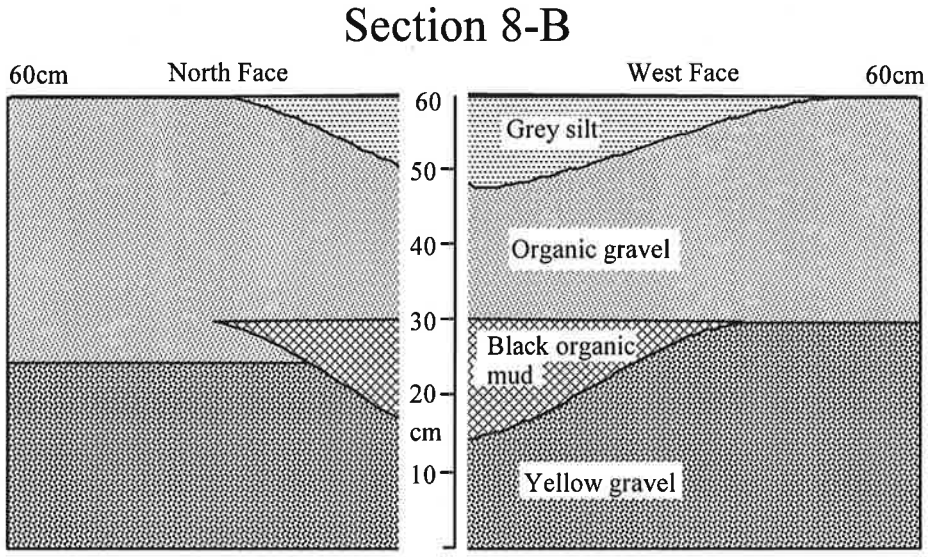
The stratigraphy of the north face of Section 8-B was as follows;

The datum 0cm represents the base of the archaeological excavation.

0 to 12cm	Orange/yellow gravel and coarse sand. Most flints 30–40mm, exceptionally 100mm., many exotic lithologies.
12 to 15cm	Black organic silt with pebbles (10–20mm).
15 to 22cm	Black organic silt with pebbles (40–50mm).
22 to 36cm	Black organic silt with occasional molluscs.
36 to 44cm	Grey/black medium sand with chalk pellets (c.10mm).
44 to 52cm	Grey organic silt with angular flint gravel (10mm).
52 to 60cm	Grey silty clay with occasional shells.

Pollen samples were taken at 13cm and at 5cm intervals from 15cm to 55cm; contiguous bulk samples were taken from 20cm to 60cm at 5cm intervals.

A diagram showing the relationship of sediments in Section 8-B appears below;



This section clearly showed a basal yellow gravel overlain by an organic gravel, the surface of which formed the 'pavement' described in Section 8-A above. A small channel-form filled by black organic mud, apparently formed at or close to the time of the emplacement of the organic gravel. A later channel-form filled by grey silt also cut into the organic gravel 'pavement'. It is presumed that the yellow gravel in this section represents the natural terrace surface. The organic gravel appears to have been deliberately spread here to provide a raised and mettled surface or 'pavement'. From the stratigraphic relationships described later, this seems to have happened in Saxon times. The grey silt here probably correlates with the grey silt exposed in Section 8-A and fills a Saxon or post-Saxon ditch cut or channel.

3.5 *Section 8-D*

A small excavation dug in the gravel 'pavement' to the northeast of the woven wooden hurdle exposed a grey/black organic silt unit, from which a small bulk sample was taken. It is presumed that this sediment is equivalent to the black organic mud described in Section 8-B.

3.6 *Section 8-C*

Section 8-C was opposite Section 8-B and immediately adjacent to the woven wooden hurdle. It records the stratigraphy beneath the extreme southern edge of the wooden hurdle. The stratigraphy of Section 8-C was as follows;

The datum 0cm represents the base of the archaeological excavation.

0 to 9cm	Grey/white medium sand with pebbles and chalk pellets.
9 to 10cm	Grey organic silty sand.
10 to 15cm	Wood (substantial log, possibly worked).
15 to 21cm	Grey/black silty sand with abundant mollusc shells (including Pupilla muscorum).
21 to 28cm	Yellow/orange silty sand.
28 to 30cm	Grey silty medium sand.
30 to 35cm	Grey/black organic silt with molluscs and wood fragments.

This unit would have continued to 40cm and included the wooden hurdle, but it had been excavated away.

Pollen samples were taken at 5cm intervals from 10cm to 30cm; bulk samples were taken between 10cm and 35cm.

This section recorded the natural gravel terrace surface with a large log resting upon it. The overlying silty sand contained terrestrial molluscs derived from a dry grassland, rather than an aquatic environment. An organic silt unit containing the wooden hurdle overlay the sand. It seems likely that the deposits overlying the basal gravel have a Saxon age, and record various overbank flood episodes.

3.7 *Section 8-Y*

Section 8-Y was 2m northeast of Section 8-C and records the edge of the shallow 'pit' in which the woven wooden hurdle was resting.

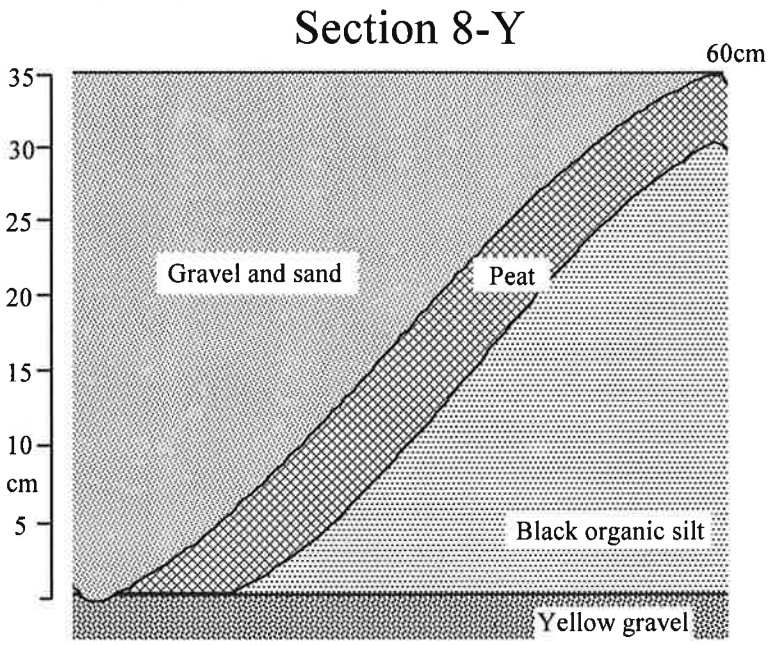
The stratigraphy of Section 8-Y was as follows;

The datum 0cm represents the base of the archaeological excavation.

Below 0cm	Yellow sand and gravel.
0 to 29cm	Black organic silt.
29 to 35cm	Brown fibrous peat.
Above 35cm	Gravel (excavated away).

Pollen samples were taken at 5cm intervals from 5cm to 30cm.

A diagram showing the relationship of sediments in Section 8-B appears below;



This section recorded the natural gravel terrace surface with organic silt and fibrous peat overlying it. The peat unit showed inclined bedding and was overlain by a gravel and sand unit, which was in turn overlain by the wooden hurdle to the southwest. To the northeast the basal gravel rose sharply to form the edge of a shallow 'pit', which appeared to contain the wooden hurdle. The organic units here probably represent the marginal infilling of this 'pit' when it was exposed as an open pool on the river floodplain, at a time before the wooden hurdle was emplaced. It is presumed that these sediments are of Saxon age, although they could be earlier.

3.8 Section 8-Z

Section 8-Z was 2m northeast of Section 8-Y on the northeast side of the 5 x 5m excavation containing the woven wooden hurdle. The base of this section is equivalent to the top of Section 8-Y.

The stratigraphy of Section 8-Z was as follows;

The datum 0cm represents the base of the archaeological excavation.

0 to 4cm	Grey gravel and sand.
4 to 9cm	Black organic silt.
9 to 13cm	Pale calcareous sand.
13 to 23cm	Brown organic material.
23 to 26cm	Grey silt.
26 to 44cm	Orange/grey mottled silty clay with shells.
44 to 80cm	Grey silty clay with shells and occasional pebbles.
80 to 110 cm	Ploughsoil (removed).

Pollen samples were taken at 4cm, 13cm, 22cm and 23cm.

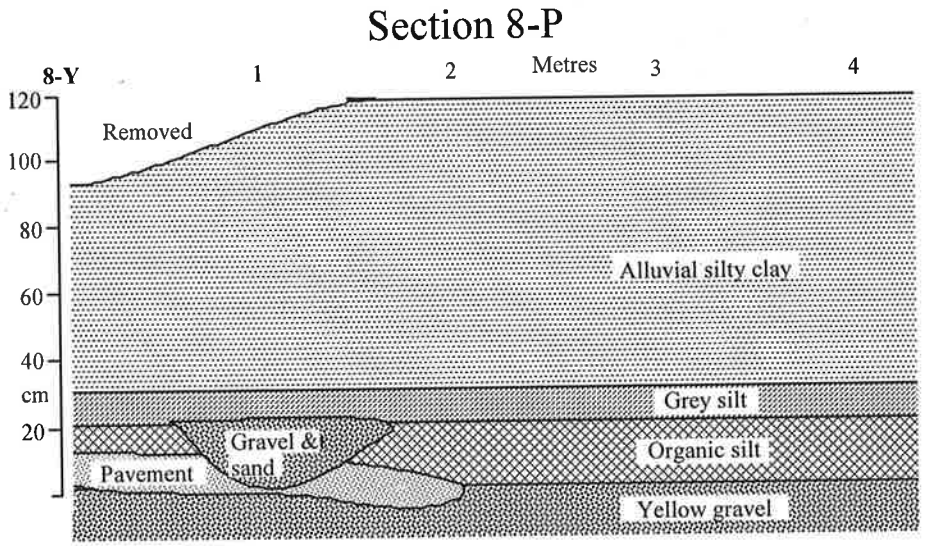
Section 8-Z was similar in many respects to Section 8-A. It showed a basal flint pebble 'pavement' overlain by an organic silt unit and other

units, equivalent to that which contained the woven wooden hurdle. These were overlain by an alluvial silty clay. The organic silt is presumably of Saxon age, and the overlying alluvial silty clay is probably Medieval or later.

3.9 *Section 8-P*

Section 8-P was immediately northeast of Section 8-Z on the northwest side of Trench 8. It provides detail of the edge of the gravel 'pavement', and its relationship to the other deposits at the site.

A diagram showing the relationship of sediments in Section 8-P appears below:

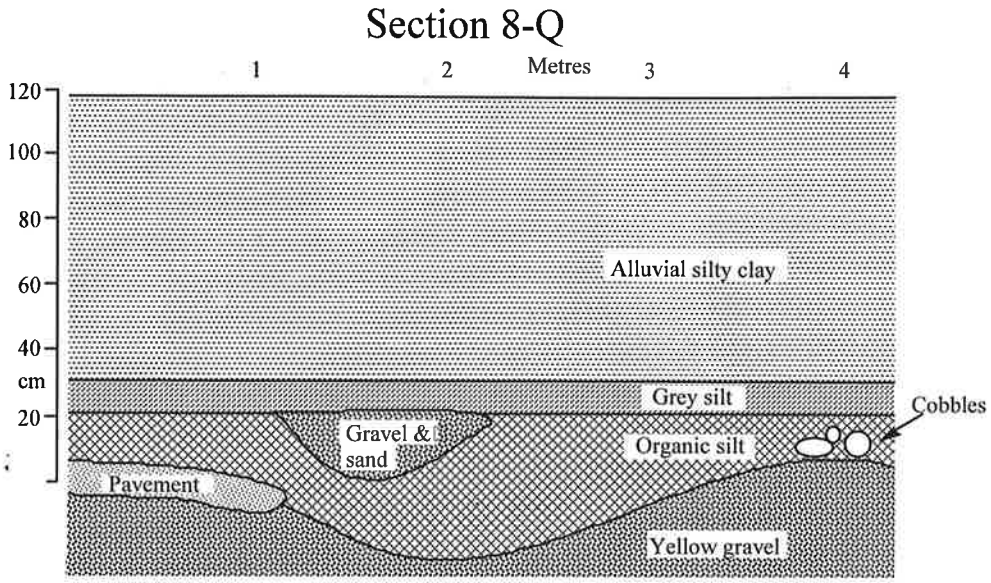


This section showed the natural gravel terrace surface, partly overlain by the organic gravel of the 'pavement' surface. Both are in turn overlain by an organic silt unit, but a channel-form filled by gravel and sand cuts into the organic silt and underlying 'pavement' gravel. This is then overlain by silt and alluvial silty clay. The organic silt appears to be the same unit that contains the woven wooden hurdle to the west, and is therefore presumably Saxon in age. The gravel channel is a somewhat later feature, but is overlain by alluvium which is probably medieval or later.

3.10 *Section 8-Q*

Section 8-Q was opposite Section 8-P on the southeast side of Trench 8. It also provides detail of the edge of the gravel 'pavement'.

A diagram showing the relationship of sediments in Section 8-P appears below;



Section 8-Q is similar to Section 8-P in many respects. The natural gravel terrace surface is partly overlain by the organic gravel of the 'pavement' surface, and forms a shallow depression just beyond it. Both gravels are overlain by an organic silt unit, which fills the depression and in one place contains large (20–30cm) cobbles. A small channel-form filled by gravel and sand cuts into the organic silt. This is then overlain by silt and alluvial silty clay. The organic silt apparently contains the woven wooden hurdle elsewhere, and is therefore presumably Saxon in age. The gravel channel must be later, and the overlying alluvium is probably medieval or later age.

3.11 Section 8-R

Section 8-R was 13m northeast of Section 8-P on the southeast side Trench 8 at TL 4981 4423. It was also 14m southwest of the section in Trench 3 previously investigated by pollen analysis, and therefore approximately half way along Trench 8, between the Saxon wooden hurdle and the Early to Middle Holocene sequence.

The stratigraphy of Section 8-R was as follows;

The datum 0cm represents the base of the archaeological excavation.

Below 0cm	Cobble gravel.
0 to 3cm	Brown organic medium sand.
3 to 16cm	Black organic silt with wood.
16 to 19cm	Grey silty sand with pebbles and shell fragments.
19 to 40cm	Grey sandy silt with shell and wood fragments.
40 to 43cm	Light grey silty clay with molluscs.
43 to 52cm	Orange/grey mottled soft silty clay with molluscs.
52 to 59cm	Grey slightly mottled silty clay with race and shell fragments.
59 to 89cm	Grey/brown silty clay with race and rootlets.
89 to 115 cm	Ploughsoil (brown silty clay with rootlets).

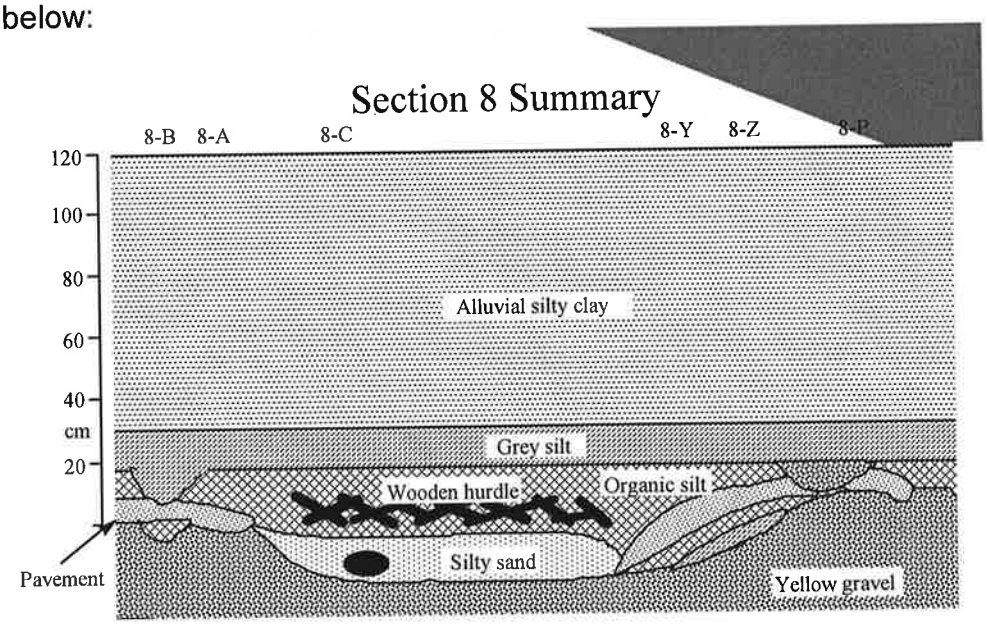
Pollen samples were taken at 5cm intervals from 5cm to 85cm.

This section shows a stratigraphy superficially similar to that at Sections 8-P, 8-Q and 8-Z, with a basal gravel overlain by organic silt, and in turn overlain by alluvial silty clay. However, the difficulty is that this is also the same general stratigraphy previously described from Trench 3 nearby. The organic silt from Trench 3 appeared from pollen evidence to be Bronze Age or Neolithic, yet the same unit 25m away at the other end of Trench 8 contains wood of Saxon age. There appears to be no good evidence for a Saxon channel cut into the surface of the older sediments, postulated by the author in the previous report. Another possibility is that river sediments here are time-transgressive or diachronous, that is that they have built up horizontally over time, rather than having accumulated in the conventional vertical 'layer-cake' fashion. This phenomenon is well known and not uncommon in fluvial sequences. It can be best understood as the lateral migration of different depositional environments. It is clear that an investigation of the sequence at Section 8-R could confirm or refute this hypothesis.

3.12 *Summary of Trench 8*

The sections described and sampled along Section 8 and the 5 x 5m excavation around the wooden hurdle provide an excellent insight into the stratigraphy and palaeoenvironments of the local area. It appears that a 'pit' or depression was made in the basal 'natural' yellow gravel, and that it may have remained open for a time as a pool. The marginal organic gravel 'pavement' then appears to have been emplaced around the 'pit' and large worked wooden timbers put in place. The wooden hurdle appears to be contemporaneous with the organic silt unit, and both are overlain by grey silt and finally alluvial silty clay.

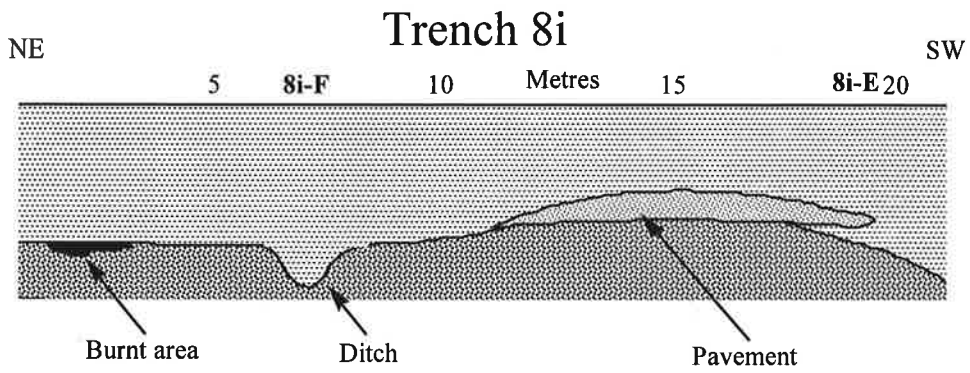
A diagram showing a summary of stratigraphy in Section 8 appears below:



3.13 *Trench 8I*

This trench was cut parallel to and 16m to the south of Trench 8 to investigate the extent of the 'pavement' area. The trench was c.25m long and encountered a raised gravel area of black organic gravel along part of its length. To the southwest the gravel surface fell away and was covered by a thicker sequence of alluvial sediments (Section 8i-E). To the northeast, there was a clearly defines ditch feature (Section 8i-F) and a burnt area of on the natural gravel surface.

A diagram showing a summary of stratigraphy in Section 8i appears below:



3.14 *Section 8I-E*

Section 8i-E was c.19m along Trench 8i, and recorded a place where the natural terrace gravel and the 'pavement' gravel were separated by an organic silt unit.

The stratigraphy of Section 8i-E was as follows:

The datum 0cm represents the base of the archaeological excavation.

Below 0cm	Yellow gravel and sand.
0 to 30cm	Black organic silt with shells.
30 to 50cm	Cobble gravel (c.10cm) in a black sandy silt matrix.
50 to 110cm	Grey to grey/brown silty clay.

Pollen samples were taken at 10cm intervals from 0cm to 30cm.

This section suggests that cobbles were deliberately placed onto soft silty material to form hard standing at the edge of a higher terrace area. Assuming that the 'pavement' dates from Saxon times, it is therefore possible that the organic silt beneath the silt is somewhat older.

3.15 *Section 8I-F*

Section 8i-F was c.7m along Trench 8i, and recorded an organic silt-filled ditch feature cut into the terrace gravel surface.

The stratigraphy of Section 8i-F was as follows:

The datum 0cm represents the base of the archaeological excavation.

Below 0cm	Yellow gravel and sand.
0 to 20cm	Black organic silt with shells (ditch filling).
20 to 23cm	Grey silty clay.
23 to 30cm	Grey/orange mottled silty clay.
30 to 45cm	Grey silty clay with occasional pebbles (c.50mm).
45 to 71cm	Grey/orange mottled silty clay with shells and chalk pebbles.
71 to 110cm	Ploughsoil (grey silty clay with pebbles and rootlets).

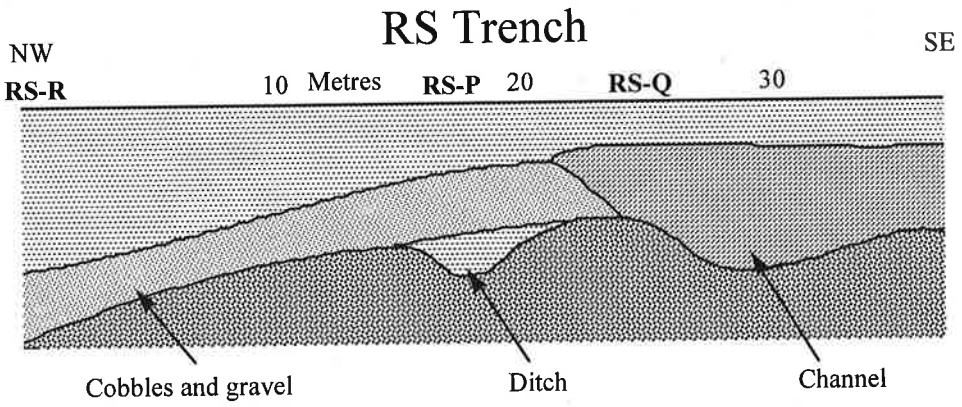
Pollen samples were taken at 5cm intervals from 5cm to 30cm, and at 10cm intervals from 30cm to 70cm.

This section shows an organic ditch filling directly overlying gravel of the terrace surface. There is no direct clue to its age, although presumably it could be Saxon or older.

3.16 *RS Trench*

This c.35m long trench was cut 90° to the River Cam at the southern end of the site. It provided a sequence through river alluvium (Section RS-R), which is analogous to that from Trench 3 to the north. A 5 x 5m excavation was cut at the southern end of the trench some 15m from the river. A possible ditch cut was covered by a mixture of cobbles, gravel, silt and sand (Section RS-P), which was cut out to the northwest by a channel-form filled by fluvial silt (Section RS-Q).

A diagram showing a summary of stratigraphy in Section 8i appears below:



3.17 *Section RS-R*

Section RS-R recorded a sequence of river alluvium above terrace gravel.

The stratigraphy of Section RS-R was as follows;

-30cm to –5cm Yellow gravel and sand.
-5cm to 0cm Brown sandy organic silty clay.

The datum 0cm represents the base of the archaeological excavation.

0 to 17cm	Yellow/grey sandy silt with shells.
17 to 31cm	Olive/grey silty clay with occasional flint pebbles (c.30mm).
31 to 65cm	Grey/brown silty clay with occasional shells and chalk pebbles.
65 to 100cm	Ploughsoil (grey silty clay with chalk pebbles)

Pollen samples were taken at 5cm intervals from 0cm to 80cm.
Bulk samples were taken from –5 to 0cm, 60–70cm and contiguously from Contiguous bulk samples were taken from 0cm to 50cm at 10cm intervals.

This section shows an alluvial sequence that may stretch from the Early Holocene to the Bronze Age or later. There is a possibility that an Iron Age/ Romano-British sequence has been preserved.

3.18 Section RS-P

Section RS-P recorded a possible ditch filling sealed by an admixture of cobbles, gravel, silt and sand.

The stratigraphy of Section RS-P was as follows;

The datum 0cm represents the base of the archaeological excavation.

0 to 13cm	Orange/grey gravel.
13 to 46cm	Grey silt with shells (ditch filling).
46 to 63cm	Cobbles, gravel, silt and sand admixture (diamicton).
63 to 85cm	Ploughsoil (grey brown silty clay).

Pollen samples were taken at 5cm intervals from 15cm to 45cm.

This section shows a possible ditch-fill sequence sealed by a gravelly admixture, which might correlate with the 'pavement', described from Trench 8. It certainly appears that the cobble, gravel sand and silt admixture has been hauled out of the river channel to the south across pre-existing deposits. The age of these deposits is not known.

3.19 Section RS-Q

Section RS-Q recorded a channel filling partly overlying the admixture of cobbles, gravel, silt and sand, described in Section RS-P.

The stratigraphy of Section RS-Q was as follows;

The datum 0cm represents the base of the archaeological excavation.

Below 0cm	Yellow gravel and sand.
0 to 24cm	Orange/grey mottled silty clay with shells.
24 to 72cm	Grey silt with organic, charcoal and large bivalves.
72 to 90cm	Ploughsoil (grey silty clay).

Pollen samples were taken at 10cm intervals from 5cm to 65cm.
A single bulk sample was taken from 30 to 40cm.

This section shows a channel-fill sequence, which must post-date the emplacement of the gravelly admixture described above. The age of these deposits is not known.

3.20 Conclusions

Taken together, the evidence from the Hinxton Riverside site is for early to middle Holocene alluvial deposition, and for intense activity on the river floodplain during Saxon times. Iron Age and Romano-British deposits have not been identified, but may be present. The medieval period appears to be characterised by the accumulation of overbank alluvial sediments. There are some sequence of unknown age presented here, and these might provide the missing link in the reconstruction of palaeoenvironments throughout the Holocene.

4 Possibilities for Future Work

Between the Hinxton Genome and Hinxton Riverside sites more than 100 pollen samples were collected (see Addendum below). Many of these were from Riverside Trench 8, which inevitably will be the focus for any further study. Questions concerning the ordering of Saxon events, and the relationship of these deposits to the Neolithic and Bronze Age sediments nearby must be at the top of the list or priorities for study. An initial investigation would entail a total of 24 pollen samples being prepared and counted, and at least two radiocarbon bulk (or possibly AMS) dates being obtained. The pollen preparation would take 4 days, and pollen counting (allowing 2 hours per sample) and report writing would take an additional 10 days.

A similar amount of time could be spent on investigating the sediments from Trench 8i and RS Trench. It would be possible to enhance either or both of these studies with extra pollen samples, radiocarbon dates or molluscan analyses. There is a limited scope for further work at the Hinxton Genome site with a preliminary study involving the preparation (1.5 days), and counting (4 days) of 8 further pollen samples.

Addendum: Samples

HIN GC 02

Hinxton G Section Ci	20–30cm	Bulk Sample C14
Hinxton G Section Cii	Charcoal	Bulk Sample
Hinxton G Section Ci	-5cm	Pollen Sample
Hinxton G Section Ci	25cm	Pollen Sample

Hinxton G Section D -5cm	Pollen Sample
Hinxton G Section D 0cm	Pollen Sample
Hinxton G Section D 5cm	Pollen Sample
Hinxton G Section D 10cm	Pollen Sample
Hinxton G Section D 15cm	Pollen Sample
Hinxton G Section D 20cm	Pollen Sample
Hinxton G Section D 25cm	Pollen Sample
Hinxton G Section D 30cm	Pollen Sample
Hinxton G Section D 35cm	Pollen Sample
Hinxton G Section D 40cm	Pollen Sample
Hinxton G Section D 45cm	Pollen Sample
Hinxton G Section D 50cm	Pollen Sample

ICK GC 03

Hinxton R Trench 3 10cm	Pollen Sample
Hinxton R Trench 3 15cm	Pollen Sample
Hinxton R Trench 3 20cm	Pollen Sample
Hinxton R Trench 3 25cm	Pollen Sample
Hinxton R Trench 3 30cm	Pollen Sample
Hinxton R Trench 3 35cm	Pollen Sample
Hinxton R Trench 3 40cm	Pollen Sample
Hinxton R Trench 3 45cm	Pollen Sample
Hinxton R Trench 3 50cm	Pollen Sample
Hinxton R Trench 3 55cm	Pollen Sample
Hinxton R Trench 3 5cm	Pollen Sample
Hinxton R Trench 3 60cm	Pollen Sample
Hinxton R Trench 3 65cm	Pollen Sample
Hinxton R Trench 3 70cm	Pollen Sample
Hinxton R Trench 3 75cm	Pollen Sample
Hinxton R Trench 3 80cm	Pollen Sample
Hinxton R Trench 3 85cm	Pollen Sample
Hinxton R Trench 3 90cm	Pollen Sample
Hinxton R Trench 3 95cm	Pollen Sample
Hinxton R Trench 3 100cm	Pollen Sample
Hinxton R Trench 3 105cm	Pollen Sample
Hinxton R Trench 3 110cm	Pollen Sample

Hinxton R Trench 3 0–10cm	Bulk Sample
Hinxton R Trench 3 10–20cm	Bulk Sample
Hinxton R Trench 3 20–30cm	Bulk Sample
Hinxton R Trench 3 30–40cm	Bulk Sample
Hinxton R Trench 3 40–50cm	Bulk Sample
Hinxton R Trench 3 50–60cm	Bulk Sample
Hinxton R Trench 3 60–70cm	Bulk Sample
Hinxton R Trench 3 70–80cm	Bulk Sample
Hinxton R Trench 3 80–90cm	Bulk Sample

Hinxton R Trench 8-A	10cm	Pollen Sample
Hinxton R Trench 8-A	15cm	Pollen Sample
Hinxton R Trench 8-A	20cm	Pollen Sample
Hinxton R Trench 8-A	25cm	Pollen Sample
Hinxton R Trench 8-A	30cm	Pollen Sample
Hinxton R Trench 8-A	35cm	Pollen Sample
Hinxton R Trench 8-A	40cm	Pollen Sample
Hinxton R Trench 8-A	45cm	Pollen Sample
Hinxton R Trench 8-A	50cm	Pollen Sample
Hinxton R Trench 8-A	55cm	Pollen Sample
Hinxton R Trench 8-A	60cm	Pollen Sample
Hinxton R Trench 8-A	65cm	Pollen Sample

Hinxton R Trench 8-A	10–15cm	Bulk Sample
Hinxton R Trench 8-A	15–20cm	Bulk Sample

Hinxton R Trench 8-A	20–25cm	Bulk Sample
Hinxton R Trench 8-A	25–30cm	Bulk Sample
Hinxton R Trench 8-A	30–35cm	Bulk Sample
Hinxton R Trench 8-A	40–45cm	Bulk Sample
Hinxton R Trench 8-A	50–55cm	Bulk Sample
Hinxton R Trench 8-A	60–65cm	Bulk Sample
Hinxton R Trench 8-B	13cm	Pollen Sample
Hinxton R Trench 8-B	15cm	Pollen Sample
Hinxton R Trench 8-B	20cm	Pollen Sample
Hinxton R Trench 8-B	25cm	Pollen Sample
Hinxton R Trench 8-B	30cm	Pollen Sample
Hinxton R Trench 8-B	35cm	Pollen Sample
Hinxton R Trench 8-B	45cm	Pollen Sample
Hinxton R Trench 8-B	50cm	Pollen Sample
Hinxton R Trench 8-B	55cm	Pollen Sample
Hinxton R Trench 8-B	20–25cm	Bulk Sample
Hinxton R Trench 8-B	25–30cm	Bulk Sample
Hinxton R Trench 8-B	30–35cm	Bulk Sample
Hinxton R Trench 8-B	35–40cm	Bulk Sample
Hinxton R Trench 8-B	40–45cm	Bulk Sample
Hinxton R Trench 8-B	45–50cm	Bulk Sample
Hinxton R Trench 8-B	50–55cm	Bulk Sample
Hinxton R Trench 8-B	55–60cm	Bulk Sample
Hinxton R Trench 8-C	10cm	Pollen Sample
Hinxton R Trench 8-C	15cm	Pollen Sample
Hinxton R Trench 8-C	20cm	Pollen Sample
Hinxton R Trench 8-C	30cm	Pollen Sample
Hinxton R Trench 8-C	10–15cm	Bulk Sample
Hinxton R Trench 8-C	15–20cm	Bulk Sample
Hinxton R Trench 8-C	30–35cm	Bulk Sample
Hinxton R Trench 8-D	Small Bulk Sample	
Hinxton R Trench 8-R	5cm	Pollen Sample
Hinxton R Trench 8-R	10cm	Pollen Sample
Hinxton R Trench 8-R	15cm	Pollen Sample
Hinxton R Trench 8-R	20cm	Pollen Sample
Hinxton R Trench 8-R	25cm	Pollen Sample
Hinxton R Trench 8-R	30cm	Pollen Sample
Hinxton R Trench 8-R	35cm	Pollen Sample
Hinxton R Trench 8-R	40cm	Pollen Sample
Hinxton R Trench 8-R	45cm	Pollen Sample
Hinxton R Trench 8-R	50cm	Pollen Sample
Hinxton R Trench 8-R	55cm	Pollen Sample
Hinxton R Trench 8-R	60cm	Pollen Sample
Hinxton R Trench 8-R	65cm	Pollen Sample
Hinxton R Trench 8-R	70cm	Pollen Sample
Hinxton R Trench 8-R	75cm	Pollen Sample
Hinxton R Trench 8-R	80cm	Pollen Sample
Hinxton R Trench 8-R	85cm	Pollen Sample
Hinxton R Trench 8-Y	5cm	Pollen Sample
Hinxton R Trench 8-Y	15cm	Pollen Sample
Hinxton R Trench 8-Y	25cm	Pollen Sample
Hinxton R Trench 8-Y	30cm	Pollen Sample
Hinxton R Trench 8-Z	4cm	Pollen Sample
Hinxton R Trench 8-Z	13cm	Pollen Sample
Hinxton R Trench 8-Z	22cm	Pollen Sample
Hinxton R Trench 8-Z	23cm	Pollen Sample
Hinxton R Trench 8i-E	0cm	Pollen Sample
Hinxton R Trench 8i-E	10cm	Pollen Sample
Hinxton R Trench 8i-E	20cm	Pollen Sample
Hinxton R Trench 8i-E	30cm	Pollen Sample
Hinxton R Trench 8i-F	5cm	Pollen Sample
Hinxton R Trench 8i-F	10cm	Pollen Sample
Hinxton R Trench 8i-F	15cm	Pollen Sample
Hinxton R Trench 8i-F	20cm	Pollen Sample
Hinxton R Trench 8i-F	25cm	Pollen Sample
Hinxton R Trench 8i-F	30cm	Pollen Sample

Hinxton R Trench 8i-F	40cm	Pollen Sample
Hinxton R Trench 8i-F	50cm	Pollen Sample
Hinxton R Trench 8i-F	60cm	Pollen Sample
Hinxton R Trench 8i-F	70cm	Pollen Sample
Hinxton R RS Trench-R	0cm	Pollen Sample
Hinxton R RS Trench-R	5cm	Pollen Sample
Hinxton R RS Trench-R	10cm	Pollen Sample
Hinxton R RS Trench-R	15cm	Pollen Sample
Hinxton R RS Trench-R	20cm	Pollen Sample
Hinxton R RS Trench-R	25cm	Pollen Sample
Hinxton R RS Trench-R	30cm	Pollen Sample
Hinxton R RS Trench-R	35cm	Pollen Sample
Hinxton R RS Trench-R	40cm	Pollen Sample
Hinxton R RS Trench-R	45cm	Pollen Sample
Hinxton R RS Trench-R	50cm	Pollen Sample
Hinxton R RS Trench-R	55cm	Pollen Sample
Hinxton R RS Trench-R	60cm	Pollen Sample
Hinxton R RS Trench-R	65cm	Pollen Sample
Hinxton R RS Trench-R	70cm	Pollen Sample
Hinxton R RS Trench-R	75cm	Pollen Sample
Hinxton R RS Trench-R	80cm	Pollen Sample
Hinxton R RS Trench-R	-5 to 0cm	Bulk Sample
Hinxton R RS Trench-R	0–10cm	Bulk Sample
Hinxton R RS Trench-R	10–20cm	Bulk Sample
Hinxton R RS Trench-R	20–30cm	Bulk Sample
Hinxton R RS Trench-R	30–40cm	Bulk Sample
Hinxton R RS Trench-R	40–50cm	Bulk Sample
Hinxton R RS Trench-R	60–70cm	Bulk Sample
Hinxton R RS Trench-P	15cm	Pollen Sample
Hinxton R RS Trench-P	20cm	Pollen Sample
Hinxton R RS Trench-P	25cm	Pollen Sample
Hinxton R RS Trench-P	30cm	Pollen Sample
Hinxton R RS Trench-P	35cm	Pollen Sample
Hinxton R RS Trench-P	40cm	Pollen Sample
Hinxton R RS Trench-P	45cm	Pollen Sample
Hinxton R RS Trench-Q	5cm	Pollen Sample
Hinxton R RS Trench-Q	15cm	Pollen Sample
Hinxton R RS Trench-Q	25cm	Pollen Sample
Hinxton R RS Trench-Q	35cm	Pollen Sample
Hinxton R RS Trench-Q	45cm	Pollen Sample
Hinxton R RS Trench-Q	55cm	Pollen Sample
Hinxton R RS Trench-Q	65cm	Pollen Sample
Hinxton R RS Trench-Q	30–40cm	Bulk Sample

The University of Waikato

Radiocarbon Dating Laboratory

Private Bag 3105
Hamilton,
New Zealand.
Fax +64 7 838 4192
Ph +64 7 838 4278
email c14@waikato.ac.nz
Head: Dr Alan Hogg

Report on Radiocarbon Age Determination for Wk- 13861

Submitter	S Boreham
Submitter's Code	Hinxton_G_Ci_20-30cm
Site & Location	Hinxton Genome Campus, Cambs, UK, United Kingdom
Sample Material	Organic silts from Hinxton Genome Campus development, Cambs, UK
Physical Pretreatment	Visible contaminants removed.
Chemical Pretreatment	Washed in hot 10% HCl, rinsed and treated with hot 0.5% NaOH. The NaOH insoluble fraction was treated with hot 10% HCl, filtered, rinsed and dried.

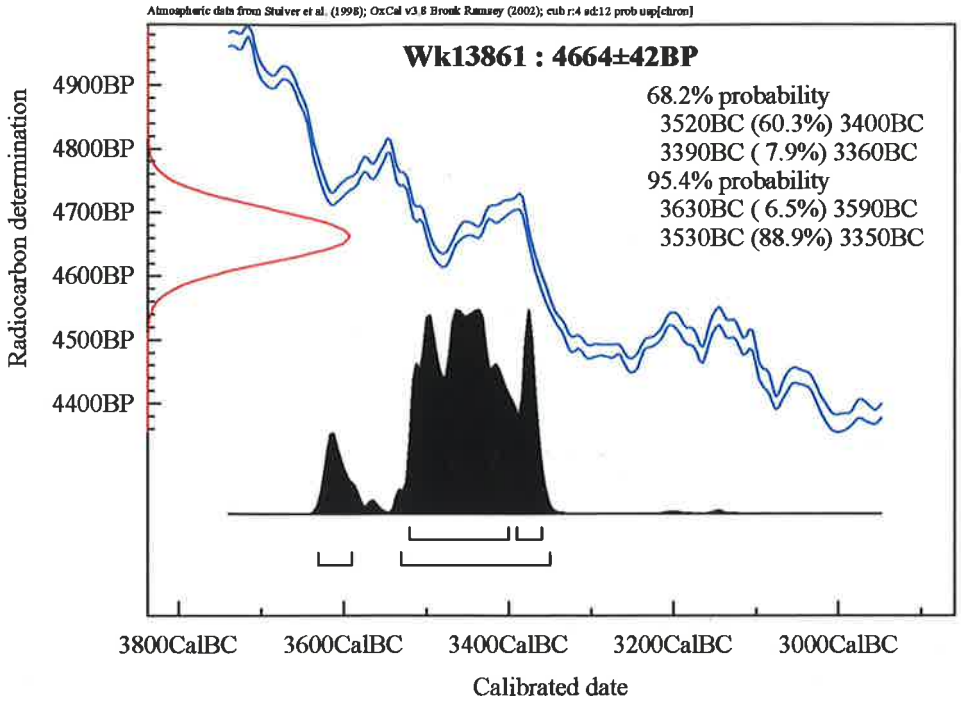
$d^{14}C$	-440.4 ± 3.0	‰
$\delta^{13}C$	-25.0 ± 0.2	‰
$D^{14}C$	-440.4 ± 3.0	‰
% Modern	56.0 ± 0.3	%
Result	**4664 ± 42 BP**	

Comments

AGHogg

18/11/03

- Result is *Conventional Age or % Modern* as per Stuiver and Polach, 1977, Radiocarbon 19, 355-363. This is based on the Libby half-life of 5568 yr with correction for isotopic fractionation applied. This age is normally quoted in publications and must include the appropriate error term and Wk number.
- Quoted errors are 1 standard deviation due to counting statistics multiplied by an experimentally determined Laboratory Error Multiplier of 1 .
- The isotopic fractionation, $\delta^{13}C$, is expressed as ‰ wrt PDB.
- Results are reported as *% Modern* when the conventional age is younger than 200 yr BP.


Atmospheric data from Stuiver et al. (1998); OxCal v3.8 Bronk Ramsey (2002); cub r:4 sd:12 prob usp[chron]
Wk13861 : 4664±42BP
68.2% probability
3520BC (60.3%) 3400BC
3390BC (7.9%) 3360BC
95.4% probability
3630BC (6.5%) 3590BC
3530BC (88.9%) 3350BC
Radiocarbon determination
4900BP
4800BP
4700BP
4600BP
4500BP
4400BP
3800CalBC
3600CalBC
3400CalBC
3200CalBC
3000CalBC
Calibrated date

The University of Waikato

Radiocarbon Dating Laboratory

Private Bag 3105
Hamilton,
New Zealand.
Fax +64 7 838 4192
Ph +64 7 838 4278
email c14@waikato.ac.nz
Head: Dr Alan Hogg

Report on Radiocarbon Age Determination for Wk- 13862

Submitter	S Boreham
Submitter's Code	Fengate_Bii_140-160cm
Site & Location	Fengate, Peterborough, Cambs, UK, United Kingdom
Sample Material	Peat/river silt from below "Romano-British" silt in valley-fill sequence
Physical Pretreatment	Visible contaminants removed.
Chemical Pretreatment	Washed in hot 10% HCl, rinsed and treated with hot 0.5% NaOH. The NaOH insoluble fraction was treated with hot 10% HCl, filtered, rinsed and dried.

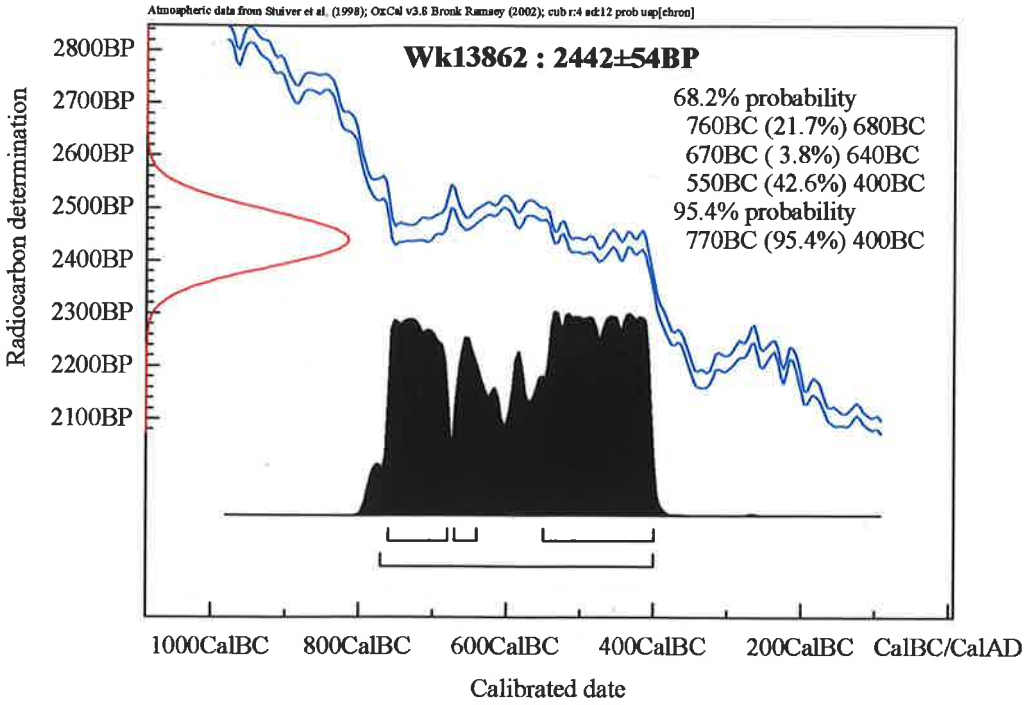
$d^{14}C$	-269.8 ± 4.9	‰
$\delta^{13}C$	-30.3 ± 0.2	‰
$D^{14}C$	-262.1 ± 4.9	‰
% Modern	73.8 ± 0.5	%
Result	**2442 ± 54 BP**	

Comments

Alt Hogg

18/11/03

- Result is *Conventional Age or % Modern* as per Stuiver and Polach, 1977, Radiocarbon 19, 355-363. This is based on the Libby half-life of 5568 yr with correction for isotopic fractionation applied. This age is normally quoted in publications and must include the appropriate error term and Wk number.
- Quoted errors are 1 standard deviation due to counting statistics multiplied by an experimentally determined Laboratory Error Multiplier of 1 .
- The isotopic fractionation, $\delta^{13}C$, is expressed as ‰ wrt PDB.
- Results are reported as *% Modern* when the conventional age is younger than 200 yr BP.


Atmospheric data from Stuiver et al. (1998); OxCal v3.8 Bronk Ramsey (2002); cub r:4 sd:12 prob usp[chron]
Wk13862 : 2442±54BP
68.2% probability
760BC (21.7%) 680BC
670BC (3.8%) 640BC
550BC (42.6%) 400BC
95.4% probability
770BC (95.4%) 400BC
Radiocarbon determination
2800BP
2700BP
2600BP
2500BP
2400BP
2300BP
2200BP
2100BP
1000CalBC
800CalBC
600CalBC
400CalBC
200CalBC
CalBC/CalAD
Calibrated date

The University of Waikato

Radiocarbon Dating Laboratory

Private Bag 3105
Hamilton,
New Zealand.
Fax +64 7 838 4192
Ph +64 7 838 4278
email c14@waikato.ac.nz
Head: Dr Alan Hogg

Report on Radiocarbon Age Determination for Wk- 13863

Submitter	S Boreham
Submitter's Code	Fengate_Bii_400-405cm
Site & Location	Fengate, Peterborough, Cambs, UK, United Kingdom
Sample Material	Identified as Alder (Alnus)
Physical Pretreatment	Surfaces scraped clean. The wood was chopped up into small splinters and washed in ultrasonic bath.
Chemical Pretreatment	Sample was washed in hot 10% HCl, rinsed and treated with hot 0.5% NaOH. The NaOH insoluble fraction was treated with hot 10% HCl, filtered, rinsed and dried.

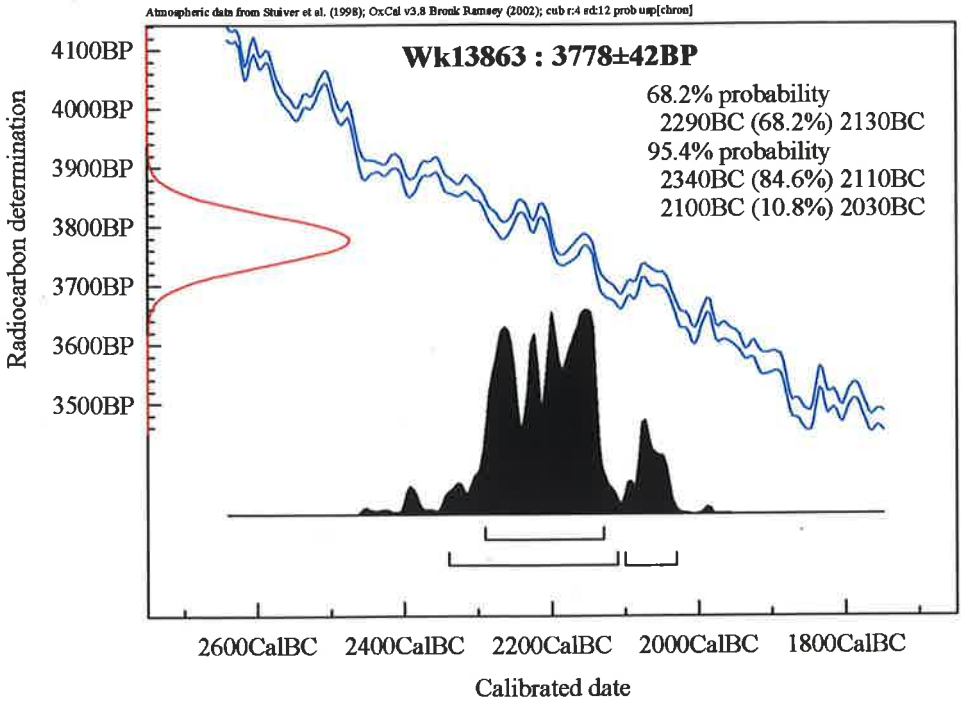
$d^{14}C$	-378.3 ± 3.2	‰
$\delta^{13}C$	-27.5 ± 0.2	‰
$D^{14}C$	-375.2 ± 3.2	‰
% Modern	62.5 ± 0.3	%
Result	**3778 ± 42 BP**	

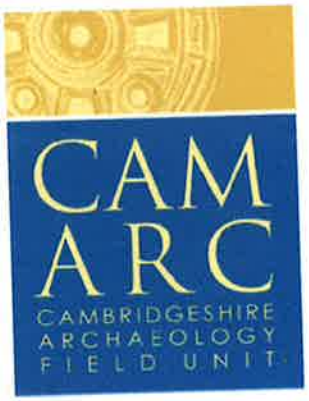
Comments

AGHogg

18/11/03

- Result is *Conventional Age or % Modern* as per Stuiver and Polach, 1977, Radiocarbon 19, 355-363. This is based on the Libby half-life of 5568 yr with correction for isotopic fractionation applied. This age is normally quoted in publications and must include the appropriate error term and Wk number.
- Quoted errors are 1 standard deviation due to counting statistics multiplied by an experimentally determined Laboratory Error Multiplier of 1 .
- The isotopic fractionation, $\delta^{13}C$, is expressed as ‰ wrt PDB.
- Results are reported as *% Modern* when the conventional age is younger than 200 yr BP.


Atmospheric data from Stuiver et al. (1998); OxCal v3.8 Bronk Ramsey (2002); cub r:4 sd:12 prob usp[chron]
Wk13863 : 3778±42BP
68.2% probability
2290BC (68.2%) 2130BC
95.4% probability
2340BC (84.6%) 2110BC
2100BC (10.8%) 2030BC
Radiocarbon determination
4100BP
4000BP
3900BP
3800BP
3700BP
3600BP
3500BP
2600CalBC
2400CalBC
2200CalBC
2000CalBC
1800CalBC
Calibrated date



CAM ARC,
Cambridgeshire County Council,
15 Trafalgar Way,
Bar Hill,
Cambridgeshire,
CB3 8SQ

General Enquiries: 01954-204191
Fax: 01954-273376

http://www.cambridgeshire.gov.uk/archaeology